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Research Paper

Using AI to Support CLIL Teacher Language

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Abstract

This paper aims to identify different characteristics of content and language integrated learning (CLIL) teacher language and how AI and, more particularly, ChatGPT can support the language needed for use in CLIL teaching. The paper examines and analyses key writings in CLIL in order to identify the components of CLIL teacher language. The specification of the components of this language allows for specific language needs to be identified and has implications for the implementation of CLIL in terms of teacher training, teaching materials and other forms of teacher support. Subsequently, the authors propose how these types of CLIL teacher language can be supported through the use of AI.

Keywords: CLIL; Teacher Language; Teacher training; AI; ChatGPT.

1. Introduction

Considerable research attention has been paid to various aspects of content and language integrated learning (CLIL), for example, its rationale (Bruton, 2013; Dalton-Puffer, 2007), the evaluation of CLIL learning outcomes (Brady & Pinar, 2019; Brevik & Moe, 2012; Lorenzo, Casal & Moore 2010), or codeswitching in the CLIL classroom (Gierlinger, 2015). However, there has been little research into the features of teachers' use of language in the CLIL classroom. Language is, however, central to teaching CLIL as it is both vehicular in CLIL lessons and a lesson aim. It also seems to be an area in which many CLIL teachers have received little training (Ball, Kelly, & Clegg, 2015), although its proficient use is highly recommended for carrying out the teaching functions CLIL requires (e.g., Reierstam, 2015; Wewer, 2014).

The definition of CLIL used in this paper is that of Marsh (2002, p. 58), "a foreign language is used as a tool in the learning of a non-language subject in which both language and the subject have a joint role." The definition highlights that both content and language are the teaching and learning focus of CLIL. It also shows CLIL as being different to learning subject content through a foreign language (immersion) or learning a foreign language through subject content (some versions of EFL and soft CLIL). Other definitions of CLIL have been proposed (e.g., Ball, Kelly, & Clegg, 2016) and what is meant by CLIL has been and continues to be discussed in the literature (e.g., Costa & D'Angelo, 2011; Coyle & Meyer, 2021; Zemach, 2021). However, as Marsh's (2002) definition is well established in CLIL and underpins much work in it, it has been selected for this paper. How this definition is interpreted and implemented in practice varies considerably in different countries, schools, and between teachers. Broadly speaking, in practice, CLIL involves working towards the curricular aims of a subject area, for instance, history or biology, identifying the language features of that area, and enabling learners to learn them and/or through them.

However, there has been little attempt to define what might characterize the language needed by teachers in the CLIL classroom. In their 2015 article, Freeman et al. make the case that English for teaching is a "bounded form of English for specific purposes" (p. 129), which is distinct from general English proficiency. As this may also be the case for the language of CLIL, this article sets out to explore what language seems to be expected of CLIL teachers for them to be able to carry out their classroom activities. To do this, it examines and brings together the writings on CLIL teacher language of some key CLIL voices whose work has contributed strongly to the development of CLIL and informs much CLIL teacher training and research. Once these characteristics have been identified, to guide CLIL teachers wanting to master elements that compose CLIL teacher language, different ways of supporting it through artificial intelligence (AI)



will be proposed. Particularly, different uses of the application ChatGPT will be investigated and explained, as well as how these uses address some of the main characteristics and issues that CLIL teachers may encounter when using CLIL teacher language.

2. Literature Review

2.1. Uses and Roles of Language for CLIL Teaching

The literature on CLIL teacher language has focused in particular on recommendations for uses of language in CLIL teaching/learning and the characteristics of that language. In 2007, Coyle proposed that three kinds of language were needed to develop knowledge in the CLIL classroom: language of, for, and through learning. The language 'of' learning is defined across different CLIL contexts as "language needed for learners to access basic concepts relating to the subject theme or topic" (Coyle, Hood, & Marsh, 2010, p. 37). This language is made up of subject specific vocabulary, fixed expressions, and subject typical grammar. It also covers the degrees of formality/informality required by different subject areas, as well as the academic words that occur across subjects. It is up to the CLIL teacher to deliver and mediate this language to learners. Language 'for' learning refers to the language the teacher uses in the classroom to manage learning. This might include providing students with language frames to scaffold learning, giving instructions for carrying out an activity or giving feedback to students. It is also the language that learners use to develop and employ their learning skills such as setting learning goals, interacting with peers, interpreting information, and summarizing. As for language 'through' learning, it is the one used "to support and advance learners' thinking processes whilst acquiring new knowledge, as well as to progress their language learning" (pp. 37-38). Learners will struggle to express their understanding of their new learning, and the new meanings this requires. They will need emerging language through which to do this, so the teacher's role here is to support the learner to express these new meanings and fledgling concepts, particularly those involving higher order thinking skills and cognitive academic language proficiency (see CALP below).

