

Are Accredited Teachers Equally Trained for CLIL? The CLIL Teacher Paradox

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ABSTRACT: Content and Language Integrated Learning (CLIL) is a challenging and demanding teaching approach; despite this, in Spain, linguistic competence is the only criterion considered by most bilingual programmes to enable teachers to teach CLIL. This article reports on a quantitative study into the impact that the different accreditation processes carried out by the administration, the inservice training received by CLIL teachers and their English proficiency, have on inservice CLIL teachers' competences for CLIL. An *ad hoc* instrument was created to measure the level of integration of the CLIL methodological principles in the accredited teachers of 47 primary and secondary bilingual schools. Results show that 70% of a sample of 383 practising teachers accessed their bilingual programme without CLIL methodological training and 50% of them had not received any type of CLIL training after the accreditation. Furthermore, significant differences in the level of integration of the CLIL methodological principles have been found between the teachers accredited with methodological training and those without it, in favour of the former. It is concluded that the accreditation process should include a combined linguistic and methodological rating likely to solve this CLIL teacher paradox.

Key words: CLIL methodological principles, preservice teacher education, inservice teacher education, bilingual education, CLIL teacher competences.

¿Están los docentes habilitados/acreditados igualmente formados para enseñar AICLE? La paradoja del docente AICLE

RESUMEN: El aprendizaje integrado de contenido y lengua (CLIL) es un enfoque de enseñanza desafiante y exigente para los docentes. A pesar de ello, en España, la competencia lingüística es el único criterio considerado por la mayoría de los programas bilingües para permitir que los docentes enseñen AICLE. Este es un estudio cuantitativo sobre el impacto que los diferentes procesos de acreditación llevados a cabo por la administración, la formación continua recibida por los docentes y su nivel de inglés tienen sobre las competencias en AICLE del profesorado habilitado para enseñar bajo este enfoque. Se ha creado un instrumento *ad hoc* para medir el nivel de integración de los principios metodológicos CLIL en los maestros acreditados de 47 colegios e institutos bilingües. Los resultados muestran que el 70% de una muestra de 383 docentes habilitados para impartir AICLE ha accedido al programa bilingüe sin capacitación metodológica AICLE y el 50% no ha recibido ningún tipo de formación en AICLE después de su habilitación. Además, se han encontrado diferencias significativas en el nivel de integración de los principios metodológicos de AICLE entre

los docentes habilitados con formación metodológica y sin ella, a favor de los primeros. Se concluye que el proceso de acreditación debe incluir una formación combinada lingüística y metodológica que pueda resolver esta paradoja del docente AICLE.

Palabras clave: Principios metodológicos AICLE, formación inicial del profesorado, formación permanente del profesorado, educación bilingüe, competencias del docente AICLE.

1. INTRODUCTION

The progressive and sustained implementation of bilingual education programmes has been one of the greatest educational innovations of the last decades in the teaching of languages in Europe, in general, and in Spain, in particular (Pérez Cañado, 2018b). This European policy shows efforts have been made to promote new methodologies in language learning. CLIL (content and language integrated learning) is a clear example of an initiative to improve language learning and the development of a linguistic identity likely to reflect the multilingual reality of the European Union. In this context, bilingual education programmes based predominantly on CLIL have been implemented in the Spanish education system both at national and regional level. These programmes have been widely regulated and integrated in the official curriculums of infant, primary and secondary education. A clear example of this situation is the Community of Madrid, where 48.5% of state infant and primary schools, 56.7% of state secondary schools and 48.5 % of semi-private schools (primary and secondary) belong to the so-called Bilingual Programme of the Community of Madrid (Comunidad de Madrid, 2018).

However, the quality of these programmes has been measured mainly from the perspective of students' academic results. The impact that this innovation has meant for teachers, who are responsible for transferring this European educational policy into practice, has not been measured with such intensity or with sufficient reliability (Pérez Cañado, 2016a). After more than 15 years of bilingualism in the Spanish classrooms, it is time to analyse the level of integration of the CLIL methodological principles in accredited teachers who are delivering CLIL lessons in bilingual programmes, because the quality of bilingual education not only depends on students' academic results but also on teachers' competence in CLIL.

