

Influencing Factors on In-Service Teachers' Competence in Planning CLIL

Factores que influyen en la competencia docente para programar lecciones AICLE

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Fatores que influenciam a competência de ensino para programar aulas CLIL

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ABSTRACT. In spite of the multiple competencies necessary to design and deliver proper Content and Language Integrated Learning (CLIL) lessons, the teachers' linguistic proficiency is the primary competence considered in the accreditation of CLIL teachers in Spain. However, teachers' competence in planning CLIL lessons is key to bilingual education. This article explores this competence and reports on the several factors that influence the level of integration of CLIL methodological principles in the lesson planning style of in-service teachers at primary and secondary education. The factors studied are the stage of education, curricular subjects, teacher education, status at school, years teaching CLIL and type of school in a sample of 383 in-service CLIL teachers. Results show statistically significant differences in all the factors studied except in the stage of education (primary-secondary) and the type of school (state-semiprivate). These results reveal a high heterogeneity in the sample, which allows the description of the CLIL teacher profiles according to the factors that influence their competence in planning and delivering CLIL lessons. It is concluded that education and training in CLIL competencies, such as planning CLIL lessons, is also necessary in order to achieve a more homogeneous competence profile of the teachers. Therefore, a review of the academic programs and of the accreditation model so as to guarantee that they include prescriptive education and training in CLIL is recommended, since the quality and sustainability of bilingual programs also depends on teachers' competence in CLIL and not only on the students' academic results.

Keywords (Source: Unesco Thesaurus): CLIL teacher competencies; CLIL lesson plan; teacher education; initial teacher education; in-service teacher education; bilingual education.

RESUMEN. A pesar de las múltiples competencias necesarias para diseñar e impartir lecciones de Aprendizaje Integrado de Contenido y Lengua (AICLE) adecuadas, la competencia lingüística de los docentes es la principal competencia considerada en la acreditación de docentes AICLE en España. Sin embargo, la competencia docente para programar lecciones AICLE es clave para la educación bilingüe. Este artículo explora esta competencia e informa sobre los diversos factores que influyen en el nivel de integración de los principios metodológicos de AICLE en el estilo de programación de docentes en servicio de educación primaria y secundaria. Los factores estudiados son la etapa educativa, las materias curriculares, la formación del profesorado, el estatus en el centro, los años impartiendo AICLE y el tipo de centro, en una muestra de 383 docentes AICLE en servicio. Los resultados muestran diferencias estadísticamente significativas en todos los factores estudiados, excepto en la etapa educativa (primaria-secundaria) y el tipo de centro (público-semiprivado). Estos resultados revelan una alta heterogeneidad en la muestra que permite la descripción de los perfiles del docente AICLE de acuerdo con los factores que influyen en su competencia para programar e impartir lecciones AICLE. Se concluye que la formación y la capacitación en las competencias del docente AICLE, como la planificación de lecciones AICLE, también son necesarias para lograr un perfil de competencia más homogéneo de los docentes. Por lo tanto, se recomienda una revisión de los programas académicos y del modelo de acreditación para garantizar que incluyan formación y capacitación prescriptivas en AICLE, ya que la calidad y sostenibilidad de los programas bilingües también depende de la competencia docente en AICLE y no solo de los resultados académicos de los estudiantes.

Palabras clave (Fuente: tesaurus de la Unesco): competencias del docente AICLE; programación AICLE; formación inicial del profesorado; formación docente; formación de docentes en activo; educación bilingüe.

RESUMO. Apesar das múltiplas competências necessárias para projetar e ministrar aulas apropriadas de Ensino Integrado de Língua e Conteúdo (CLIL), a competência linguística dos professores é a principal competência considerada no credenciamento de professores da CLIL na Espanha. No entanto, a competência de ensino para programar as aulas CLIL é essencial para a educação bilingue. Este artigo explora essa competência e informa sobre os vários fatores que influenciam o nível de integração dos princípios metodológicos do CLIL no estilo de programação de professores no ensino fundamental e médio. Os fatores estudados são: estágio educacional, disciplinas, formação de professores, status no centro, anos de ensino do CLIL e tipo de centro, em uma amostra de 383 professores do CLIL em serviço. Os resultados mostram diferenças estatisticamente significantes em todos os fatores estudados, exceto na etapa educacional (ensino fundamental) e no tipo de centro (público-semi-privado). Esses resultados revelam uma alta heterogeneidade na amostra que permite a descrição dos perfis dos professores CLIL de acordo com os fatores que influenciam sua competência para programar e ministrar aulas do CLIL. Conclui-se que o treinamento e capacitação nas competências do professor da CLIL, como o planejamento das aulas da CLIL, também são necessários para alcançar um perfil de proficiência mais homogêneo dos professores. Portanto, recomenda-se uma revisão dos programas acadêmicos e do modelo de acreditação para garantir que incluam formação e treinamento prescritivos em CLIL, uma vez que a qualidade e a sustentabilidade dos programas bilingües também dependem da competência de ensino no CLIL e não apenas dos resultados acadêmicos dos alunos.

Palabras clave (Source: Unesco Thesaurus): Competências de ensino em CLIL; plano de aula CLIL; formação de professores; formação inicial de professores; formação de professores em serviço; educação bilingue

In a political context of international cooperation in the field of education, important methodological and didactic changes are taking place in classrooms. Content and Language Integrated Learning (CLIL), which emerged in Europe in the 90s as an innovative approach to integrate content and language learning (Marsh, 1994), has already extended beyond the borders of the European Union (Ruiz de Zarobe, 2013), awakening the interest of practitioners and education authorities in Latin America, Japan, and Southeast Asia.

The increased implementation of CLIL in schools across Europe since the 1990s responds to an international strategy of the European Union aimed at making European citizens acquire a knowledge and command of two or more foreign languages in addition to their mother tongue (European Commission, 1995). Therefore, Spain, as a European country, has regulated bilingual education — mainly in Spanish and English — in all the educational systems of the 17 autonomous communities and the two autonomous cities of Ceuta and Melilla. A majority of these bilingual programs have opted for the CLIL approach, “a dual-focused educational initiative which advocates the learning of academic content and a foreign language simultaneously” as defined in Pavón-Vázquez and Ellison (2013, p. 68). One of the reasons that have highly contributed to the popularity of CLIL in Spain is the fact that the learning of curricular content in a foreign language (L2) allows increasing the number of the L2 learning hours without making any changes in the official curricula.

