

Meeting the training needs of CLIL educators? An analysis of master's programmes in bilingual education

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ABSTRACT: This study evaluates whether Master's in Bilingual Education (MBEs) programmes in Spain effectively meet the needs of Content and Language Integrated Learning (CLIL) teachers. Using Pérez Cañado's (2015a, 2018) framework of seven core CLIL teacher competences, the study conducts a deductive content analysis of 19 MBEs from public and private institutions. The findings reveal that most MBEs address at least four of the seven competences, with nearly 90% covering six or seven competences in their programme-level competences. Pedagogical, linguistic, scientific knowledge and reflective and developmental competences are particularly well-represented in the masters' programmes, while interpersonal, organisational, and collaborative competences receive less attention. These results emphasise the need for greater focus on soft skills like collaboration and interpersonal communication. The study highlights the importance of aligning MBE curricula with CLIL teacher competences to better prepare educators for bilingual programmes, advocating for enhanced professional development in these areas.

Keywords: bilingual education, teacher training, CLIL teacher competences, higher education, curriculum design.

Un análisis de los programas de máster en educación bilingüe ¿Responden a las necesidades formativas de los docentes AICLE?

RESUMEN: Este estudio evalúa si los programas de Máster en Educación Bilingüe (MBEs) en España satisfacen las necesidades de los docentes de Aprendizaje Integrado de Contenidos y Lenguas Extranjeras (AICLE). Se ha adoptado el marco de siete competencias clave del docente AICLE propuesto por Pérez Cañado (2015a, 2018) para realizar un análisis de contenido deductivo de 19 MBEs en instituciones públicas y privadas. Los resultados muestran que la mayoría de los MBEs aborda al menos cuatro de las siete competencias, y casi el 90% cubre seis o siete categorías del marco en las competencias a nivel de programa. Las competencias metodológica, lingüística, del conocimiento científico, así como la competencia para la reflexión y el desarrollo están bien representadas en estos másteres, mientras que las competencias organizativa, interpersonal y colaborativa reciben menos atención. Estos resultados destacan la necesidad de dar mayor énfasis a habilidades blandas como la colaboración y la comunicación interpersonal. El estudio subraya la importancia de alinear los programas de MBEs con las competencias específicas de AICLE para mejorar la preparación de los docentes en educación bilingüe, y aboga por un mayor desarrollo profesional en estas áreas.

Palabras clave: educación bilingüe, formación del profesorado, competencias del profesor AICLE, educación superior, diseño curricular.

1. INTRODUCTION

Content and Language Integrated Learning (CLIL) is a transformative approach to bilingual education that integrates language and content instruction, using language as a medium of communication in academic settings to promote both communicative competence and meaningful learning (Lorenzo, 2007; Pérez Cañado, 2015b). Described as a “pragmatic European solution to a European need” (Marsh, 2002), CLIL emerged in the 1990s amid Europe’s efforts to promote multilingualism and economic cohesion and to support professional and cultural exchanges (European Commission, 1995; Marsh et al., 2010; Renau Renau & Mas Martí, 2019).

Now integrated into compulsory education in 35 of 39 European countries, CLIL adapts to each nation’s context (European Parliament, 2023), though legislative support varies significantly across nations (Korbek & Wolf, 2022). In Spain, CLIL has grown significantly, bolstered by regional educational policies addressing the linguistic diversity of autonomous communities (Custodio Espinar, 2019; Palacios-Hidalgo et al., 2022; Sanz de la Cal et al., 2023). This rapid expansion has necessitated professional reconfiguration, compelling teachers to quickly adapt their instructional practices and professional identities (Pérez Cañado, 2018; Pons Seguí, 2020). Despite promise in accommodating linguistic and intercultural teaching (Pérez Cañado, 2024), systematic reviews highlight persistent hurdles, such as insufficient teacher training and increased workload (Szczesniak, 2023).

Teaching in a CLIL programme challenges teachers’ confidence, requiring meticulous lesson planning in a foreign language and initially limiting student interaction (Iwaniec & Halbach, 2024). The multifaceted demands require teachers to simultaneously navigate linguistic proficiency, CLIL-specific methodological skills, and learner-centred ICT integration (Galán-Rodríguez et al., 2024; Gutiérrez Gamboa & Custodio Espinar, 2021). This shift demands a critical reassessment of traditional practices to meet CLIL’s demands (Bonnet & Breidbach, 2017). Various training programmes, including Masters in Bilingual Education (MBEs), offered by Higher Education Institutions, have been developed to address these needs (Custodio Espinar, 2019; Custodio Espinar & García Ramos, 2020; Fernández-Costales & Lasagabaster, 2024; Moate, 2023).