2. THEORETICAL FRAMEWORK

2.1. Initial teacher training for bilingual education

According to the 2013 Teaching and Learning International Survey (TALIS) Report, there has been a qualitative and quantitative increase in the initial training required of teachers (OECD, 2014). Spain, as a member state of the Bologna Process, has adapted its university system to make it more comparable, compatible and coherent with European higher education (Ministry of Education, Culture and Sports, 2003). However, despite these improvements in initial training, there is still a mismatch between the training of teachers and the demands of bilingual programmes (Fernández César, Aguirre Pérez, & Harris, 2013). The new academic

system based on specializations (*menciones*) has meant, in the case of primary teachers, that the training they receive to teach a foreign language has been reduced to a minimum level, and only a B1 level of the Common European Framework (CEFR) is required, which is insufficient to meet the needs of bilingual schools (Jover, Fleta, & González, 2016).

The offer of specializations includes ‘foreign language’, which is equivalent to 30 - 60 ECTS (European Credit Transfer and Accumulation System), in which a B2 is the target level. As pointed out by García & Lorente (2014), a generalist perspective has been chosen, proposing the specializations in substitution of the old elective subjects, which relegates the training in CLIL to postgraduate studies.

This situation is promoting a model of inservice palliative training, which seems to lead the current pedagogical change in Spain, since both linguistic and CLIL methodological training are not effectively provided at university. Therefore, there are many voices from university who demand a review of the academic programmes of the education degrees. They call for a strategic plan generated from the university itself as a necessary action to improve initial teacher training for bilingual education (Fernández César et al., 2013; Fernández Díaz, 2017; Jover et al., 2016; Pérez Cañado, 2016a).

2.2. Ongoing teacher training for bilingual education

On the other hand, lifelong learning is another pillar of the European strategy for improving educational quality. Concerning bilingual education, to be part of the bilingual programmes implemented throughout Spain, each Autonomous Community has established specific requirements that, in general, are based exclusively on linguistic competence criteria. Although all of them offer methodological training to teach CLIL, in their inservice training programmes only a few include it as a requirement or step prior to the accreditation to teach this type of education (Custodio Espinar, 2019a). For example, in the Community of Madrid, where this research has been carried out, the training to teach CLIL is not a requirement in the accreditation process since 2010. After this year, the methodological training has been relegated to the inservice teacher training programmes, hence, it is voluntary. This regulation has meant a step backwards because, before 2010, teachers received CLIL training as part of their accreditation process.

Despite the efforts made after the Bologna process and the training programmes developed by the educational authorities, CLIL teachers’ preservice and inservice training are still deficient (Banegas, 2012; Coyle, Hood, & Marsh, 2010; Fernández César et al., 2013; Jover et al., 2016; Lancaster, 2016; Mehisto, Marsh, & Frigols, 2008; Pérez Cañado, 2012, 2016b, 2018b). In addition, as Llinares & Dafouz (2010) point out, the rapid expansion of CLIL has exceeded the provision of teachers able to face the challenge of bilingual education. According to Pérez Cañado (2016b), this situation must be addressed as the key to a future improvement of bilingual education. In the same vein, Coyle (2011) had already indicated that teacher training is the axis where CLIL can guarantee its long-term sustainability.

2.3. The CLIL teacher paradox

As a result of this situation, there is this paradox: teacher training for bilingual education is deficient, teacher training for CLIL is voluntary and the qualification / accreditation

to provide CLIL in bilingual programmes, generally, only considers the teacher's linguistic competence. Therefore, the following question arises: are all teachers of bilingual programmes sufficiently trained to plan and teach CLIL lessons?

This research considers CLIL lesson planning and delivery as a key factor influencing the quality of teaching and learning processes (López Hernández, 2016; Llull et al., 2016; Marsh, 2012; Marsh et al., 2010). Hence, due to the complexity of teaching through CLIL, the ability to plan and deliver a lesson is a pivotal CLIL teacher competence (Bertaux et al., 2010; Madrid & Madrid, 2014; Marsh et al. 2010; Pavón & Ellison, 2013; Pérez Cañado, 2017, 2018b). However, according to Pérez Cañado (2017, 2018b), there are many others such as pedagogical competence (which means putting into practice the methodological principles of the CLIL approach), scientific competence (knowledge of these methodological principles), organizational competence (necessary to integrate the multiple components of CLIL), interpersonal and collaborative competences (necessary to generate a socio-affective and working network of relations suitable to face the CLIL challenge) or the competence for reflection and personal development that, along with linguistic competence, allow the CLIL teacher to develop quality bilingual education.