An example of this situation is the Community of Madrid, where there is an extensive bilingual education offer. Here, the number of bilingual schools has gradually increased since 2004, when the first 26 primary state schools implemented the Bilingual Program of the Community of Madrid. At the moment, approximately 50% of schools in the region develop the CLIL-Based Bilingual Program (Comunidad de Madrid, 2018).

In this context, academic results in international studies, such as PISA and TIMSS, have started to improve in Spain, in general, and Madrid, in particular (Ministerio de Educación, Cultura y Deportes, 2016a,

2016b, 2017a, 2017b). In addition, other national and regional studies confirm that the levels of competence in the foreign language are higher in students who go to bilingual schools than to non-bilingual schools (Comunidad de Madrid, 2016, 2017, 2018; Gisbert, Martínez de Lis, & Gil, 2015; Shepherd & Ainsworth, 2017).

Furthermore, it seems that students' performance in the areas of mathematics, language, and science is not reduced due to this approach to teaching and learning (Comunidad de Madrid, 2016, 2017, 2018; Ministerio de Educación, Cultura y Deportes, 2016b, 2017b; Ruiz, 2016; Tamariz & Blasi, 2016).

On the other hand, one of the pillars that sustains these programs are the CLIL teachers and their different roles in CLIL programs widely described by Marsh, Mehisto, Wolff, and Frigols (2010), Salaberri (2010), Pavón-Vázquez and Ellison (2013) or Ball, Kelly, and Clegg (2015). However, improvements in students' language proficiency and academic performance have not been accompanied by improvements in the training of the teachers who teach CLIL to these students. The impact that CLIL has meant for those teachers, who face the challenge of teaching curricular content in an L2, has not been measured with the same intensity or with the same reliability (Pérez-Cañado, 2018).

Teacher education and teacher training are essential for quality bilingual education. As Pavón-Vázquez and Ellison (2013) put it: "What is understood across most contexts is that CLIL is demanding for teachers in terms of adjusting practice and developing competences, and that prior training is essential" (p. 69). However, Morton (2016) points out that "one of the most challenging issues in all types of content-based instruction is teachers' perceived lack of pedagogical content knowledge necessary for effective content and language integration" (p. 144). This situation is the result of a deficient provision for teacher preparation in these programs (Banegas, 2012, 2015; Coyle, Hood, & Marsh, 2010; Fernández-César, Aguirre-Pérez, & Harris, 2013; Jover, Fleta, & González, 2016; Lancaster, 2016; Mehisto, Marsh, & Frigols, 2008; Pavón-Vázquez & Ellison, 2013; Pérez-Cañado, 2012, 2015, 2016, 2018), which generally consider linguistic competence as the only criterion to accredit teachers to teach CLIL.

CLIL teacher competencies

Quality CLIL teaching practice requires multi-skilled practitioners. Content teachers and language teachers who deliver CLIL lessons have to put into practice a wide variety of competencies ranging from pedagogical demands (content and language knowledge and awareness, CLIL fundamentals and management, and learning resources and environments) to personal and professional skills (personal reflection, interpersonal and collaborative competence, developmental and research competence) (Bertaux, Coonan, Frigols, & Mehisto, 2010; Madrid-Manrique & Madrid-Fernández, 2014; Marsh et al., 2010; Pavón-Vázquez & Ellison, 2013; Pérez-Cañado, 2017, 2018).

In order to offer adequate education and training to CLIL teachers, it is, first of all, necessary to decipher their specific needs in practical terms, based on the competencies required to integrate language and content in a single lesson (Brüning & Purman, 2014). Thus, as many researchers agree (Mohan; Nunan; Snow, Met, & Genesee; van Lier, as cited in Coyle et al., 2010; Marsh, 2012), this study also considers the CLIL lesson plan as the tool to carry out this integration and as a determining factor in the quality of the teaching and learning processes that take place in the classroom. The majority of authors who have defined the competencies of the CLIL teacher agree on the importance of providing these teachers with the appropriate tools to develop an adequate lesson plan (Bertaux et al., 2010; López-Hernández, 2016; Llull, Fernández, Johnson, & Peñafiel, 2016; Madrid-Manrique & Madrid-Fernández, 2014; Marsh et al., 2010; Pavón-Vázquez & Ellison, 2013; Pérez-Cañado, 2017, 2018). Therefore, the next step is to determine what the core elements of a CLIL lesson plan are.

The CLIL lesson plan

The cognitive and linguistic demand that CLIL implies, not only for students but also for teachers, requires the mastery of basic methodological principles that must be present in all types of CLIL lesson plans. These principles should be known by all CLIL teachers and serve them as a reference for the design and delivery of their lesson plans. In spite of that, a majority of bilingual programs in Spain only consider linguistic competence to accredit the teachers to impart CLIL. In the Commu-

nity of Madrid, where this research was carried out, CLIL training is not mandatory at any stage of the accreditation process. Since 2010, when the accreditation process was regulated as a linguistic certification, the training on pedagogical content knowledge of bilingual education was relegated to the volunteerism of teachers, which has generated a very heterogeneous competence profile of CLIL teachers (Custodio-Espinar, 2019; Morton, 2016; Herrero-Rámila, 2015; Pérez-Cañado, 2018).

For this reason, an *ad hoc* scale was created to measure the level of integration of the CLIL methodological principles in the teaching style of accredited teachers who teach CLIL in bilingual schools in order to identify those profiles and their training needs. The tool was designed following a set of methodological principles that must be present in a CLIL lesson plan model (Custodio-Espinar, 2012, 2019):

- The CLIL lesson plan must include the four CLIL components defined by Coyle (1999): content, cognition, communication, and culture, known as Coyle's 4Cs.
- Content needs to be seen through a conceptual, linguistic, and procedural dimension with each of these dimensions representing planning tools and priority objectives for any didactic and pedagogical activities or tasks (Ball et al., 2015).
- The language must be approached from content and cognitive processes necessary to study in the foreign language, such as cognitive academic language proficiency (CALP), and from the interaction processes involved in a real communicative context, such as basic interpersonal communication skills (BICS) (Cummins, 1999). In CLIL, language is used to learn and communicate at the same time.
- The content determines the linguistic demands that teachers must analyze and support according to their students' linguistic competence. The Common European Framework of Reference (CEFR) is a useful tool to determine the level of proficiency and to develop language assessment strategies adapted to that level (Council of Europe, 2001).
- Therefore, it is necessary to develop content-obligatory language and content-compatible language objectives for the lesson in order to guarantee that students learn the key content concepts, as well as expand their language learning beyond academic forms and functions (Snow, Met, & Genesee, 1992).