Despite CLIL’s significant expansion in Spain, there remains a research gap in systematically evaluating Masters in Bilingual Education (MBEs) programmes. The rapid and often uneven implementation of CLIL has created an urgent need to assess whether current teacher training adequately prepares educators for the complex linguistic, pedagogical, and methodological challenges of CLIL classrooms. This study addresses this critical gap by comprehensively analysing the alignment between MBE programme competences and their programme contents, examining how well these elements match the specific requirements of effective CLIL teaching. The specific objectives of this study are:

- O1. To analyse the content of the subjects and the competences offered in MBEs to determine the frequency in their alignment with the specific CLIL teacher competences.
- O2. To evaluate the content of the subjects and the competences offered in MBEs to assess their coverage of the CLIL teacher competences.

2. THEORETICAL FRAMEWORK

2.1. Training CLIL teachers: a cornerstone for the success of CLIL

High-quality training is essential for the effectiveness of CLIL, as it equips teachers with the necessary linguistic and pedagogical competences (Banegas, 2012; Lasagabaster & Ruiz de Zarobe, 2010; Polyakova & O'Callaghan, 2023), and ensures the programme's sustainability and growth (Coyle, 2010; Coyle et al., 2010). Beyond skill acquisition, such training plays a pivotal role in boosting teachers' confidence and fostering their self-efficacy in managing CLIL-specific tasks (Custodio Espinar, 2019). However, the link between teacher perceptions, experience, and CLIL training highlights a pressing need for well-structured professional development (García Abellán, 2022).

The varied teacher profiles involved in CLIL instruction, including language teachers, content teachers and L1 teachers (Salaberri Ramiro, 2010), as well as those with or without prior training, native or non-native English speakers, and classroom assistants (Bentley, 2010), require different training needs. This diversity complicates the design of effective training programmes. While initiatives like the master's programmes at the University of Alcalá and Pablo de Olavide (Halbach, 2010; Madrid Manrique & Madrid Fernández, 2014), along with other training proposals (Ball & Lindsey, 2010; Delicado Puerto & Pavón Vázquez, 2016; Montijano Cabrera & Leggott, 2014; Pérez Murillo, 2019), demonstrate an effort to address these complexities, they often fail to deliver tailored solutions. As there is no one-size-fits-all solution, current training programmes may often fall short of addressing these teachers' specific needs (Custodio Espinar, 2019). Fine-tuning these initiatives to focus on practical, context-sensitive strategies could mitigate these shortcomings, enhance their effectiveness (Delicado Puerto & Pavón Vázquez, 2016) and move away from palliative solutions towards systemic, comprehensive approaches (Custodio Espinar, 2019).

2.2. Defining CLIL Teacher Competences

The European Qualifications Framework defines competence as “the demonstrated ability to use knowledge, skills, and personal, social, and/or methodological abilities, in work or study situations and in professional and personal development” (European Commission, 2008), which emphasises the importance of integrating multiple areas of expertise to achieve professional proficiency. In bilingual education, this integration is vital. As Marsh et al. (2010) argue, CLIL combines the teaching of both subjects simultaneously, requiring teachers to develop expertise in the content area, language proficiency, pedagogical best practices, and the ability to integrate these effectively within educational settings. Given these complexities, a clear framework of CLIL teacher competences is crucial for providing structured and effective training. Several international and national proposals have been established to guide the development of these competences, although the context-dependent nature of CLIL implementation may complicate the creation of a universal framework.

2.2.1. *International proposals*

The frameworks proposed by Hansen-Pauly et al. (2009), Marsh et al. (2010), and Bertaux et al. (2010) collectively provide a rich foundation for understanding and developing the competences required for effective CLIL teaching. Hansen-Pauly et al. (2009) identify eight key competences that form a solid foundation for student-centred teaching. Their emphasis on understanding learner needs and differences, multimodal interaction, and fostering collaboration between subject and language specialists is particularly relevant for CLIL's integrative approach. However, while the framework acknowledges context and culture as pivotal, it provides limited guidance on how teachers can operationalise these aspects in diverse and dynamic classroom settings. For example, while recognising learner differences is a priority, the framework could better address strategies for tailoring instruction to multilingual and multicultural contexts —a critical challenge in many CLIL programmes.

Marsh et al. (2010) expand the scope of CLIL competences by offering a more comprehensive perspective that includes key areas such as personal reflection for cognitive, social, and affective growth, content and language awareness, and research-driven improvement. Yet, its reliance on general descriptors, such as managing classrooms to integrate content and language, leaves room for interpretation and may lack the specificity needed for practical implementation. While the framework advocates collaboration with stakeholders, it does not sufficiently address systemic barriers, such as varying institutional priorities, that may hinder this collaboration.