In consequence, this study aims to obtain information about the impact of the accreditation process, the in-service teacher training programmes, and teachers' level of English on the ability to plan and deliver CLIL lessons through the analysis of the level of integration of CLIL methodological principles in the teaching styles of the teachers of the sample.

3. RESEARCH METHOD

This study shows the results of an empirical investigation with a non-experimental design, of ex-post-facto and correlational type.

3.1. Research questions

The study aims to answer the following research questions.

RQ1: Are there differences in the level of integration of CLIL principles of accredited teachers according to their accreditation model?

RQ2: Are there differences in the level of integration of CLIL principles of accredited teachers according to the type of in-service training they do?

RQ3: Are there differences in the level of integration of CLIL principles of accredited teachers according to their level of English?

3.2. Participants

The population is composed of 550 schools which are implementing the Bilingual Programme in the Community of Madrid: 318 state primary schools, 91 state secondary schools and 141 semi-private primary and secondary schools (Comunidad de Madrid, 2014). Since the questionnaire was applied in 2017, the population includes schools which had entered the Programme no later than the academic year 2013-2014 in order to guarantee a minimum of three years of participation. The number of accredited teachers in the state schools is 2,667

primary teachers, 1,936 secondary teachers, and in the semi-private schools these figures are not provided (Comunidad de Madrid, 2014).

The sample was calculated using the software Ene3.0. The technique used was a stratified and proportional random sampling technique. For a precision level of 0.7, a confidence interval of 95% and a standard deviation of 3, the calculated sample was 74 schools, distributed proportionally in five strata, one per each Educational District, known as DAT (*dirección de área territorial*), in which the Community of Madrid is divided for educational purposes. The estimated teachers participating in the study is 370 (five teachers per school). Table 1 compares the distribution of the ideal sample and the real sample by DAT.

Table 1. Comparison of the distribution by DAT of the ideal sample and real sample.

SAMPLE	NORTH	SOUTH	EAST	WEST	CAPITAL	TOTAL
Ideal teacher sample	41	81	52	52	144	370
Real teacher sample	84	67	44	90	98	383

Of the 383 teachers, 73.4% are women, 71% teach in the primary stage (N = 271) and 29% in secondary (N = 111). The majority of the sample, 87.5%, teach in bilingual state schools. Finally, 62.9% of the sample have spent more than four years in the programme.

3.3. Objectives and variables

The general objective of the study is to obtain information which can contribute to the consolidation of the bilingual programmes from the perspective of the teacher competences for CLIL. Specific objectives are:

Objective 1: To analyse the possible differences in the degree of integration of CLIL methodological principles according to the accreditation model, the post-accreditation training received and the certified level of English.

Objective 2: To analyse the possible differences in the degree of integration of CLIL methodological principles according to the accreditation model, the post-accreditation training received and the certified level of English in each of the CLIL lesson planning dimensions upon which the questionnaire is structured.

The levels of the three independent variables of the study are as follows:

Model 1, with linguistic and methodological training prior to accreditation;

Model 2, with previous methodological training;

Model 3, without specific training prior to the accreditation.

The type of post-accreditation training includes the following levels:

Type 1. Further training within the Community of Madrid Plan.

Type 2. Further training outside the Community of Madrid Plan (masters, private courses, etc. which are not part of the official annual training plan).

Type 3. Subsequent training inside and outside the Community of Madrid Plan.

Type 4. No post-accreditation training.

The variable ‘English level’ includes three groups that correspond to levels B2, C1 and C2 of the CEFR.

3.4. Instrument

To measure the level of integration of the CLIL methodological principles, it was necessary to create an *ad hoc* questionnaire taking as a reference the European Framework for CLIL Teacher Education (Marsh et al., 2010), the CLIL lesson plan model by Custodio Espinar (2012, 2019a), and the analysis of the teaching competences needed to plan and deliver CLIL lessons, which have been described by different authors (Ball, Clegg, & Kelly, 2015; Banegas, 2015; Bertaux et al., 2010; Madrid & Madrid, 2014; Marsh et al., 2010; Pavón & Ellison, 2013; Pérez Cañado, 2017, 2018b). The instrument consists of 48 items: 14 identification variables, 31 study variables and 3 criterion items (Table 2).