Coyle (2007) focusses on uses of language, whereas Llinares, Morton, and Whittaker (2012) speak of roles for language in CLIL classrooms. These are subject literacies, classroom interaction, and language development. The first role, subject literacies, has to do with how language adopts particular genres and registers when teaching subject literacies. By 'genres,' the authors mean the text types typical of a subject area, and by 'register,' the grammar and vocabulary typical of a subject. The authors argue that "CLIL teachers need to identify the genre and register features typical of the subjects they teach if they are to help CLIL learners cope with the language demands of accessing subject knowledge" (p. 14). An overlap can be observed between these genres and registers and Coyle's (2007) language of learning.

The second role proposed is that of classroom interaction. This focusses on how teachers make use of instructional and regulative registers to promote effective learning. Instructional register refers to using language to talk about "key concepts and ideas related to the subject being studied" (Coyle, 2007, p. 16), whereas regulative register refers to using language to "manage and organize the social world of the classroom" (p. 16). The authors make a distinction between vertical and horizontal language in instructional register: Vertical language describes the academic register of a subject area, whereas horizontal language is the use of everyday language to talk about everyday life and experiences. During a class, teachers are likely to move between these registers. They might, for example, in a warmer at the start of a lesson, use a horizontal register to activate students' knowledge of a topic, then move to a vertical register to present information, and then make use again of a horizontal register to elicit personalized exemplification of the concepts in focus. Teachers will need to employ these registers, as will learners with the aid of language input from their teachers.

The third of their roles refers to learners' language development and shares features with Coyle's (2007) language of and for learning. The authors emphasize the teacher's role in promoting this development by advocating for an explicit, interventionist approach to language, which meets CLIL students' developmental needs but at the same time is integrated with relevant subject-matter content and objectives of the course.

A strong influence on defining and recommending language use in the CLIL classroom is provided by Cummins (1984). Although this author did not discuss CLIL directly, several of his proposals on classroom language use have been widely adopted in CLIL. For example, the idea that the teachers develop learners' higher order (HOTS) and lower order (LOTS) thinking skills, by making use of the framework below (see Figure 1) to plan, grade, and scaffold their lessons, selecting from the least to the most demanding according to their learners' needs:

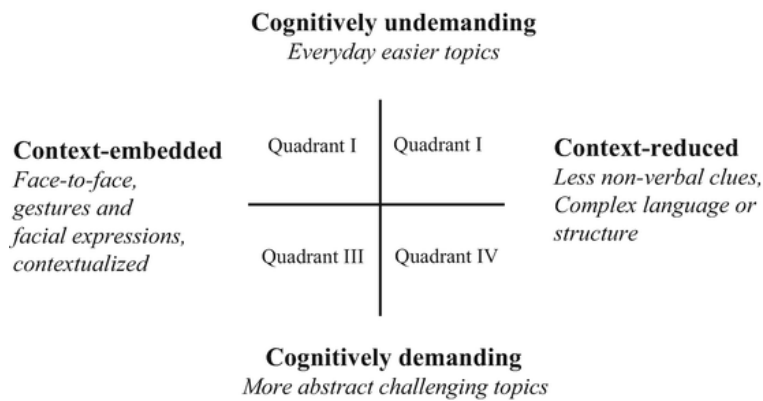


Figure 1. Cummins' Quadrants (Wilmes, 2017)