Bertaux et al. (2010) present a comprehensive framework for CLIL teacher competences, by dividing competences into foundational ('Underpinning CLIL') and practical ('Setting CLIL in Motion') categories. The former focuses on the foundational skills for establishing a CLIL programme, whereas the latter addresses practical implementation skills. The inclusion of competences like Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency (CALP) demonstrates an understanding of the dual language and content focus inherent to CLIL. Their emphasis on tailoring CLIL to local contexts and aligning it with institutional values draws attention to the importance of contextual relevance, making the framework particularly adaptable.

2.2.2. *National frameworks*

In Spain, various frameworks have been proposed to address the specific needs of CLIL teachers. Lorenzo et al. (2011) point out the importance of aligning teacher competences with curricular requirements, offering a comprehensive set of competences: interpersonal, pedagogical, subject knowledge and teaching methods, organisational, collaboration, and reflective and professional development. This framework could benefit from a deeper exploration of the practical challenges in implementing these competences, especially in diverse classroom environments. Similarly, Madrid Manrique and Madrid Fernández (2014) expand upon Lorenzo et al.'s (2011) and Marsh et al. (2010) works by incorporating cognitive, social, and affective dimensions, though they primarily focus on theoretical competences without delving into how these are operationalised in real-world settings.

Distilled from both national and international taxonomies, Pérez Cañado (2015a, 2018) offers a comprehensive framework of seven core competences for CLIL teachers, which

stands out for its balance between breadth and focus, offering clear, actionable categories that align closely with the multifaceted demands of CLIL:

- Linguistic competence: Mastery of the language of instruction and an understanding of cultural nuances.
- Pedagogical competence: Proficiency in using a variety of teaching methodologies and assessment techniques.
- Content knowledge competence: In-depth understanding of the subject matter being taught.
- Organisational competence: Ability to manage classroom dynamics and implement effective learning strategies.
- Interpersonal skills: Capacity to build positive relationships with students and colleagues.
- Collaborative competence: Skills in working with other teachers and participating in professional learning communities.
- Reflective and developmental competence: Commitment to continuous improvement through self-evaluation and professional development.

For the purposes of this study, the latter framework will be adopted to analyse MBEs' programmes, serving as a basis for evaluating the content and competences they address. As noted by Kim and Graham (2022), this framework ensures "that future studies on CLIL teachers' needs and professional development account for all competences needed" (p. 14).

3. RESEARCH METHOD

This study adopts a qualitative research approach, adhering to the principles of deductive content analysis (Hsieh & Shannon, 2005; Vaismoradi et al., 2013) to examine the content and competences of MBEs' programmes. This structured and systematic method is based on the CLIL teacher competences framework proposed by Pérez Cañado (2015a, 2018), starting with an existing theoretical framework to guide the analysis.

3.1. Sample

To determine the sample, we analysed all official MBEs offered in the academic year 2023-2024 by Spanish universities at MECES¹ Level 3 (EQF Level 7), across both public and private institutions. In Spring 2024, data was sourced from the Register of Universities, Centres, and Qualifications (RUCT, <https://www.educacion.gob.es/ruct/home#>), maintained by the Ministry of Education, Culture, and Sport. Using the search terms bilingual (22), integrated learning (2), bilingualism (1), and integrated teaching (1), we identified 26 postgraduate

¹ The Spanish Qualifications Framework for Higher Education (MECES), defined by Royal Decree 96/2014, outlines four qualification levels based on learning outcomes: Level 1 for advanced vocational training, Level 2 for bachelor's degrees, Level 3 for master's degrees, and Level 4 for doctoral studies. In the European context, MECES Levels 2, 3, and 4 correspond to EQF Levels 6, 7, and 8, respectively.

programmes. After excluding duplicate listings, programmes closing (3), discontinued (2), and one double-strand programme with different content focuses, the final sample comprised 19 programmes. These are offered by 23 universities (public 47.4%, private 52.6%) across nine autonomous communities (52.9% of the total regions), as shown in Table 1.

Table 1. *Universities offering MBEs in Spain, their status and Autonomous Communities (Regions)*