- The language demands analysis must guarantee that classroom interaction is supported by strategies that are adapted to the language proficiency of the students (Coyle, 1999, 2007; Coyle et al., 2010). This analysis allows teachers to develop reception, transformation and production scaffolding (Dale & Tanner, 2012) likely to ensure a more interactive learning in the L2.
- Attention to diversity through the use of cognitive taxonomies, such as Bloom's Taxonomy (Bloom, 1956), is necessary to adapt the cognitive demand of the activities to the level of cognitive development of each student and ensure a progression from lower-order thinking skills (LOTS) to higher-order thinking skills (HOTS) (Anderson & Krathwohl, 2001).
- A coherent integration of theories and methodologies that underlie CLIL, such as student-centered, and autonomous, flexible learning should be used to promote the development of the key competencies described in the Spanish educational law, LOMCE (*Ley orgánica para la mejora de la calidad educativa*) (Ley Orgánica 8, 2013).
- The activities must connect with curricular objectives, from an approach to content and meaning. They must be open and flexible, connected to students' interests, realistic and motivating, and aimed at the completion of tasks and final products. They should allow evaluating content, process and language in an integrated form (Pérez-Torres, 2015).
- "CLIL-specific learning materials support the creation of enriched learning environments where students can simultaneously learn both content and language whilst becoming more adept learners of both" (Mehisto, 2012, p. 17). In particular, information and communication technologies (ICT) resources can greatly contribute to the development of activities and tasks that promote the type of learning required by CLIL and help students to progress autonomously at their own pace, thus facilitating the development of strategies of academic-scientific learning (Custodio-Espinar & Caballero-García, 2016).
- CLIL assessment should cover language and content progress by combining different strategies to assess students individually and in groups with oral and written tasks that provide opportunities for co-evaluation and self-evaluation. Formative assessment strat-

egies should be included to optimize the learning process, as well as summative strategies to measure the quality of that learning (Assessment Reform Group, 2012; Llinares, Morton, & Whittaker, 2012; Lofft-Basse, 2016; Wewer, 2014; Wylie & Lyon, 2015).

- The organization of timetables must respect the principles of intensity and reiteration. Additionally, the classroom's arrangement must show a positive, affective environment through the use of visual resources, the organization of furniture or any other element that promotes interaction, motivation and trust. This can help to decrease anxiety and the threshold of students' affective filter (Krashen, 1985).

Measurement of the CLIL lesson plan construct

There is a wide variety of CLIL lesson plan templates and designs (Ball et al., 2015; Banegas, 2015; Bentley, 2010; Coyle et al., 2010; Custodio-Espinar, 2012; Dale & Tanner, 2012; Llull et al., 2016; Pérez-Torres, 2015), which effectively include and describe Coyle's 4Cs (Coyle, 1999) and integrate the CLIL methodological principles listed above. Thus, the construct CLIL lesson plan has been defined considering the design of these lesson plan templates, the definition of the methodological principles that should be present in a quality CLIL lesson plan model (see Custodio-Espinar, 2012; 2019), and a synthesis of the CLIL teacher competencies (Bertaux et al., 2010; Madrid-Manrique & Madrid-Fernández, 2014; Marsh et al. 2010; Pavón-Vázquez & Ellison, 2013; Pérez-Cañado, 2017, 2018).

This theoretical framework was the basis of the questionnaire created to measure the level of integration of the CLIL methodological principles in the planning styles of teachers and, thus, their competence in planning CLIL lessons. The construct CLIL lesson plan, which corresponds to the structure of the questionnaire, was organized around five major dimensions: core CLIL components, methodology, activities and resources, evaluation, and organization. This study intended to analyze the differences in the level of competence to plan CLIL lessons of accredited teachers by measuring the level of integration of the CLIL methodological principles in their planning styles according to the factors stage of education, curricular subjects, academic background, status at school, experience teaching CLIL and type of school where they work.

Method, objectives and variables

This study had a non-experimental design. It was an ex-post-facto descriptive and differential study whose general objective was to obtain information that can contribute to the consolidation of the bilingual programs from the perspective of the teacher competence to plan CLIL lessons. The specific objective was to analyze the differences in the degree of integration of the CLIL methodological principles in the planning style, according to six factors: educational stage, curricular areas, academic background, status at school, experience delivering CLIL and type of school of the CLIL teachers. The research questions were as follows:

- RQ1 Are there differences in the level of integration of CLIL principles of accredited teachers according to their stage of education?
- RQ2 Are there differences in the level of integration of CLIL principles of accredited teachers according to their curricular subjects?
- RQ3 Are there differences in the level of integration of CLIL principles of accredited teachers according to their academic background?
- RQ4 Are there differences in the level of integration of CLIL principles of accredited teachers according to their status at school?
- RQ5 Are there differences in the level of integration of CLIL principles of accredited teachers according to their experience teaching CLIL?
- RQ6 Are there differences in the level of integration of CLIL principles of accredited teachers according to their type of school?

There are six dependent variables in the study. They are the global score in the level of integration of CLIL principles in the sum of the five CLIL lesson planning dimensions and in each of these dimensions: D1 Core CLIL components, D2 Methodology, D3 Activities and resources, D4 Evaluation, and D5 Organization.

Regarding the independent variables, the six factors studied were as follows:

- Stage of education: Primary and Secondary school;
- Curricular subjects taught in primary school: Natural Science; Social Science; Arts & Crafts; Natural & Social Science; Natural & Social Science and Arts & Crafts; Music; Physical Education;
- Curricular subjects taught in secondary school: Social Science Geography and History; Natural Science Biology and Geology; Plastic

- and Visual Education; Technology Programming and Robotics; Music; Physics and Chemistry; Advanced English; Physical Education;
- Teacher education: *Diplomado* (former three-year-degree in Education, before the Bologna Process of 2003, see European Commission, n.d.); *Licenciado* (former five-year-degree, before Bologna, 2003); Degree (four-year-degree, after the Bologna Process); Master's Degree; PhD;
 - Status at school: Public servant or indefinite contract teacher at the school; public servant awaiting for final destination; public servant temporarily working at a school for special reasons; interim teacher at a state school; teacher employed under a temporary contract; public servant in training;
 - Years teaching CLIL: 1-3 years, 4-6 years, 7-9 years, 10-12 years, 13-15 years;
 - Type of school: State; semiprivate; private.