Cummins (1984) maintained that the ease or difficulty of expressing or understanding topics in the classroom is attributable to two factors: the complexity of the language through which they are expressed and the amount of cognitive demand they make on the learner. Language is made easier partly by the contextual clues that support it (e.g., gestures and visual aids) and the context in which it is produced. Without these contextual clues, it becomes more abstract and difficult to understand, especially when combined with greater use of complex structures. The above framework of quadrants shows two axes of difficulty/ease of language and cognitive demand, with each axis being able to combine with the different points on the other. For example, difficult concepts can be expressed through difficult language and vice versa. The framework can be used by a teacher to grade, sequence, and scaffold the learning of a subject or thinking skills, and to create differentiated activities catering for different levels of learner in a class. Similarly, it can support the learning of language, particularly the more context-reduced or abstract language often characteristic of subject related texts, especially in various written genres. Teachers and learners moving between these quadrants will employ both formal and informal registers of language, involving the use of basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP). Participants in the CLIL classroom cannot just use the everyday language needed to interact socially (BICS), they also need the language for formal academic learning that covers subject specific language, and the comprehension and expression of higher-level thinking skills such as evaluating, hypothesizing, synthesizing (CALP), as in Quadrant IV above. These are skills and language the learner requires to carry out academic activities such as listening to a lecture or presenting a paper. The language of CALP is often more linguistically complex than BICS as it includes features such as lengthy complex sentences, the use of impersonal structures, and academic vocabulary. In a CLIL class, it falls to the teacher to use and enable learners to access CALP and the thinking skills it expresses. Thus, CLIL teachers will find themselves needing to use both BICS and CALP and, depending on their teaching context, teach one or both of them.

2.2. Discourse for CLIL Teaching

Nikula, Dalton-Puffer, and Llinares (2013) add other elements to the characterization of CLIL teacher language. Their focus is on what they term *CLIL classroom discourse*. As a result of overviewing studies of CLIL, they identify the central discourse features of teacher talk as being: negotiation of meaning; error correction, particularly through the use of recasts; providing feedback; types of teacher question, particularly open/closed and display/referential; leading whole class discussions; providing comprehensible input; making use of explicit discourse markers in lectures; and directness in speech acts and IRF exchanges. The authors suggest that these features, though not necessarily generalizable, are likely to occur more frequently in CLIL classrooms than they would in the average EFL classroom. The authors conclude that “teaching content matter through a foreign language has the potential for rendering classroom discourse qualitatively different from contexts where language is the object of scrutiny” (p. 86), with the biggest differences in relation with students’ increased opportunities to be active participants in interaction and use the target language.

Another study by Nikula (2010) suggests that CLIL classes may be particularly interactive. In her study, she reports on the classroom discourse of a Finnish teacher in biology class where he teaches in English, a language he is said to speak well, and another biology class where he teaches in Finnish, his native language. The study notes differences in the teacher’s discourse between the two classes: When teaching in his mother-tongue, Finnish, the teacher’s language was

more monologic and less interactional, whereas in the CLIL class when teaching in English, he tended to use more dialogic and interactional discourse. The researcher posits this may be because the teacher does not have sufficient command of the formal register of English to use it extensively in monologues, and/or that in the CLIL classroom, the teacher may adopt a less authoritarian role as he works in collaboration with his learners to establish common ground. Likewise, another finding of the study is that the teacher uses fewer subtle interpersonal strategies for classroom management in the CLIL classroom. The author suggests this may be due to the teacher's lack of mastery of BICS which highlights that CLIL teachers' need to have at their disposal a range of teaching specific registers and functions.

2.3. Target Language Awareness

An important further aspect of CLIL teacher language mentioned in the literature is teacher language awareness (TLA). He and Lin (2018) argue that "effective teaching of academic content in an L2 requires a special kind of teacher knowledge that goes beyond the simple addition of content knowledge and knowledge about language" (p. 1). This knowledge is called TLA, which Thornbury (1997) defines as the knowledge that teachers have of the underlying systems of the language that enables them to teach effectively. TLA enables teachers to recognize features of language useful for CLIL (e.g., genres, functions, grammar and vocabulary typical of the subject area, or features which are integral to preparing and delivering lessons). Dale and Tanner (2012) provide an example of what TLA might involve for a CLIL science teacher: The language of science: describes and informs; uses factual, informative, technical language with no storyline; explains characteristics; uses long complex sentences with subclauses; and numbers and orders words among other things.