UNIVERSITY	LEGAL STATUS	AUTONOMOUS COMMUNITY
U. Rey Juan Carlos (URJC)	Public	Madrid
U. Nebrija (Nebrija)	Private	Madrid
U. Francisco de Vitoria (UFV)	Private	Madrid
U. Camilo José Cela (UCJC)	Private	Madrid
U. Autónoma de Madrid (UAM)	Public	Madrid
Universidad a Distancia de Madrid (UDIMA)	Public	Madrid
U. Alfonso X el Sabio (UAX)	Private	Madrid
U. Pablo de Olavide de Sevilla & U. Internacional de Andalucía (UPO-UNIA)	Public	Andalucía
U. de Jaén & U. de Córdoba (UJA-UCO)	Public	Andalucía
U. de Las Palmas de Gran Canaria & U. de La Laguna (ULPGC-ULL)	Public	Islas Canarias
U. del Atlántico Medio (UNAM)	Private	Islas Canarias
U. Europea de Canarias (UE)	Private	Islas Canarias
U. CEU Cardenal Herrera (CEU UCH)	Private	Valencia
U. Internacional de Valencia (VIU)	Public	Valencia
U. de Oviedo (UNIOVI)	Public	Asturias
U. de Castilla - La Mancha (UCLM)	Public	Castilla-La Mancha
U. de Extremadura (UEX)	Public	Extremadura
U. Internacional de la Rioja (UNIR)	Private	La Rioja
U. Católica de Murcia (UCAM)	Private	Murcia

After selecting the sample of MBEs, the curricular elements, including the competences and subjects (contents) for each MBE, were compiled using information from the RUCT. This process yielded a total of 229 subjects and 539 competences (general, cross-curricular, and specific).

3.2. Procedure and analysis

To facilitate the analysis, an Excel data matrix was created, capturing the total subjects and competences for each MBE, along with details such as the issuing university, region, and legal status. The coding of subjects and competences followed a constrained matrix based on Pérez Cañado's (2015a, 2018) CLIL teacher competences framework, which includes seven competences (see 2.2.2.): linguistic, pedagogical, content knowledge, organisational, interpersonal, collaborative, and reflective and developmental practice. In classifying programmes'

competences and subjects across the framework's categories, a primary content-driven approach was adopted. Recognising that professional development rarely fits neatly into discrete categories, MBEs' competences and subjects were systematically mapped to the competence dimension representing their predominant focus to ensure transparency.

Through a preliminary analysis of the MBEs' competences and contents, the original definitions of CLIL teacher competences, as provided by Pérez Cañado (2015a, 2018), were refined and expanded, ensuring they became more comprehensive and better aligned with the specific context and requirements of these master's programmes. Both the original and refined competences are detailed in Table 2.

Table 2. *Rubric used to classify CLIL teacher competences*

CATEGORY OF CLIL TEACHER COMPETENCES	ORIGINAL DEFINITION	REFINED DEFINITION
Linguistic	Proficiency in the use of the language, it also encompasses intercultural aspects and focuses on both BICS for social interaction and CALP for academic purposes.	Proficiency in using the language, ability to teach in English, and intercultural understanding are emphasised. The focus includes both BICS for social interaction and CALP for academic purposes, highlighting the importance of integrating intercultural aspects into effective language communication.
Pedagogical	Familiarity with student-centred methodologies, diversified learning environments and resources (notably Information and Communication Technologies, ICT), and the implementation of transparent, holistic, and formative evaluation techniques.	Knowledge and implementation of student-centred methodologies, diversified learning environments and resources (notably ICT), attention to diversity, lesson planning, curriculum design, and evaluating both language and content, using transparent, holistic, and formative evaluation techniques to ensure effective educational outcomes.
Scientific knowledge	A comprehensive grasp of both subject-specific content and the theoretical foundations of CLIL.	A thorough understanding of subject-specific content and the theoretical foundations of CLIL, including language acquisition, bilingual education models, the roles of educational agents, international education systems, cognitive development in bilingual contexts, and the cultural and historical contexts of English-speaking cultures.
Organisational	Ability to deploy various groupings and learning modalities, along with effective classroom management and control strategies.	The ability to manage and organise bilingual education settings, including knowledge of relevant legislation at local, regional, national, and international levels. This competence includes planning personal work, designing concept-based curricula, applying quality educational management models, and understanding organisational frameworks across educational systems while ensuring compliance with current educational legislation in bilingual and multilingual contexts.
Interpersonal	Capacity to create a supportive classroom atmosphere where students feel safe to participate and take risks.	The ability to create and maintain a supportive, inclusive classroom where students feel safe to participate and take risks. This competence includes social skills, promoting creativity, equality, resourcefulness, ethical behaviour, sustainability and social responsibility. It also involves understanding the educational roles of family and community.

Collaborative	Ability to collaborate and work in teams with colleagues.	The ability to collaborate and work effectively in teams within both disciplinary and interdisciplinary contexts. This competence includes establishing communication networks, coordinating teaching programmes, integrating into teams efficiently, and demonstrating leadership, motivation, active participation, empathy, and respect for diversity. It also involves social aptitude, negotiation skills, and a commitment to cooperation, quality, and the free exchange of ideas in academic and broader societal contexts.
Reflective and developmental	Commitment to lifelong learning, conducting (classroom) research / reflection and staying updated with the latest CLIL research and developments.	A commitment to lifelong learning and professional growth through ongoing research, critical reflection, and evaluation. This competence includes preparing and defending scholarly works like a Master's thesis, critically analysing educational institutions and curricula, and staying current with developments in CLIL research and practices.