Population and sample

In the 2013–2014 academic year, 550 schools implemented the Bilingual Programme of the Community of Madrid. Of these schools, 318 were state primary schools, 91 were state secondary schools, and 141 were semiprivate primary and secondary schools (Comunidad de Madrid, 2014). This population, up to 2013–2014, had guaranteed that all the schools of the sample had a minimum of three years of participation in the program since the questionnaire was applied in 2017. The population comprises 2,667 primary and 1,936 secondary accredited teachers in the state schools. In semiprivate and private schools, these figures are not provided (Comunidad de Madrid, 2014).

The software Ene3.0 was used to calculate the sample using a stratified and proportional random sampling technique (precision level of 0.7, confidence interval of 95% and a standard deviation of 3). The result was a sample of 74 schools, which were distributed proportionally in five strata. Each stratum corresponds to one of the educational districts, known as DAT (*dirección de área territorial*), in which the Community of Madrid is organized for educational purposes. Teacher participation was estimated at five teachers per school, 370 teachers in total (see Table 1).

Table 1. Population and estimated sample for the study

Strata	Population		Sample	
	N of schools	Percentage	N of schools	N of teachers
S1 DAT North	59	11%	8	41
S2 DAT South	120	22%	16	81
S3 DAT East	76	14%	11	52
S4 DAT West	76	14%	11	52
S5 DAT Capital	219	39%	28	144
Total	550	100%	74	370

Source: Own elaboration.

A comparison of the distribution of the ideal and the real sample in the five strata is included in Table 2.

Table 2. 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

Source: Own elaboration.

Instrument

The instrument for measuring the level of integration of the CLIL methodological principles in the planning styles of CLIL teachers was created *ad hoc* (Custodio-Espinar & García-Ramos, 2019). It consisted of 14 identification variables, 31 study variables, and three criterion items, for a total of 48 items (see Appendix). A Likert scale of 1 to 6, where 1 indicates “never” and 6 indicates “always,” was used to measure the 31 variable-items, with which the teachers evaluated their own classroom planning practices according to how often they took into account the CLIL principles in their actual planning practice. These variables were organized in five dimensions. Each of these dimensions included a series of sub-dimensions that allowed the identification of the core components of the approach and its basic methodological principles described in the theoretical framework (see Table 3).

Table 3. Instrument dimensions and subdimensions

Dimensions	Scale	Sub-dimensions	N of items	Scale
D1 Core CLIL components	0–54	Integration of 4Cs Language analysis	9	0–30 0–24
D2 Methodology	0–48	Methodological strategies Attention to diversity	8	0–30 0–18
D3 Activities and resources	0–36	Activities Resources	6	0–18 0–18
D4 Evaluation	0–24	Language and content assessment Learning process assessment	4	0–12 0–12
D5 Organization	0–24	Timetable Space	4	0–12 0–12
Total	0–186		31	0–186

Source: Own elaboration.

Procedure and analysis

Data was collected in 2017 following a strict on-site application protocol, in which the researcher visited every school of the sample. The statistical analysis of the data was developed using IBM SPSS 20. The analysis consisted of descriptive studies of all the variables and differential analyses calculated for the whole scale (the 31 study variables), as well as for each of the five dimensions. The procedure for contrasting the hypotheses was the analysis of variance, by means of ANOVA (with Tukey b for subsequent contrasts), when the factor had three or more groups. When the factor was dichotomous (two groups), the Student's "t" was used. Significance levels were set at the 5% level and the effect size was estimated using η^2 .

Results

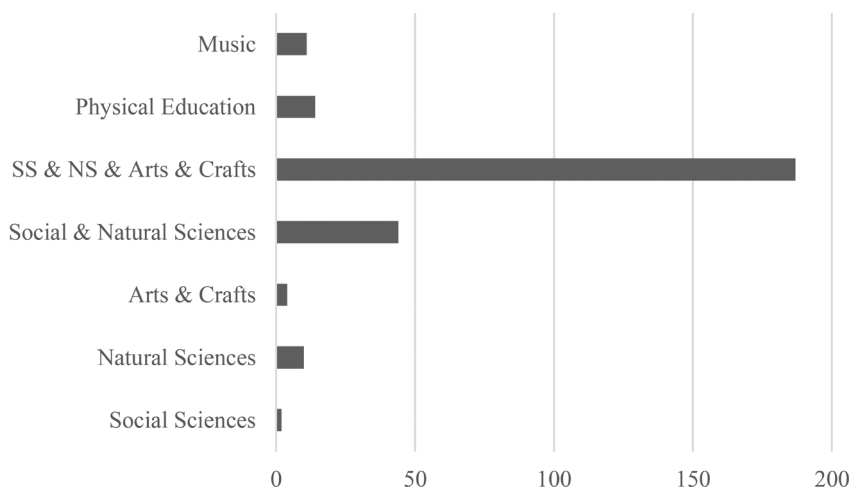
Instrument reliability

The total reliability of the scale is high and satisfactory with a Cronbach alpha of 0.873. In the first three dimensions, Cronbach alpha is acceptable, being 0.71, 0.78 and 0.71, respectively. The Cronbach alpha level is only questionable in the fourth dimension, being 0.62. The lowest result, unacceptable, corresponds to the fifth dimension, being 0.27. The reason can be explained because this dimension does not measure the essentials of the competence to plan CLIL lessons, but peripheral elements not exclusive to CLIL and independent of teachers' styles to plan CLIL.