Andrews (2007) maintains that TLA acts as an enabler for lesson preparation and delivery. It provides confidence, time, freedom, control of teaching, increased autonomy and the ability to select and mediate teaching materials and classroom discourse. This echoes Lorenzo et al. (2005) who speak of the teacher's need for a different linguistic sensitivity to be able to adapt the contents to the new language and develop teaching procedures that make it possible for the student to learn.

2.4. Teacher Competences

Finally, we should draw attention to two frameworks describing CLIL teacher competences. The first was published in 2010 by Bertaux et al. (see the Appendix), outlining competencies the CLIL teacher is expected to acquire or develop, and including the following target language competencies: basic interpersonal communication skills, cognitive academic language proficiency, the language of classroom management, the language of teaching, and the language of learning activities.

The second framework, proposed in the European Framework for CLIL Teacher Education (Marsh et al., 2011), also identifies various target language competences (see Appendix, pp. 18-19), but focusses particularly on language awareness to enable the use of teaching strategies for integrating content and language teaching, for example, to deploy strategies to support language learning in content classes.

3. The Features of CLIL Teacher Language: A Summary

The above theoretical writings on the features of language for CLIL teaching are summarized in Table 1. It shows CLIL teachers/researchers and the main characteristics of CLIL teacher language identified to date in the literature:

Table 1. *CLIL Language Characteristics*

Within a Subject Specific Framework:	
Uses and Roles of Language	- of, for and through learning - for subject literacies, classroom interaction and language development, - BICS - CALP - classroom management
Features of CLIL Teacher Discourse	Negotiation of meaning; dealing with errors and giving feedback, particularly through recasts; use of different question types, particularly open and referential questions; leading whole class discussion; providing (comprehensible) input; use of explicit discourse markers to structure lectures

Teacher Language Awareness (TLA)	The knowledge that teachers have of the underlying systems of the language of their subject that enables them to teach effectively
Teacher Language Competences	Using Basic Interpersonal Communication Skills Using Cognitive Academic Language Proficiency Using the language of classroom management Using the language of teaching Using the language of learning activities Language to express strategies and other behaviours to link language and content learning

The summary covers formal, communicative, interactional and discursive features of language, as well as knowledge and use of language. The authors who identified these features all worked independently of one another, had separate focusses of study, and used terms they chose as appropriate. As a result, Table 1, almost inevitably, contains overlap, differing uses of similar terms and no indication of how the different components may relate to one another. Nevertheless, Table 1 strongly suggests how much richer and more varied language for CLIL teaching is than the knowledge of subject specific vocabulary, often cited in educational circles as being sufficient to teach CLIL. It also shows how different it is from general language proficiency. The language for CLIL teaching has specificities such as TLA and CALP which do not figure in general English nor in international general English exams and includes uses of language and specific registers which are typical of teaching CLIL. This difference is a reflection of situational differences in language use between the CLIL teacher and the general language user. As stated by Freeman et al., (2015), “general proficiency definitions ... do not address or specify the specific demands of language use in the classroom” (p. 131). Table 1 illustrates how true this may be of the CLIL classroom, as well. These authors speak of English for teaching. However, the table suggests there may be an English for CLILing, a use of language distinct from general proficiency.

Table 1 also shows that the range of CLIL teacher language is broad. This does not mean, however, that all CLIL teachers need to learn each feature. It may be true that all CLIL teachers may require ability in all the areas of language mentioned, but not all these areas will present all teachers with problems, as different teachers will have different gaps and needs. For example, native speaker subject teachers with little formal knowledge of language may lack TLA and knowledge of the formal register of CALP. Proficient L2 language teachers, on the other hand, may have little subject specific language including the CALP specific to their CLIL subject and related TLA. Neither group simply needs greater general language proficiency to carry out their work. Teachers may vary also in the roles they play in teaching CLIL, for example, in some CLIL teaching contexts, teachers may be either content teachers or language teachers rather than both, or may possibly be working in collaboration. This in turn shapes the range and use of language teachers employ (Dale, Oostdam, & Verspoor, 2018).