Note: Adapted from Pérez Cañado (2015a, 2018)

The coding process was conducted with the assistance of the Generative Artificial Intelligence tool ChatGPT-4 (Álvarez-Álvarez & Falcon, 2023), with the temperature set to 0.1 and the Top P set to 1. The model's instructions stated: "Classify each MBE subject / competence according to the following competences required for CLIL (Content and Language Integrated Learning) teachers", followed by the categories outlined in the rubric (Table 2). Subsequently, a list of subjects / competences was provided for classification.

The agreement of coding was assessed using the ReCal3 tool (Freelon, 2010), two researchers independently coded a random 10% selection of the sample for both MBEs subjects and competences (Álvarez-Álvarez & Falcon, 2023; Russ, 2018). After coding the data, descriptive statistical analysis of the results was conducted using Jamovi statistical software (v.2.3.26).

4. RESULTS

4.1. Coding reliability

The coding reliability for MBEs' subjects, assessed by ChatGPT and the two researchers, achieved an overall percentage agreement of 75.36%, with a Krippendorff's Alpha of 0.69, suggesting substantial agreement (Hughes, 2021, p. 417). For MBEs' programme competences, the coding process yielded an overall percentage agreement of 85.18% and a Krippendorff's Alpha of 0.82, indicating near-perfect agreement (Hughes, 2021, p. 417).

4.2. Descriptive analysis

4.2.1. Subjects in MBEs

Table 3 presents the distribution of subjects within MBEs according to the CLIL teacher competences they aim to develop, alongside their frequency and percentage within the total sample. Examples of subjects from MBEs illustrate how these competences are integrated into the curricula. The distribution reveals the prominence of scientific knowledge (30.1%),

pedagogical competence (27.1%), and linguistic competence (18.3%) as the most emphasised areas. Reflective and developmental competence also receives attention (13.1%), while organisational competence (8.3%), interpersonal skills (2.6%), and collaborative competence (0.4%) are less represented.

Table 3. *Frequency of each category of CLIL teacher competence in MBEs' subjects*

CATEGORY OF CLIL TEACHER COMPETENCES	FREQUENCY	PERCENTAGE	REPRESENTATIVE SUBJECTS IN MBES
Linguistic	42	18.3	Communicative skills for teaching in CLIL centres: C1 level
Pedagogical	62	27.1	Methodology, resources, and assessment for Bilingual Education
Scientific knowledge	69	30.1	Psycholinguistics of second language learning
Organisational	19	8.3	Organisation and features of Spanish bilingual schools
Interpersonal	6	2.6	Inclusive education and personalised learning in the classroom
Collaborative	1	0.4	Internship
Reflective and developmental	30	13.1	Master's dissertation

Coverage-wise, 47.4% of the MBEs address five CLIL teacher competences (URCJ, UCLM, UPO-UNIA, UJA-UCO, NEBRIJA, UNIR, UFV, UCJC, UAX), while 36.8% cover four competences (UNIOVI, VIU, UPLGC-ULL, UCAM, CEU UCH, UEU, NAM). A smaller proportion (10.5%) includes six competences (UEX, UAM), and only 5.3% of the programmes cover all seven competences (UDIMA).

A closer examination of the individual competences further illustrates the extent of coverage across the MBEs. Table 4 shows that pedagogical, scientific knowledge, and reflective and developmental competences are fully covered (100%) across all MBEs. Linguistic (84%) and organisational (73.7%) competences are also highly represented, in the programmes, while interpersonal and collaborative competences are less frequently covered, with 21.1% and 5.3%, respectively.

Table 4. *Coverage of each CLIL teacher competence in MBEs' subjects*

CATEGORY OF CLIL TEACHER COMPETENCES	ALL MBES (%)	MBES COVERING CLIL TEACHER COMPETENCES
Linguistic	84	URCJ, UCAM, UCLM, CEU UCH, UEX, NEBRIJA, UPO-UNIA, UNIOVI, UJA-UCO, VIU, UFV, UCJC, UPLGC-ULL, UAM, UAX, UDIMA
Pedagogical	100	ALL MBES IN THE SAMPLE
Scientific knowledge	100	ALL MBES IN THE SAMPLE
Organisational	73.7	URCJ, UCLM, UEX, NEBRIJA, UPO-UNIA, UJA-UCO, UNIR, UFV, UCJC, UE, UAM, UNAM, UAX, UDIMA
Interpersonal	21.1	UEX, UNIR, UAM, UDIMA
Collaborative	5.3	UDIMA
Reflective and developmental	100	ALL MBES IN THE SAMPLE

4.2.2. Programme competences in MBEs

Table 5 shows the frequency of each CLIL teacher competence category based on the rubric, illustrating their prominence within the sample. A sample competence is included for each category to clarify its scope. The most prevalent competences are pedagogical (24.3%), reflective and developmental (17.4%), and linguistic (17.0%). Scientific knowledge (16.3%), interpersonal communication skills (10.9%), and organisational competence (9.2%) are also important, while collaborative competence (4.9%) is the least represented.