Table 2. Instrument dimensions and subdimensions.

DIMENSIONS	SUBDIMENSIONS	N OF ITEMS
Dimension 1 Core CLIL components	Integration of 4Cs Language treatment	9
Dimension 2 Methodology	Methodological strategies Attention to diversity	8
Dimension 3 Activities and resources	Activities Resources	6
Dimension 4 Evaluation	Language and content assessment Learning process assessment	4
Dimension 5 Organization	Timetable Space	4

These 31 dependent variables are measured with a Likert scale 1-6, where 1 indicates never and 6 always. Cronbach alpha was calculated to measure the level of reliability of the instrument and its five dimensions. The total reliability of the scale is high and satisfactory, with a value of α close to 0.9 (0.87). In D1, D2, and D3 it is acceptable (0.71, 0.77, 0.71). However, in D4 the reliability level is questionable (0.62). The low degree of reliability in the organizational dimension is unacceptable (0.27). The reason for this result is that D5 does not measure the essentials of the competence to plan CLIL lessons, but peripheral elements not exclusive of CLIL and independent of teacher’s planning style.

Three criterion items have been introduced at the end of the scale to determine the degree of criterion validity. There is a statistically significant linear correlation between the total score in the questionnaire and the three criterion items in the parametric correlations analysed (Pearson type), except for criterion item1 in D5 and criterion item 2 in D4.

3.5. Procedure and analysis

Data was collected from January to July 2017. A strict protocol of on-site application was followed in which the researcher was available to the teachers at all times to answer any questions. For the data analysis, the IBM SPSS 20 application was used. First, descriptive studies of all the variables were carried out. Next, the differential analyses were calculated for the whole scale (31 study variables), as well as for each of the five dimensions, according to the three independent variables: the accreditation model, the type of training after the accreditation and the level of English.

ANOVA (with Tukey b for subsequent contrasts) was used to study statistically significant differences in the groups of the independent variables. Significance levels were set at the 5% level. The measurement of effect size was estimated using η^2 . When inequality of the variances is assumed, and the design is non-orthogonal (unbalanced groups), the Welch statistic has also been analysed. It is a non-parametric test interpreted in the same way as the ANOVA F, using Games-Howell test for subsequent contrasts. Finally, the effects due to the interaction between the three independent variables on the main variable, the global level of integration of CLIL principles, have also been analysed.

4. RESULTS

4.1 Descriptive studies

The variable that globally quantifies the level of integration of the CLIL methodological principles has a normal distribution in the sample of 383 teachers (Figure 1).

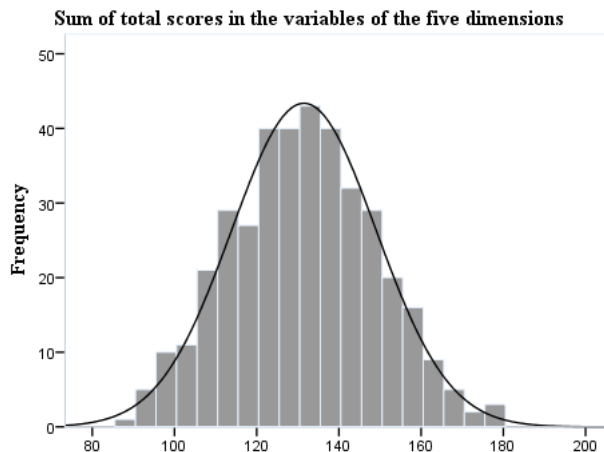


Figure 1. Distribution of the main dependent variable in the sample.

This variable shows a mean of 131.47 and a standard deviation of 17.61 points. The minimum score in the sample is 88 and the maximum score is 179 points out of 186. There are 91 points of difference between the minimum and the maximum score in the questionnaire.

Concerning the description of the independent variables, 73.6% of the sample has a C1 level in English according to the CEFR, 12.5% a B2 and 13.6% a C2. Table 3 describes the distribution of the sample according to the accreditation model and the type of training.