4. CLIL Context-Based Research

In this section, attention is drawn to studies which address the topic of CLIL teacher language in order to form an idea of how much it is acknowledged in the literature and also to begin to understand what effects it is believed to have on teachers’ classroom behavior and aims. In order to carry out the literature search, two databases were used: Web of Science and Google Scholar. The following key words were used: *CLIL language*, *CLIL teacher language*, *the language of CLIL*, and *CLIL teacher training*. Those studies written in English or Spanish addressing the topic of CLIL teacher language were included. For each manuscript, preliminary relevance was determined by reading the title and abstract of each document. If the content discussed any of the issues under investigation in this paper, the manuscript was further evaluated and assessed for its inclusion. For analysis purposes, the publication date was limited to the articles from 1995 to 2023. The first search yielded a total of 3,031 results. After reviewing the first 20 pages for each search, the key terms were redefined using *CLIL teacher language*, *the language of CLIL*, and *CLIL teacher training* in order to narrow down the results which specifically address the topic under investigation. A total of 685 results were obtained. After screening these studies through title and abstract reading, a total of 102 articles were deemed relevant for the present investigation. Exclusion criteria were based on the selection of studies which specifically dealt with the topic under investigation from a practical perspective. The two researchers performed parallel independent assessments of the manuscripts and discrepancies between the reviewers were discussed and resolved.

Subsequently, the selected articles were skimmed to further evaluate the quality and eligibility of the studies. The selection criteria were based on the following factors: peer-reviewed, high-quality research either from a practical or

theoretical perspective, relevance to the present study, CLIL contexts, and written in Spanish or English. In order to avoid publication bias, we did not only consider the articles and books that had been published but also the nonpublished literature showing empirical evidence of CLIL teacher language in classroom-based research. After a careful review, a total of 35 studies were selected, including one nonpublished dissertation and one online source. By doing forward and backward searches and through an analysis of the references in the selected papers, 5 more articles were included in the current investigation.

Thus, this section focusses on empirical evidence from classroom studies (see Table 2) in which teachers have shown awareness of the aspects of CLIL teacher language as well as its relationship to their performance in the classroom:

Table 2. *CLIL Teacher Language in Classroom-Based Studies*

	Context	Study
1. Teacher Awareness of Aspects of CLIL Teacher Language		
Features of Language	Spain	Montoya (2019); Pavón & Rubio (2010); Pena Díaz & Porto Requejo (2008), Pavon et al. (2014), Brady and Pinar (2019)
	Argentina	Banegas (2012)
	Italy	Helm & Guarda (2015); Lopriore (2020)
	East Asia	Butler (2005)
	The Netherlands	van Kampen, Meirink, Admiraal, & Berry (2018)
	Taiwan	Kao (2022)
	Croatia	Drljaca Margic & Vodopija-Krstanovic (2018)
	Hong Kong	Lo (2015)
Teacher Language Awareness (TLA)	Spain	Brady & Pinar (2019); Pavón & Rubio (2010); Lorenzo, Hengst, Hernández & Pavón (2005)
	Croatia	Drljaca Margic & Vodopija-Krstanovic (2018)
	Taiwan	Kung (2018)
	Hong Kong	He & Lin (2018); Lo (2015)
	Greece	Mattheoudakis & Alexiou (2017)
	Asia	Kao (2022)
2. Teacher Language and Classroom Performance		
Preparation of Teaching Materials and Resources	Spain	Montoya (2019)
	Argentina	Banegas (2012)
	Poland	Papaja (2013)
	Italy	Coonan (2007)
	Columbia	McDougald (2015)
	Spain	Moore and Lorenzo (2007)
	Austria, Finland, Spain, Holland	Morton (2013)
Psychological Effects	Spain	Pena Díaz & Porto Requejo (2008); Montoya (2019); Brady and Pinar (2015)
	Italy	Helm & Guarda (2015); Lopriore (2020)
	Croatia	Drljaca Margic & Vodopija-Krstanovic (2018)
	Columbia	McDougall (2015)
	Malaysia	Suk May Low (2016)
Application of Methodology	Colombia	McDougald (2015)
	Argentina	Banegas (2012)
	Spain	Pena Diaz & Porto Requejo (2008); Pavón et al. (2014), Brady and Pinar (2015), San Isidro & Lasagabaster (2019)
	Taiwan	Kung (2018)