Table 5. *Frequency of each category of CLIL teacher competence in the MBE programmes' competences*

CATEGORY OF CLIL TEACHER COMPETENCES	FREQUENCY	PERCENTAGE	REPRESENTATIVE PROGRAMMES' COMPETENCES IN MBEs
Linguistic	92	17.1	To master the productive and receptive skills of the language in the bilingual classroom.
Pedagogical	130	24.1	Develop and apply didactic methodologies adapted to the diversity of students in a bilingual environment.
Scientific knowledge	87	16.1	Acquire basic theoretical knowledge to underpin appropriate and informed teaching practice in the context of bilingual education.
Organisational	49	9.1	Understand current legislation and the organisation of CLIL centres.
Interpersonal	59	10.9	Use advanced interpersonal communication skills in interaction within the bilingual classroom.
Collaborative	27	5.0	Cooperate with others to achieve a shared goal, actively participating, showing empathy, and practising active listening and respect for all members.
Reflective and developmental	95	17.6	Analyse, reason critically, think creatively, and evaluate their own learning process by discussing their own and others' ideas assertively and structurally.

In terms of programme-level competences, a significant 89.4% of the MBEs cover six or seven CLIL teacher competences, with 52.6% addressing all seven (UEX, NEBRIJA, UPO-UNIA, UJA-UCO, UNIR, UCJC, ULPGC-ULL, UE, UAM, UDIMA) and 36.8% covering six competences (URCJ, UCAM, UCLM, UNIOVI, VIU, UFV, UNAM). Only a small portion of programmes (10.6%) cover three (5.3%, UAX) or five (5.3%, CEU UCH) competences, underscoring the strong focus on comprehensive competence integration across most MBEs.

Table 6 shows the coverage of each CLIL teacher competence across MBE programmes. Linguistic and reflective and developmental competences are fully covered (100%) across all MBEs, indicating their importance in CLIL teacher preparation. Pedagogical and scientific knowledge competences follow closely, covered in 94.7% of programmes. Organisational and interpersonal competences are included in 84.2%, while collaborative competence, though still significant, is the least represented at 73.7%.

Table 6. *Coverage of each CLIL teacher competences in MBE programmes' competences*

CATEGORY OF CLIL TEACHER COMPETENCES	ALL MBES (%)	MBES COVERING CLIL TEACHER COMPETENCES
Linguistic	100	ALL MBES IN THE SAMPLE
Pedagogical	94.7	URCI, UCAM, UCLM, CEU UCH, UEX, NEBRIJA, UPO-UNIA, UNIOVI, UJA-UCO, UNIR, VIU, UFV, UCJC, ULPGC-ULL, UE, UAM, UNAM, UDIMA
Scientific knowledge	94.7	URCI, UCAM, UCLM, CEU UCH, UEX, NEBRIJA, UPO-UNIA, UNIOVI, UJA-UCO, UNIR, VIU, UFV, UCJC, ULPGC-ULL, UE, UAM, UNAM, UDIMA
Organisational	84.2	URCI, UCAM, CEU UCH, UEX, NEBRIJA, UPO-UNIA, UJA-UCO, UNIR, VIU, UFV, UCJC, ULPGC-ULL, UE, UAM, UNAM, UDIMA
Interpersonal	84.2	URCI, UCAM, UCLM, UEX, NEBRIJA, UPO-UNIA, UNIOVI, UJA-UCO, UNIR, VIU, UCJC, ULPGC-ULL, UE, UAM, UNAM, UDIMA
Collaborative	73.7	UCLM, UEX, NEBRIJA, UPO-UNIA, UNIOVI, UJA-UCO, UNIR, UFV, UCJC, ULPGC-ULL, UE, UAM, UAX, UDIMA
Reflective and developmental	100	ALL MBES IN THE SAMPLE

5. DISCUSSION

O1. To analyse the content of the subjects and the competences offered in MBES to determine the frequency in their alignment with the specific CLIL teacher competences.

A close examination of the frequency of CLIL teacher competences across subjects and competences within MBES' programmes discloses several patterns that highlight both the priorities and potential gaps in the curriculum design. Two distinct analytical dimensions can be identified, revealing consistent patterns of CLIL teacher with slight variations in their frequency ranking. Specifically, the first dimension encompasses foundational professional skills critical to CLIL instruction, while the second dimension emphasises soft skills and organisational capabilities essential for effective teaching in bilingual contexts.