Table 3. Sample description by accreditation model and type of training.

INDEPENDENT VARIABLES	N	T1 FURTHER TRAINING IN CM PLAN	T2 FURTHER TRAINING OUT CM PLAN	T3 FURTHER TRAINING IN AND OUT CM	T4 No POST-AC- CREDITATION TRAINING
M1 Accreditation with prior linguistic and methodological training	88	37	6	10	35
M2 Accreditation with prior methodological training	21	2	5	2	12
M3 Accreditation with no prior specific training	266	51	54	23	138
TOTAL	375*	90	65	35	185
TOTAL with/without training	375*	190			185

*375 + 8 teachers from the private school without accreditation = 383

It should be noted that most of the sample, 70%, are teachers accredited with model 3 and, therefore, have not received specific prior training for CLIL. In addition, 50% of the sample states that they have not received training after being accredited.

4.2 Differential studies of the level of integration of CLIL principles

The study has analysed the level of integration of CLIL principles according to the accreditation model, the type of subsequent training and the level of English. The results of hypotheses 1-6, which measure the effect of the independent variable ‘accreditation model’ on the six dependent variables of the study, is shown in Table 4.

Table 4. Level of integration of CLIL principles according to the accreditation model.

NULL HYPOTHESIS (MEANS ARE EQUAL)	TESTING TECHNIQUE	STATISTIC	SIG.	STATISTICAL DECISION AND CONCLUSION	EFFECT SIZE
1. DV Global level of CLIL integration IV Accreditation model.	ANOVA	F= 6.402	0.002	H0 is rejected. Differences in favour of M1, accreditation with training.	3%
2. DV Level of CLIL integration in D1 IV Accreditation model.	ANOVA	F=5.044	0.007	H0 is rejected. Differences in favour of M1, accreditation with training.	3%
3. DV Level of CLIL integration in D2 IV Accreditation model.	ANOVA	F=4.233	0.015	H0 is rejected. Differences in favour of M1, accreditation with training.	2%
4. DV Level of CLIL integration in D3 IV Accreditation model.	ANOVA	F=2.253	0.106	H0 is accepted. No differences.	--
5. DV Level of CLIL integration in D4 IV Accreditation model.	ANOVA	F=3.374	0.035	H0 is rejected. Differences in favour of M1, accreditation with training.	
6. DV Level of CLIL integration in D5 IV Accreditation model.	Welch	H=10.403	0.000	H0 is rejected. Differences in favour of M1 & M2, both with training.	--

The results of hypotheses 7-12 are shown in Table 5. They measure the effect of the 'type of training' after the accreditation on the six dependent variables of the study.

Table 5. Level of integration of CLIL principles according to the type of inservice training.

NULL HYPOTHESIS (MEANS ARE EQUAL)	TESTING TECHNIQUE	STATISTIC	SIG.	STATISTICAL DECISION AND CONCLUSION	EFFECT SIZE
7. DV Global level of CLIL integration IV Type of training.	Welch	H= 2.497	0.063	H0 is accepted. No differences.	--
8. DV Level of CLIL integration in D1 IV Type of training.	ANOVA	F=1.140	0.333	H0 is accepted. No differences.	--
9. DV Level of CLIL integration in D2 IV Type of training.	ANOVA	F=4.140	0.007	H0 is rejected. Differences in favour of T1 & T2 with training after the accreditation.	3%
10. DV Level of CLIL integration in D3 IV Accreditation model.	Welch	H=0.388	0.762	H0 is accepted. No differences.	--
11. DV Level of CLIL integration in D4 IV Type of training.	Welch	H=1.571	0.200	H0 is accepted. No differences.	--
12. DV Level of CLIL integration in D5 IV Type of training.	ANOVA	F=0.855	0.465	H0 is accepted. No differences.	--

The results of the hypotheses that measure the effect of the independent variable 'level of English' on the six dependent variables of the study are shown in Table 6.

Table 6. Level of integration of CLIL principles according to the level of English.