Descriptive analysis

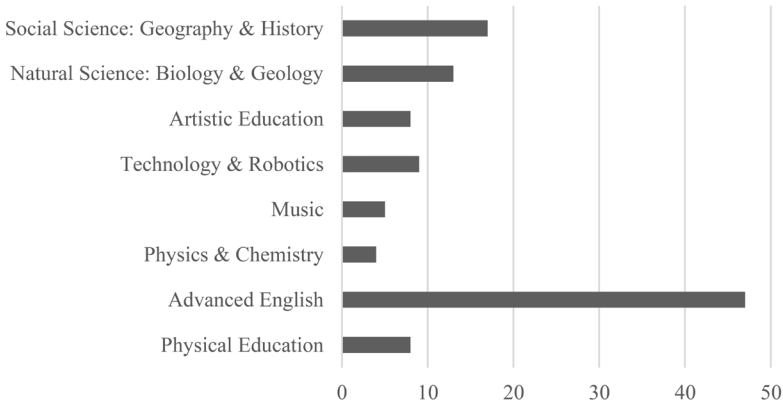
The sample consisted of 73.4% women and 26.6% men. There were 272 primary teachers and 111 secondary teachers. The distribution of the sample by the curricular subjects they teach at school is shown in Figures 1 and 2.

Figure 1. Distribution of the sample by CLIL curricular subjects taught in primary school



Source: Own elaboration.

Figure 2. Distribution of the sample by CLIL curricular subjects taught in secondary school

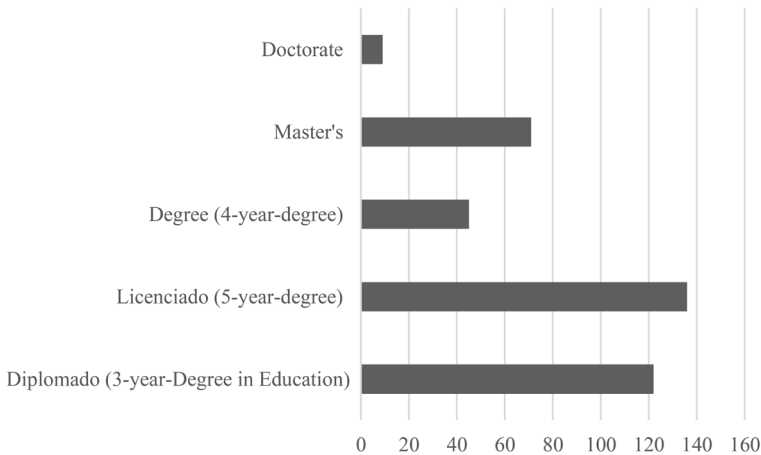


Source: Own elaboration.

A majority of CLIL primary teachers in the sample teach Natural Science, Social Science and Arts & Crafts at the same time, which is one of the main differences with their colleagues from secondary school who only teach the subjects related to their academic degree. In secondary school Advanced English teachers, who also teach English Literature, are a majority.

Concerning teachers' education, only 11.7% of the sample hold a four-year-degree.

Figure 3. Description of the sample according to their education

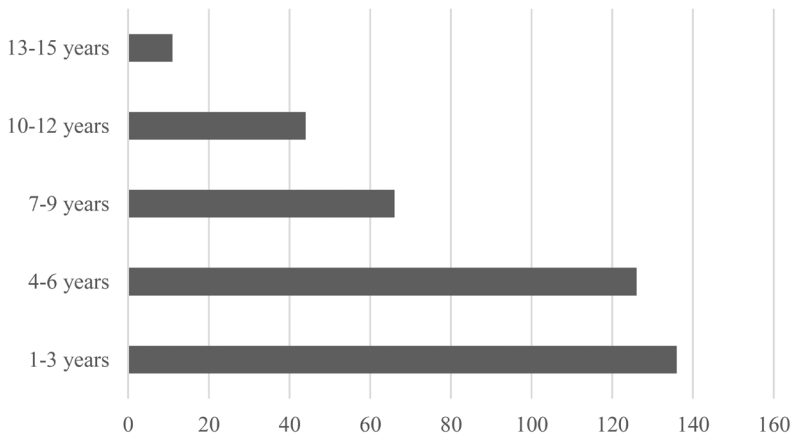


Source: Own elaboration.

Despite the fact that a majority of teachers work in primary school, 35.5% of the sample hold a *Licenciatura*. This means that a low percentage of primary-school teachers hold more than one university degree, since the former *Diplomatura* in Education or the current Degree in Primary Education is compulsory to work as a primary-school teacher in Spain.

Almost two thirds of the sample have been teaching CLIL for more than four years (see Figure 4).

Figure 4. Description of the sample according to the number of years teaching CLIL



Source: Own elaboration.

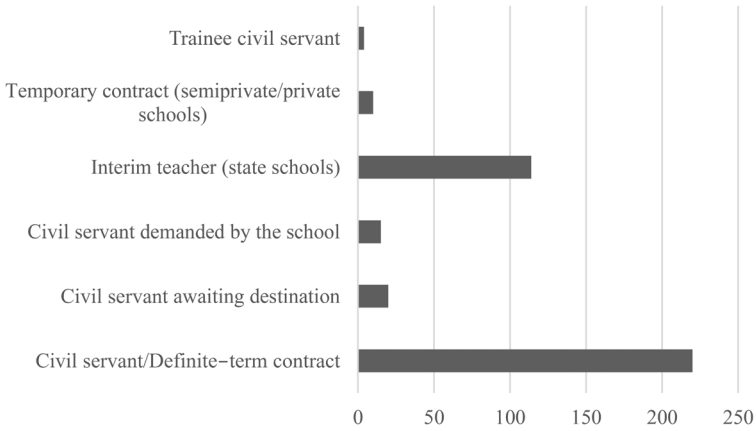
The distribution of the sample in the levels reflects the accelerated growth in the number of accredited teachers since the regulation in 2010 as a linguistic certification.

Regarding the status of the teachers in their schools, more than half are permanent teachers (220), 183 of whom are civil servants (47.8%), and 37 have an indefinite contract in a semiprivate school (9.6%) (see Figure 5).

It is remarkable that almost one third of the sample are interim teachers working in public schools. Finally, the majority of the teachers (87.5%) work in public schools.