	Hong Kong	He and Lin (2014)
	Austria	Gierlinger (2015)
Assessment Competences	Italy	Lopriore (2020)
	Slovakia	Pokrivčáková (2015)
	Lithuania	Vilkancienė & Rozgienė (2017)
	Spain	Otto and Estrada (2019)
	Italy	Coonan (2011), Lopriore (2020)
	The Netherlands	van Kampen, Meirink, Admiraal, & Berry (2018)
	Sweden	Reierstam (2015)
	Finland	Wewer (2014)

It can be observed that in relation to the features of language and TLA, some studies make clear reference to the properties of CLIL teacher language. For example, Matteoudakis and Alexiou (2017) in Greece report how teachers speak of the need to be aware of how language works. In a similar vein, van Kampen et al. (2018) report that most teachers are not explicitly aware of the typical forms of discourse used in their subject, aside from the target language equivalent of subject-specific terminology. Likewise, Helm and Guarda (2015) in Italy mention teachers' worries about their grasp of formal elements of English. Overall, there is awareness amongst some teachers of TLA, BICS and CALP. Some studies such as Pavon et al. (2014) and Brady and Pinar (2019) also speak of teachers' need for CALP. However, there was no mention of the awareness of the features of CLIL teacher discourse, of different registers and genres, nor explicit awareness of language for and through learning. This may reflect the fact that these terms are not widely known, that they may be considered part of BICS and CALP, or that research did not investigate them.

As for the effects of CLIL teacher language on teaching, most references are to materials preparation, psychological effects, methodological choices, and assessment. With reference to materials preparation, many CLIL studies point out that there is a general absence of appropriate materials and that teachers spend much time and effort in materials preparation (Banegas, 2017; Papaja 2013). Coonan (2011), speaking of Italian teachers finding and adapting materials, says "such work requires professional competence the teachers may not have, especially if such work needs to be done in the L2" (p. 628). Two studies that focus specifically on materials preparation for CLIL are those of Moore and Lorenzo (2007) and Morton (2013). The former looks at the processes teachers adopt to prepare materials. They describe these as simplification, elaboration, and discursification, saying that the processes overall involve grammatical and lexical simplification of texts, introduction of increased personalization, use of highlighting and emphasis in texts, avoidance of anaphoric, cataphoric reference and ellipsis, as well as altering the genres of texts. This, of course, is TLA. Morton, in his study of Austrian, Finnish, Spanish, and Dutch CLIL teachers, found that the teachers preferred to adapt materials or to make their own from scratch. They lament the amount of time spent finding materials, adapting them and preparing them in English. There is no mention of TLA. Nevertheless, it is clear that this is what is being referred to as one of the requirements for preparing CLIL materials.

Studies were also found indicating language constraints impacting teachers psychologically in the classroom. They note teachers' lack of self-confidence and spontaneity in the classroom, teachers' lowered feelings of self-efficacy, low self-esteem, and fear of not being in control (e.g., Diaz & Requejo, 2008; Helm & Guarda, 2015; Montoya, 2019).

Other studies focus on the impact on teacher methodology of the teacher not being fully at ease with required language. This includes restricted activity choices in the classroom (Brady & Pinar, 2019) and the use of compensatory methodological strategies (Pavon & Rubio, 2010). On the positive side, He and Lin (2018) in a case study carried out in Hong Kong report how a teacher grows in her adoption of a CLIL teacher role, as her TLA increases. This is a reminder that we are not dealing with a static situation. Interestingly, several studies suggest that a lack of training in CLIL methodology can lead to teachers having language problems or to being unaware of the kind of language suitable for teaching CLIL. For instance, Pavon (2014) speaks of the difficulty some teachers have in understanding the need to move from BICS to CALP, and Brady and Pinar (2019) of teachers' lack of awareness of the need for CALP to encourage HOTS. Finally, in relation to codeswitching, Gierlinger (2015) and San Isidro and Lasagabaster (2019) report that one of several reasons why teachers make use of codeswitching is their own language difficulties.