NULL HYPOTHESIS (MEANS ARE EQUAL)	TESTING TECHNIQUE	STATISTIC	SIG.	STATISTICAL DECISION AND CONCLUSION	EFFECT SIZE
13. DV Global level of CLIL integration IV English level.	ANOVA	F= 5.703	0.004	H0 is rejected. Differences in favour of C2, highest level.	3%
14. DV Level of CLIL integration in D1 IV English level.	ANOVA	F=7.336	0.001	H0 is rejected. Differences in favour of C2, highest level.	4%

Table 6. Level of integration of CLIL principles according to the level of English. (Continuation).

15. DV Level of CLIL integration in D2 IV English level.	ANOVA	F=2.207	0.111	H0 is accepted. No differences.	--
16. DV Level of CLIL integration in D3 IV English level.	ANOVA	F=2.740	0.066	H0 is accepted. No differences.	--
17. DV Level of CLIL integration in D4 IV English level.	ANOVA	F=5.979	0.003	H0 is rejected. Differences in favour of C2, highest level.	3%
18. DV Level of CLIL integration in D5 IV English level.	ANOVA	F=1.965	0.142	H0 is accepted. No differences.	--

Finally, Table 7 shows the analysis of the effect of the interaction between the three independent variables on the level of integration of the CLIL principles.

Table 7. Results of the interaction between the three independent variables on the global level of integration of CLIL principles.

INTERACTION	INDEPENDENT VARIABLES	STATISTIC	SIG.	EFFECT SIZE
1	IV 1 Accreditation model M1/M2 IV 2 Type of further training	1.733	0.160	1.5%
2	IV 1 Accreditation model M1, M2 IV 3 English level	0.164	0.849	1%
3	IV 2 Type of further training IV 3 English level	1.059	0.387	1.8%
4	IV 1 Accreditation model M1/M2 IV 2 Type of further training IV 3 English level	2.334	0.042	3.2%

5. DISCUSSION

Concerning the descriptive studies, the means, as well as the differences found between the maximum and the minimum score in the global level of integration of CLIL and in the five dimensions, especially in D1 Core CLIL components, D2 Methodology and D4

Evaluation, reveal two important features of the sample: the heterogeneity in the level of integration of the CLIL principles and the need to offer training on the fundamentals of CLIL, methodology and evaluation in CLIL contexts. These results are in line with Pena Díaz & Porto Requejo (2008), Rubio Mostacero (2009), Fernández & Halbach (2011), all cited in Pérez Cañado (2016b).

Regarding the main independent variables, it is necessary to point out that, in Madrid, CLIL training was offered from the beginning of the Bilingual Programme, in 2004, until the publication of Order 1672/2009, which reduced the accreditation to the criterion of linguistic competence. This is the reason why there are two groups in the sample with prior linguistic and/or methodological training in CLI, models 1 and 2. Despite this change of strategy in the accreditation process, mainly due to issues of expansion and sustained growth of the programme, studies like this one and that of Herrero (2015) show that the accreditation model prior to this order, which involved linguistic and methodological training, is highly valued by teachers. Furthermore, this current lack of methodological training in the accreditation process (70% of the sample) stands in opposition to the desired CLIL teacher profile which requires, among other competences already mentioned, a deep knowledge of the theoretical foundations of this approach (Pérez Cañado, 2018b).

The results of the differential studies show that the independent variable ‘accreditation model’ significantly influences the level of integration of CLIL methodological principles. Model 1, teachers accredited before 2010 with linguistic and methodological training prior to the accreditation, shows statistically significant differences with the model qualified only under the criterion of linguistic competence, without prior methodological training, in favour of the former. These differences are found in four of the five dimensions of the questionnaire: D1 Core CLIL components, D2 Methodology, D4 Evaluation, and D5 Organization. This result confirms the urgent need to revise the model of accreditation of teachers participating in bilingual programmes in order to provide them with a type of CLIL training likely to prepare them to face the challenge of CLIL from the beginning and not pushing them to a palliative training strategy after their accreditation (Banegas, 2012; Pavón Vázquez & Ellison, 2013).

With respect to the four types of further training, the analysis shows that subsequent training does not produce differences between the groups in the level of integration of the CLIL principles. There are differences only in D2, Methodology, between Type 1 and Type 3, which are groups with subsequent training in the CM Plan and inside and outside the CM Plan, and Type 4, group without further training, in favour of the groups with subsequent training. These significant differences in hypothesis 9 indicate that the training received by teachers after their accreditation improves their competencies in this dimension but has no impact on D1 and D4 which are key to effective CLIL teaching as pointed out by Pérez Cañado (2016b, 2018b) and Morton (2016).