In the first dimension, pedagogical competence stands out, accounting for 27.1% of subjects and 24.1% of competences, alongside linguistic competence at 18.3% of subjects and 17.1% of competences. These skills are foundational in CLIL teacher training (Custodio Espinar & García Ramos, 2020; Pavón Vázquez & Ellison, 2013; Pérez Agustín, 2019). Scientific knowledge ranks highest among subjects (30.1%) and fourth in competences (16.1%), reflecting the advanced nature of postgraduate studies focused on specialised training (Real Decreto 822/2021, Article 16). This competence is a hallmark of MBE programmes, supporting research that links CLIL training to effective teaching practices, emphasising the need for structured, ongoing professional development (Alcaraz-Mármol, 2018; Antropova et al., 2021). Reflective and developmental competences, tied to lifelong learning, are more prevalent in competences (17.6%) than in subjects (13.1%), reflecting higher education's role in promoting sustainability and continuous professional growth (Acevedo-Duque et al., 2023).

The second dimension, comprising organisational, interpersonal, and collaborative competences, receives far less attention. Organisational competence is covered in just 8.3% of subjects and 9.1% of competences, while interpersonal competence appears in 2.6% of

subjects and 10.9% of competences, with collaborative competence ranking lowest at 0.4% of subjects and 5% of competences. Given that organisational skills are a key concern for CLIL primary teachers (Pons Seguí, 2020), this suggests an area for improvement in MBEs' programmes. Interpersonal and collaborative competences, tied to interpersonal intelligence and 21st-century skills like leadership and negotiation (Almazroa & Alotaibi, 2023; Galán-Rodríguez et al., 2024), are more present at the programme level but remain underdeveloped. The underemphasis on these critical soft skills calls for curriculum enhancements to better prepare teachers for collaborative work in CLIL settings.

Galán-Rodríguez et al. (2024) analysed CLIL teacher competences in pre-service primary education by examining teaching guides in the Degree of Primary Education at Spanish public universities. A comparison with this study reveals key insights. Both studies prioritise pedagogical, linguistic, and reflective and developmental competences, which rank highly in both. Organisational competence is similarly covered but is more prominent in undergraduate programmes (54.8%) than in MBEs (8.3% in subjects, 9.1% in competences), likely due to its importance for classroom management in initial teacher training. Scientific knowledge is strongly featured in MBEs but minimally addressed in undergraduate programmes (3.2%), reflecting MBEs' focus on advanced, specialised training (Real Decreto 822/2021, Article 16) versus foundational skills in undergraduate programmes (Real Decreto 822/2021, Article 13). Yet, the biggest difference is in interpersonal and collaborative competences, which are much more emphasised in undergraduate programmes (58.1%) likely due to the holistic skills needed for managing younger students, while MBEs focus more on subject-specific expertise.

O2. To evaluate the content of the subjects and the competences offered in MBEs to assess their coverage of the CLIL teacher competences.

In terms of coverage, most MBEs address more than half of the CLIL teacher competences outlined in the framework (Pérez Cañado, 2015a, 2018). Specifically, 84.2% of the MBEs examined explicitly cover four (36.8%) or five (47.4%) competences in their curricula, while only 15.8% address six (10.5%) or seven (5.3%) competences. In contrast, at the programme level, 89.4% of MBEs cover six (36.8%) or seven (52.6%) competences. This discrepancy can be attributed to the broader focus on competences at the programme level, which aims to provide a more comprehensive preparation for CLIL teachers. Individual subjects, however, often concentrate on specific areas, resulting in a narrower coverage of competences. Thus, while individual subjects may address fewer competences, the overall programme tends to focus on developing a more holistic set of competences.

The grouping of competences remains consistent, with the two distinct dimensions maintaining their position, but different patterns emerge conferring more prominence to certain CLIL teacher competences. In the first dimension, reflective and developmental competence is fully covered across both subjects and competences, which is expected given its association with the mandatory final master's dissertation (Real Decreto 822/2021, Article 17). However, it ranks fourth (13.1%) among subjects and second (17.6%) among these programmes' competences. Postgraduate programmes emphasise research, critical analysis, and lifelong learning, which are closely tied to reflective and developmental competence. These competences may permeate many aspects of the programme but are not always highlighted as a stand-alone subject. Its strong presence in the final master's dissertation ensures it is fully covered, even

though it ranks lower in terms of specific subject frequency. As expected, pedagogical and scientific knowledge competences are also fully covered among subjects, while linguistic competence shows full coverage among the competences of MBEs. A slightly lower coverage is observed for linguistic competence (84%) among subjects, and for pedagogical (94.7%) and reflective and developmental (94.7%) competences among MBEs' competences.