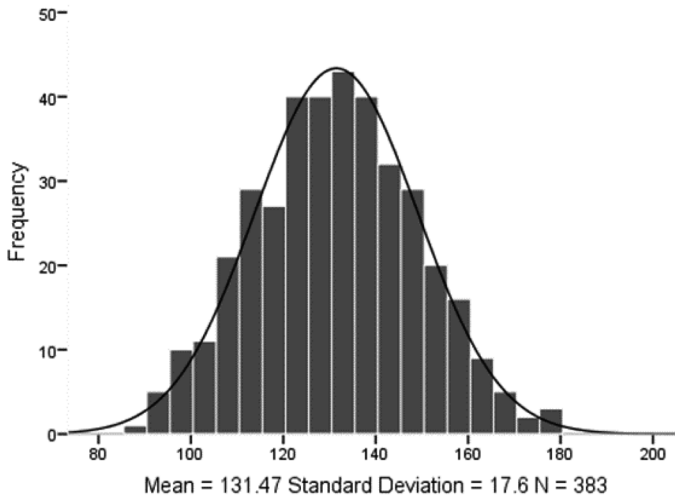
With regard to the dependent variables, the sum of total scores in the variables of the five dimensions has a normal distribution in the sample (see Figure 6).

Figure 5. Description of the sample according to their status at school



Source: Own elaboration.

Figure 6. Description of the sample according to their status at school



Source: Own elaboration.

The maximum score in the sample is 179 points out of 186 and the minimum is 88 points. This makes a difference of 91 points, which means that the sample is very heterogeneous with respect to the level of integration of the CLIL methodological principles.

The means in the level of integration of the CLIL methodological principles are shown in Table 4, including the means, the standard deviation, and the number of teachers in each group of the variable.

Table 4. Means and standard deviations in the sum of the five dimensions

Independent Variable	Level	Mean	SD	N
1 Stage	Primary school	131.99	17.983	272
	Secondary school	130.20	16.684	111
2a Curricular subjects (Primary school)	Natural Science	130.70	18.625	10
	Social Science	107.50	6.364	2
	Arts & Crafts	141.50	23.231	4
	Natural & Social Science	130.91	16.130	44
	Natural & Social Science and Arts & Crafts	133.33	18.520	187
	Music	126.73	13.799	11
	Physical Education	123.29	14.264	14
	2b Curricular subjects (Secondary school)	Social Science (Geography and History)	127.47	14.054
Natural Science (Biology and Geology)		121.46	18.021	13
Plastic and Visual Art Education		130.88	14.126	8
Technology Programming and Robotics		116.00	10.735	9
Music		128.00	20.469	5
Physics and Chemistry		111.25	14.500	4
Advanced English		138.77	14.868	45
Physical Education		126.00	10.542	8
3 Teacher education	Diplomado	132.27	17.838	122
	Licenciado	133.28	17.505	136
	Degree	123.16	15.754	45
	Master's Degree	133.18	17.208	71
	PhD	121.33	16.681	9
4 Status at school	Public servant or indefinite-term contract	133.92	17.446	220
	Public servant awaiting final destination	131.90	18.896	20
	Public servant temporarily working at a school	140.33	18.969	15
	Interim teacher at a public school	125.28	15.740	114
	Teacher holding a temporary contract	138.10	20.701	10
	Public servant in training	121.25	12.393	4
5 Years teaching CLIL	1-3 years	127.01	17.242	136
	4-6 years	131.87	16.028	126
	7-9 years	135.59	20.043	66
	10-12 years	137.57	16.583	44
	13-15 years	133.00	16.793	11
6 Type of school	Public school	131.39	17.381	335
	Semiprivate school	129.05	19.372	40
	Private school	146.88	10.934	8

Source: Own Elaboration.

Differential analysis of the competence to plan CLIL

The study analyzed the level of integration of CLIL principles in the planning style of the sample according to the six independent variables described in order to identify the factors influencing teachers' competence to plan CLIL lessons. No differences in the level of integration of the CLIL methodological principles were expected in any of the 42 hypotheses (Curricular Subjects is divided into primary school and secondary school, thus IV 2a and IV 2b). First, the results of the seven hypotheses that measure the effect of the six independent variables on the main dependent variable of the study are shown in Table 5.

Table 5. Differences in the main DV Global level of integration of the CLIL principles

Null hypothesis (means are equal)	Testing Technique	Statistic	Sig.	Statistical decision and conclusion	η^2
1. DV Global level of CLIL integration IV Stage	Student's t	t= 0.902	0.367	H0 is accepted. No differences.	--
2a. DV Global level of CLIL integration IV Curricular subjects Primary	ANOVA	F=1.745	0.111	H0 is accepted. No differences.	--
2b. DV Global level of CLIL integration IV Curricular subjects Secondary	ANOVA	F=5.194	0.000	H0 is rejected. Differences between Natural Science Biology & Geology, Technology, Physics & Chemistry and Advanced English teachers, in favor of Advanced English teachers.	0.26
3. DV Global level of CLIL integration IV Teacher education	ANOVA	F=3.961	0.004	H0 is rejected. Differences between Degree and <i>Diplomado</i> , <i>Licenciado</i> and Master's, in favor of the last three.	0.04

Null hypothesis (means are equal)	Testing Technique	Statistic	Sig.	Statistical decision and conclusion	η^2
4. DV Global level of CLIL integration IV Status at school	ANOVA	F=5.258	0.000	H0 is rejected. Differences between interim, public servant/ indefinite-term contract and public servant temporally working at school, in favor of the last two.	0.04
5. DV Global level of CLIL integration IV Years imparting CLIL	ANOVA	F=4.609	0.001	H0 is rejected. Differences between 1-3, 7-9 and 10-12, in favor of the last two.	0.03
6. DV Global level of CLIL integration IV Type of school	ANOVA	F=3.485	0.032	H0 is rejected. Differences in favor of the private school.	0.02

Source: Own elaboration.

Statistically significant differences were found in all the independent variables except the stage of education. It is also remarkable that the curricular areas taught by primary teachers do not show differences whereas they show differences in the secondary teachers. This is coherent with the differences found in the experience teaching CLIL, since primary teachers started their participation in the program six years before their secondary counterparts and, those primary teachers who did it before 2010, received specific training on CLIL called *formación de entrada* before their accreditation. The results by dimensions are summarized in Table 6.