The lack of differences in the groups of the independent variable ‘type of training’ after the accreditation in all the hypothesis except in D2 Methodology, raises the need to study the impact that this subsequent training received by accredited teachers is having from three points of view: the content learnt, the methodology used and the potential of this training to transfer the skills gained to the ability to plan and deliver CLIL lessons. There is no questioning of the quantity or quality of the training offered, but rather the claim of offering a previous training that guarantees a minimum competence, not only linguistic, but also methodological, necessary to effectively teach CLIL.

Concerning the design of inservice teacher training, the general aim should be to look for more contextualized models (Pérez Cañado, 2016b), with a greater link with the experience and the real needs of any CLIL teacher in a bilingual classroom (Fernández Cézár et al., 2013; Halbach, 2010). There is a need for training programmes capable of overcoming the factors inhibiting the participation of these accredited teachers in the inservice training programmes offered by the educational administrations. In particular, training programmes likely to overcome the obstacles to professional development manifested by the individuals of the sample, whose percentage of teachers with subsequent training only reaches 50%. These obstacles coincide with the barriers to professional development included in the TALIS 2013 report, which mentions among others: the incompatibility with working hours, the lack of incentives to participate in professional development activities, the cost of professional development activities and the lack of an adequate offer of activities. Other obstacles mentioned by the sample are the requirements for enrolment in the courses, the lack of support at schools, and the incompatibility between professional training and family life. This analysis should guide the planning of future actions taken by the educational administration in relation to the training of accredited CLIL teachers, because an increase in the percentage of these teachers' participation in training activities, directly related to bilingual education, should be a priority.

The results also confirm that the level of English is directly related to the global level of methodological competence in CLIL, since level C2 presents differences with levels B2 and C1 in the main dependent variable, in favour of C2 with an effect size of 3%. These differences are confirmed in D1 and D4 with an effect size of 4% and 3% respectively. Therefore, there is a positive correlation between the level of English and the level of integration of the methodological principles, in favour of teachers with the highest level of English. The focus on the English proficiency of the teachers has facilitated the incorporation of a greater number of teachers to the programme, with a higher level of English (C1 is the minimum required in Madrid) likely to cover the demand generated by the maintained growth since its implementation in 2004. However, it is important to point out that the significant differences are in favour of the group that has a C2 level, but no differences have been found between groups B2 and C1.

Finally, the value of $F=2.334$ is significantly different from 1, for a significance level $p=0.042$, in the interaction of the three dependent variables. Therefore, the null hypothesis of equality of means is rejected and it is confirmed that there are statistically significant differences in the level of integration of the CLIL methodological principles based on the interaction between the model of accreditation 1 and 2 grouped (both accredited with methodological training), the type of further training and the level of English. The effect of the interaction of the three main factors is noteworthy. The differences found in favour of the group of accredited teachers with methodological training, who have a C2 level, again reinforce the proposal to offer the combined linguistic and methodological training mentioned by Calle (2015) and Pérez Cañado (2016b, 2018b). This accreditation model is the most effective way of providing bilingual teaching under a CLIL approach, because the combined prior training can guarantee a greater homogeneity in the competence profile of the accredited CLIL teachers.

6. CONCLUSION

From these results, it can be concluded that urgent measures are needed to improve the methodological competencies of the teachers who teach CLIL in bilingual schools. Regarding RQ1, the differences found in favour of the teachers accredited with prior methodological training allow us to state that this type of training is required before the accreditation in order to guarantee a more homogenous CLIL competence profile, therefore it should be mandatory. Concerning the impact of inservice training completed by teachers after the accreditation, the results of RQ2 lead us to recommend a thorough review of the training programmes offered by the administrations. We would also recommend that there be an exhaustive analysis of the impact that these training actions have on teachers' CLIL competences.