And finally in relation to teacher language and assessment in CLIL, the studies, which are few in number, tend to bring out three main points: (1) How CLIL teachers, especially subject teachers, do not feel confident enough about

their own language to assess their students or are not trained to do so (e.g., Otto & Estrada 2019; Vilkanciene & Rozgiene, 2017), (2) how content teachers do not regard it as their role to assess student language (e.g., Clegg, 2012; Gondova, 2012), and (3) whether to attribute student performance to content or language or both (e.g., Otto & Estrada, 2019).

It is worth noting that the types of teachers reported on in the classroom studies varied considerably: content vs language teachers, secondary vs tertiary, trained vs untrained teachers, differing levels of SL/FL proficiency. Worth noting too is that sample sizes in these studies are limited. In fact, context-based research into CLIL teachers' use of language and its impacts is underresearched and geographically restricted.

5. ChatGPT to Support CLIL Teacher Language

The previous sections of this paper have identified the characteristics of CLIL teacher language as well as the related language teaching issues. This section will address how the use of AI, and more particularly, ChatGPT can help support teachers during their language classes in CLIL contexts.

AI has already been used in different language learning situations, for instance, the use of language tutoring systems has been common in the last 30 years (Kannan & Munday, 2018) as it is able to adapt to students' needs and provide individualized learning. Likewise, the use of robots, voice recognition functions, translation programs, or language learning apps have also been a common part of AI use in language learning classes (see Andujar, 2023). However, the use of AI, and more particularly ChatGPT, is proposed here to address some of the main problems and concerns previously described about CLIL teacher language.

The inherent characteristics of the application give teachers the possibility of practicing some of the main features of CLIL teacher language. For example, as described in Table 1, negotiations of meaning, dealing with errors, and providing feedback are typical characteristics of CLIL teacher language. In this case, the application is able to provide corrections of grammar and vocabulary errors, as well as grammar explanations about different tenses used, so CLIL teachers can make use of this functionality in order to provide feedback to either written or spoken input. This offers great help, particularly to those teachers who do not have a language teaching background and require some extra support to conduct their CLIL classes. Likewise, this can help raise the TLA of those teachers who still struggle to identify specific elements of such modules such as the genres, functions, grammar, and vocabulary typical of the subject. An example of this correction and feedback could be writing an e-mail and asking the application to correct the mistakes. The app will automatically provide a version of the text, fixing the different errors in the original text.

The use of ChatGPT is also very useful to help develop another characteristic of CLIL teacher language which is the language of learning. In order to provide an example of this, we could ask the application: Can you provide vocabulary to teach a law class at B1 level? Automatically, the application provides 25 terms which are typically found in legal contexts. Subsequently, we ask the application to provide further legal vocabulary and 20 more terms are added and explained in the app. We can also ask the application to role play a legal case, for example, the recent one between Amber Heard and Johnny Depp. The application provides a summary of the legal proceedings which took place during the case as well as the different allegations, media and public opinion and impact on their careers. All these elements may help teachers prepare common and specialized language, for example, at a law university class in which the topic of domestic abuse is part of the subject content.

Furthermore, other characteristics of CLIL teacher language such as teacher language competences can also be researched in the application. For example, through the application, the user can obtain information about the use of interpersonal communication skills, classroom management language, or the language used in certain tasks. Probably, in order to polish that language, the application cannot directly help the students and they may require additional help from a supervisor. However, the application can work as a starting point in order to get information on how to improve these competences and which factors to take into consideration.

As for some of the teaching issues identified above found in context-based research, tools like ChatGPT can also become a very useful support. For example, some teachers can struggle with the preparation of teaching materials and resources. To give an example, we can ask the application to provide a quiz with nursing terms and their definitions. Automatically, the application generates a task to put into practice nursing terms:

1. What does IV stand for in nursing? a. Intraocular Vision b. Intravenous c. Internal Vibration d. Intestinal Volume

2. What is the purpose of SBAR in nursing communication? a. Standardized Blood Analysis Report b. Situation, Background, Assessment, Recommendation c. Systematic Breathing Assessment Routine d. Structured Bedside Assistance Review
3. In nursing, what does HPI stand for? a. History of Patient Information b. High Priority Incident c. Health Progress Indicator d. History of Present Illness
4. What is the primary goal of patient advocacy in nursing? a. Ensuring patient confidentiality b. Promoting the patient's best interests c. Administering medications d. Conducting physical assessments
5. What does CBC refer to in the context of nursing? a. Central Blood Circulation b. Complete Blood Count c. Cardiovascular Bypass d. Continuous Breathing Cycles
6. What is the purpose of informed consent in healthcare? a. Authorizing medical procedures without patient knowledge b. Ensuring patients are well-informed about treatment options c. Conducting medical interventions without patient permission d. Monitoring patient vital signs

Thus, just with a few prompts, a teacher can start creating teaching materials for a CLIL nursing class. Furthermore, that teacher can also role play nursing scenarios as well as obtain recommendations on which materials to use in a CLIL nursing class. Likewise, nursing texts and cases are available to be practiced during in-class time with the help of a teacher as well as clinical documentation practice. In other words, when using the right prompts, there are a lot of possibilities to find useful materials to be used in CLIL classes as well as to prepare different terms, tasks, and scenarios for them.

Another factor identified in the classroom-based CLIL research above was the lack of confidence of some CLIL teachers to assess to students' language competence. The application can support teachers in this respect by, for example, allowing teachers to insert students' texts in the app and asking the application to correct the mistakes. This would highlight those areas in which students make errors, giving a nonlanguage teacher a better idea of students' language competence in the subject. This would not, however, solve the dilemma a CLIL content teacher can meet when evaluating students, and that is whether to attribute student performance to content or language, or both. Nevertheless, it will definitely shed some light on students' language competence.

6. Conclusion

This paper has carried out an identification of the component parts of English for CLILing in which it can be observed that this type of language may be distinct from general English proficiency. In this sense, identifying the characteristics of CLIL teacher language can help address some of the main problems and concerns CLIL teachers have when delivering classes in a second or foreign language. Among these problems, not only language proficiency becomes an element where teachers may find difficulties, but also specific elements such as CLIL teacher language discourse, uses and roles of the target language, target language awareness, and teacher language competences. In the same manner, much empirical research in CLIL has highlighted situations in which teachers have shown awareness of the aspects of CLIL teacher language as well as its relationship to their performance in the classroom. In this context, it seems fundamental to identify the characteristics of CLIL teacher language in order to address teacher needs appropriately in CLIL classrooms. Nevertheless, the characteristics of CLIL teacher language are not the only factor which CLIL teachers may find problematic. Other elements that CLIL teachers have to face are: lack of teaching resources and materials, psychological effects such as lack of self-confidence or spontaneity, problems in the application of a CLIL methodology, or the assessment competences of teachers not proficient in the target language.

In this context, and once the characteristics of CLIL teacher language and teacher problems in CLIL contexts are identified, applications such as ChatGPT can help bridge the gap between teacher language proficiency and CLIL teacher language characteristics and needs. This type of technology can help foster the skills and competences needed by teachers as well as facilitate class preparation, class management and the selection of language materials among other teacher needs in CLIL contexts. Likewise, it can also help teachers who are not language teachers to further identify the language competence of their students and provide support when there is no access to a language specialist in CLIL contexts, becoming a tool that can be used ubiquitously to facilitate teacher competences. The inherent characteristics of mobile devices such as the possibility of using them in different places and at different times, together with the potential

of new technological means such as AI become a powerful tool to improve many of the processes carried out in CLIL classes.

Finally, the identification of the characteristics of CLIL teacher language can provide a guide for CLIL teacher training and development, for assessment of CLIL teachers, for CLIL materials, for language exams for CLIL teachers, and possibly for teacher recruitment. Thus, different institutions, not only in higher education but also in primary and secondary education where there is a rise of bilingual schools, need to consider possible solution including AI to support CLIL teachers at all levels.

Conflict of Interest

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Appendix

http://tplusm.net/CLIL_Competerences_Grid_31.12.09.pdf

<https://www.ecml.at/Portals/1/documents/ECML-resources/CLIL-EN.pdf?ver=2018-03-21-153925-563>

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