Table 6. Differences in the level of integration of the CLIL principles in the five dimensions

Dependent Variable	D1 CLIL elements		D2 Methodology		D3 Activities and resources		D4 Evaluation		D5 Organization	
	Sig.	η^2	Sig.	η^2	Sig.	η^2	Sig.	η^2	Sig.	η^2
Independent variable										
1. Stage of education	0.19	--	0.86	--	0.22	--	0.13	--	0.00	0.17
2a. Primary school subjects	0.01	0.01	0.13	--	0.17	--	0.23	--	0.00	0.12

Dependent Variable	D1 CLIL elements		D2 Methodology		D3 Activities and resources		D4 Evaluation		D5 Organization	
2b. Secondary school subjects	0.00	0.39	0.43	--	0.05	--	0.00	0.44	0.42	--
3. Teacher education	0.02	0.03	0.08	--	0.00	0.05	0.00	0.04	0.00	0.05
4. Status at school	0.00	0.06	0.01	0.04	0.00	0.05	0.01	0.04	0.00	0.07
5. Years imparting CLIL	0.00	0.04	0.01	0.04	0.24	--	0.38	--	0.00	0.05
6. Type of school	0.07	--	0.02	0.02	0.30	--	0.49	--	0.35	--

Source: Own elaboration.

Despite the fact that no differences were expected in any of these 35 hypotheses, statistically significant differences were found in 18 of them. The differences found in the Stage IV of education are not relevant since dimension 5 showed a very poor reliability, particularly comparing primary and secondary-school teaching scenarios. These results confirm the heterogeneity of the sample in the level of integration of the CLIL principles and, therefore, in the competence to plan and deliver CLIL lessons.

Discussion

Regarding RQ1, the results show that the stage of education is the only factor that does not influence the level of integration of CLIL principles. As to the factors that show influence, the results of RQ2 show that, in primary school, a majority of teachers obtain similar means, although there are differences in the first and fifth dimensions in favor of Science and Arts & Crafts teachers with respect to Physical Education teachers in the analysis by dimensions. This result can be explained because the first curricular subjects taught in English were Science and Arts & Crafts and by the lack of specific training of Physical Education teachers in CLIL (Garijo, Alcalá, & Pueyo, 2018), which should be taken into consideration when designing the training programs for them.

On the other hand, the curricular subjects show differences in the secondary-school teachers in favor of the group of Advanced English teachers. It is important to point out that they hold a C2 in English and some of them are the coordinators of the bilingual program at their schools, which involves training and mastery in CLIL. The size of the effect of these results — 39% in D1 Core CLIL components and 44% in D4 Evaluation — may be due to the fact that, at this stage, the vast majority of teachers have been qualified according to their language proficiency, with at least C1 level of proficiency; therefore, their knowledge of CLIL is not guaranteed. These differences in favor of the Advanced English teachers, who hold a C2, also confirm the direct relationship between language proficiency and mastery of theoretical aspects of CLIL pointed out by Pérez-Cañado (2016).

With regard to the influence of the teacher's education on the level of integration of CLIL principles, RQ3, it should be noted that the results are in line with the studies of Fernández-Cézar et al. (2013) and Delicado and Pavón (2016), which indicate deficiencies in the initial teacher training. The group who has studied a four-year degree shows a level of integration significantly lower than the other groups. These differences are found despite the fact that the new four-year-degrees in Education have an academic program that already includes specific training for bilingual education. In this vein, Fernández Cézar et al. (2013) have pointed out the mismatching between new academic programs and the real needs of bilingual classrooms. Specifically, Jover et al. (2016) explain that the new programs must be revised in order to improve the training of generalist teachers who do not study the specialty in a foreign language but can also become CLIL teachers.

With respect to the fourth RQ, a determining factor in the level of integration of CLIL principles is the status of the teacher at school. The results of these analyses revealed that the group of interim teachers shows statistically significant differences with the groups with indefinite-term contracts, in favor of the latter. This fact is very remarkable, because it points out that staff mobility is a factor of negative influence on teachers' competence in CLIL.

Concerning the influence of the number of years teaching CLIL, RQ5, the groups showing a higher level of integration of the CLIL principles are the 7-9 and 10-12 groups. These differences are statistically

significant with the 1-3 group, which puts into value the knowledge that teachers develop from practice in the classroom. Although this experience is not usually recognized by research, as noted by Perines (2018), it seems to have a positive impact on teachers' competence to plan CLIL lessons.

Finally, regarding RQ6, it is necessary to say that, although the 4th factor, type of school, showed significant differences in favor of the private school, this result has a relative value because of the limited sample of this group, which is represented by one private school. It is also interesting to note that the means of state and semiprivate schools are similar, and no significant differences were found between these two groups.

A thorough analysis of these results allows the identification of the following profiles in the sample:

- These are the teachers who show a higher level of integration of the CLIL methodological principles in their planning style:
 - Teachers accredited with prior linguistic and CLIL training (*Diplomados* who received linguistic and CLIL training prior to their accreditation).
 - Teachers with a C2 level of English. These differences are not found between levels B2 and C1, probably because B2 teachers are primary-school teachers accredited with prior linguistic and CLIL training, whereas C1 teachers are primary- and secondary-school teachers accredited after 2010 when the accreditation process was regulated as a linguistic accreditation; thus, CLIL training is not guaranteed.
 - Trained CLIL teachers who manifest desire to still be trained in CLIL.
 - Primary-school teachers who teach Social Sciences, Natural Sciences and Arts & Crafts simultaneously — a majority in the primary-school stage.
 - Secondary-school teachers who teach Advanced English (including Literature), a majority in the secondary-school stage. They hold a C2.
 - *Diplomados*, *licenciados*, or with master's degree.
 - Public servants with a permanent position at one school or temporarily working at one school for particular reasons. They are

usually very skilled teachers who stand out in important aspects for the school.

- Teachers with 7 to 12 years of experience teaching CLIL.
- These are the teachers who show a lower level of integration of the CLIL methodological principles in their planning style:
 - Teachers accredited without previous CLIL training, after 2010 (70% of the sample) and without post-accreditation training (50% of the sample).
 - Teachers with a four-year degree, after Bologna 2003.
 - Interim teachers and Physical Education teachers.
 - Teachers having 1 to 3 years of experience teaching CLIL.

Conclusions and recommendations

From the analysis of the factors studied, it is concluded that the only factors that do not influence in-service teachers' competence in planning CLIL lessons are the stage of education (RQ1) and the type of school (state or semiprivate) (RQ6). Regarding the other factors, it is necessary to offer specific training on the core CLIL components (dimension 1) to primary-school teachers of Physical Education and to all secondary-school teachers except Advanced English teachers. The secondary-school teachers also need training related to the formative and summative evaluation of students in CLIL contexts (dimension 4) (RQ2).