The aim of this study is to reveal the real needs of accredited CLIL teachers, in order to guide the training programmes intended to provide them with the necessary skills to face bilingual education. In this respect, the study has shown that there is a great heterogeneity of profiles among accredited CLIL teachers. The results show that there are teachers trained before and after their accreditation, but there is also 50% of teachers who have not received specific methodological training, either before or after their accreditation. This is the CLIL teacher paradox, because this lack of knowledge of the pedagogical content of the bilingual methodology, perceived even by the teachers themselves (Herrero, 2015), is one of the most important challenges that must be faced in all types of instruction based on content (Morton, 2016).

As regards the third RQ, the differences found in the groups of the independent variable 'level of English' in favour of the teachers with the highest level C2, confirm the results of Pérez Cañado (2016b) and seem to justify, in part, the strategy of accrediting only on the basis of linguistic competence.

This study has pointed out necessary training actions to improve accredited CLIL teachers' competencies to deliver CLIL lessons and the causes that have led to this situation. These are some proposals:

1. Specific training in CLIL (Herrero, 2015). The revision of the current accreditation model based exclusively on linguistic competence, and the introduction of a model with mandatory previous training in CLIL (RQ1).
2. Contextualised useful training (Halbach, 2010; Pena Díaz & Porto Requejo, 2008). The revision of the inservice training programmes should look for contextualized training models more likely to transfer the gained knowledge and skills to the CLIL classroom. In particular, the identification, promotion and encouragement of teachers with a higher level of CLIL competence is strongly recommended, so that they promote their knowledge and good practices among their colleagues, as well as the conciliation of the training offer with the factors that inhibit professional development (RQ2).
3. Intensive training to increase the teachers' English proficiency to the highest possible level (Pérez Cañado, 2016b) (RQ3).

Additionally, adequate CLIL training from initial teacher education is paramount (Fernández Agüero, 2009). Therefore, it is necessary to review the academic programmes in

the degrees in education and the master's degree in secondary education (Fernández Cézar et al., 2013; Fernández Díaz, 2017; Jover et al., 2016; Pérez Cañado, 2016b).

Finally, the following thoughts arise from the results and conclusions of this study:

- Training to teach in any bilingual programme prior to the accreditation is a necessity, a requirement and a right of the teachers, due to the complexity and the challenge that teaching CLIL involves.
- This training should be oriented to provide knowledge and skills about the core CLIL components, methodology, resources and evaluation in bilingual teaching and learning contexts.
- These four dimensions of a CLIL lesson plan, mentioned before, correspond to the dimensions of the CIPMA (*cuestionario de integración de los principios metodológicos AICLE*), a questionnaire revised and validated with the data collected in the sample of this study that can serve to diagnose the training needs of inservice CLIL teachers (Custodio Espinar, 2019b).
- In such a heterogeneous context, the diagnostic evaluation of the level of integration of the CLIL methodological principles of accredited CLIL teachers, using tools such as CIPMA, can serve as a reference for the design of training courses tailored to the real needs of the teachers. In addition, this diagnostic assessment of teaching needs can be performed at different levels: individual (self-assessment), school (teaching team diagnosis), local or regional (evaluation of the impact of training plans and design of new strategic proposals).

These recommendations aim to improve the accreditation process and the design of training programmes to ensure that quality bilingual education is provided in all English-Spanish bilingual schools. Because the quality of bilingual education depends not only on the performance of the students, but also on the quality and effectiveness of the teacher training programmes offered to the CLIL teachers, who provide those students with bilingual education.

To conclude, in future studies, a questionnaire for students, of the type used by Lancaster (2016) and Pérez Cañado (2016a, 2016b, 2018a), could be introduced to compare their means in the standardized tests with teachers' means in the CIPMA. Additionally, it would be useful to include semi-structured interviews to improve the interpretation of the data and to extend the sample to teachers who teach CLIL in other languages, other than English, in future research. From the point of view of initial education, it is important to study differences in the level of integration of the CLIL methodological principles among graduates from different degrees in education to determine the quality of initial training in this professional competence of future CLIL teachers. With regard to lifelong learning, new training programmes, more contextualized, based on the exchange of good practices among inservice CLIL teachers has already been recommended. Moreover, the study of the effectiveness of these new training programmes and actions in comparison with other traditional types of training based on courses is also necessary. Finally, the suitability of the training actions, their capacity to transfer the gained knowledge to the classrooms and their degree of impact on the CLIL teaching competence are other specific aspects that must be studied in order to solve the CLIL teacher paradox.

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