In the second dimension, organisational competence is, interestingly, well-represented in both subjects (73.7%) and MBEs' competences (84.2%), despite its lower frequency (8.3% among subjects and 9.1% among competences). Certain structural or administrative aspects of MBEs may require a focus on organisational competence, as this is key for managing educational settings, especially in bilingual or CLIL contexts. While it may not be frequently addressed as a subject or competence, it is crucial for programme implementation, leading to higher representation in the overall coverage. Another revealing mismatch comes from interpersonal and collaborative competences. While both competences are underrepresented in the coverage of subjects, ranking lowest (interpersonal at 21.1% and collaborative at 5.3%), they are significantly better covered in the MBEs' competences, with 58.1% of interpersonal competences and 73.7% overall competence coverage in these programmes. These competences may be embedded within the structure of subjects without being explicitly addressed as standalone topics. For example, group projects, peer evaluations, and team-based activities might foster these skills, even though they are not clearly identified as distinct subjects, leading to their strong presence in the overall competence framework of these postgraduate programmes. As a result, these skills are developed through indirect learning and practical application in various subjects, but they are still considered key competences by programme designers.

If MBE programme content typically reflects the expertise of their teachers (Galán-Rodríguez et al., 2024), it is relevant to compare the coverage of CLIL teacher competences between MBE programmes and recent literature on teachers' self-reported needs and professional development (Kim & Graham, 2022). In their literature review, Kim and Graham show that six out of the seven competences are well-represented in scholarly work, with pedagogical (60.5%) and linguistic (55.8%) competences being the most prominent, and interpersonal competence being under-represented (2.3%). A comparison with this study reveals both similarities and differences. Both studies highlight strong coverage of pedagogical and linguistic competences, but organisational and collaborative competences show variation. This study emphasises organisational skills more (73.7% of subjects, 84.2% of competences) than Kim and Graham (2022) (46.5%), while collaborative competence, though well-covered in this study's competences (73.7%), is less frequent in subjects (0.4%) compared to findings in literature (30.2%). Reflective and developmental competences receive moderate attention in both studies. Kim and Graham (2022) show scholarly work focuses on immediate needs like collaboration and pedagogy, while MBEs may prioritise long-term academic growth, underscoring organisational skills and theoretical knowledge.

6. CONCLUSIONS

The purpose of this study was to evaluate whether the training programmes provided by MBEs effectively meet the needs of CLIL teachers. Specifically, the study investigated

the extent to which these programmes align with the essential CLIL teacher competences as outlined by Pérez Cañado (2015a, 2018) through the analysis of both the competences specified in the MBEs' programmes and the content offered within their curricula, as recorded in the RUCT.

The CLIL teacher competences framework proposed by Pérez Cañado has proven effective for evaluating postgraduate programmes, providing a comprehensive reference for assessing teacher training (Galán-Rodríguez et al., 2024; Kim & Graham, 2022). This research shows that pedagogical, linguistic, and scientific knowledge competences form a core focus in MBEs, with nearly 90% of programmes covering six or more of the seven competences. This suggests that postgraduate programmes are generally well-equipped to provide CLIL teachers with a comprehensive skill set, aligning with García Abellán (2022), who asserts that requiring a master's degree in bilingual education is the ideal pathway to address teachers' needs. Yet, organisational, interpersonal, and collaborative competences tend to be underrepresented, which points out a gap in focus on key soft skills critical for effective CLIL instruction.

This study offers several practical implications for stakeholders in the design and implementation of MBEs' programmes. It provides a clear framework to assess whether curricula effectively address the key competences needed for CLIL teachers, identifying potential gaps in content and focus. For those involved in teacher training, the findings can guide the development of targeted modules that address underrepresented areas like interpersonal and collaborative competences, essential for fostering communication and teamwork in CLIL classrooms. Ultimately, this study encourages rethinking the curricular design of MBEs to better meet the demands of 21st-century CLIL education, enhancing the quality of CLIL teaching at various educational levels. As Coyle (2010) noted, "without appropriate teacher education programs, the full potential of CLIL is unlikely to be realized and the approach unsustainable" (p. viii).

This study acknowledges several limitations. The data represents a snapshot in time and may not capture the evolving educational landscape. Besides, the focus on MBEs in Spain limits the generalisability of the findings to other countries with different educational systems and CLIL practices. The research also lacks qualitative input from CLIL teachers or students, which could provide deeper insights into the programmes' effectiveness. Future research could track CLIL teacher competences over time to assess the long-term impact of MBEs on professional development and classroom practices. Interviews or focus groups with stakeholders could also offer a more nuanced understanding of the programmes' real-world effectiveness.

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