Furthermore, initial teacher education should include more effective training on the elements of CLIL, activities and resources and evaluation in CLIL contexts (RQ3). It is also important to improve the impact of the CLIL training offered to interim teachers. Again, an accreditation model including mandatory CLIL methodological training can help to reduce the differences in the level of integration regardless the status of the teachers at school (RQ4). Finally, this can also reduce the statistically significant differences found between teachers with less experience teaching CLIL (RQ5).

Based on these results, the identification of the CLIL teacher profiles according to the factors studied revealed the areas that require

measures to improve their competence in planning CLIL lessons. First, the review of the current accreditation model, based exclusively on linguistic competence, needs to be reviewed and a model including prescriptive previous training in CLIL should be introduced. This measure can help to reduce the heterogeneity of this group of teachers in relation to the scientific knowledge of CLIL. Secondly, it is also necessary to review the academic programs of the Degrees in Education and the Masters of Secondary Education. Thirdly, it is paramount to reduce the number of interim teachers. Fourthly, teachers with a higher level of CLIL should be promoted and encouraged to share their experience, so that they share their knowledge and good practices among their colleagues. Finally, it is necessary to foster a conciliation of the CLIL training offering with the factors that inhibit the professional development of teachers, such as incompatibility with working hours, lack of incentives to participate in professional development activities, the cost of professional development activities, and the lack of an adequate offer of activities (Organization for Economic Co-operation and Development, 2014).

These conclusions and recommendations fully coincide with the results published in various studies on the methodological training of teachers who participate in bilingual education programs. These studies have highlighted the lack of training and have called for further development in this specific area of teacher education (Garijo et al., 2018; Herrero-Rámila, 2015; Lancaster, 2016; Pérez-Cañado, 2015). Likewise, Calle Casado (2015) concludes with similar training proposals: linguistic and methodological training; initial mandatory education of CLIL; in-service training for teachers compatible with family life (during working hours); and, finally, an accreditation plan that considers linguistic competence and CLIL training.

The ultimate goal of this study is to open new ways of sustaining the quality of bilingual programs based on CLIL. To that end, more studies should be carried out from the perspective of teacher education and teacher training and aimed at identifying the training needs of this broad and heterogeneous group of teachers. They should include analysis of sample lesson plans and actual lesson delivery and be compared with other stakeholders, such as their students and families. This type of research should guide the design of teacher training

programs because the quality of bilingual education also depends on the multiple competencies of the CLIL teacher, such as the competence to plan CLIL lessons (Marsh, 2012).

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CUESTIONARIO SOBRE PRINCIPIOS METODOLÓGICOS AICLE EN LAS PROGRAMACIONES DE LOS DOCENTES DEL PROGRAMA BILINGÜE DE LA COMUNIDAD DE MADRID

Este cuestionario forma parte de un estudio de investigación avalado por el Departamento de Métodos de Investigación y Diagnóstico en Educación (MIDE) de la Universidad Complutense de Madrid (UCM). El objetivo del estudio es conocer los principios metodológicos AICLE (aprendizaje integrado de contenido y lengua) presentes en las programaciones de los docentes del Programa Bilingüe de la CM.

Por favor, marca la opción que refleje mejor tu opinión. Si te equivocas tacha claramente la que no es correcta y marca de nuevo la opción pertinente. En aquellas preguntas que son abiertas contesta con letras mayúsculas para facilitar su lectura e interpretación. Las respuestas que se recogen aquí tienen la total garantía de confidencialidad. En ningún caso se comunicarán a otras instancias ni se presentarán de forma que puedan deducirse circunstancias personales concretas. Tu opinión es muy importante.

MUCHAS GRACIAS POR TU COLABORACIÓN

VARIABLES DE IDENTIFICACIÓN DEL ESTUDIO

1. Sexo: Mujer Hombre
2. Edad: _____
3. Centro actual de trabajo. Indica su titularidad:

 Público Privado Concertado
4. Localidad del centro: _____
Indica la DAT a la que pertenece el centro:
 Norte Sur Este Oeste Centro
5. Titulaciones que posees:
 Diplomado Licenciado Graduado Máster Doctor
6. Antigüedad Docente impartiendo CLIL: n ° de cursos académicos
_____ (incluido el presente)
7. Vinculación con el centro actual: Funcionario _____
 Definitivo En expectativa En comisión de servicios
 Interino
8. Nivel (es) en los que impartes docencia este curso:
 Primero Segundo Tercero Cuarto Quinto Sexto
9. Áreas que impartes:
 Ciencias Sociales
 Geografía e Historia
 Ciencias Naturales
 Biología y Geología
 Educación Plástica y Visual /Artística
 Música
 Tecnología, Programación, Robótica
 Física y Química
 Religión / Valores Éticos
 Educación Física
10. Número aproximado de alumnos por grupo: _____
11. ¿Estás habilitado para impartir docencia en el Programa Bilingüe de la CM? Sí No
12. Indica la formación recibida para la habilitación y tu nivel de inglés según el MCER: B2-C1-C2
 Lingüística y metodológica antes de la habilitación.

- Metodológica antes de la habilitación.
 Habilitación sin formación previa específica.
 Formación metodológica después de la habilitación.
 Otra _____

13. ¿Consideras que estás formado para impartir metodología AICLE?

- Nada Poco Algo Bastante Mucho

14. Indica las áreas en las que te gustaría recibir formación:

- Lengua inglesa Metodología AICLE Ambas Ninguna

VARIABLES ACTIVAS DEL ESTUDIO	Rodea tu respuesta:					
	1 Nunca	2 Raramente	3 Ocasionalmente	4 Frecuentemente	5 Muy frecuentemente	6 Siempre
15. ¿En qué grado realizas en tu programación un análisis de las demandas lingüísticas del contenido con antelación?	1	2	3	4	5	6
16. ¿En qué medida simplificas y/o reduces el contenido de las áreas curriculares al impartirlo en lengua inglesa?	1	2	3	4	5	6
17. ¿Analizas el nivel de dificultad cognitiva de las actividades para poder adaptarlo si fuese necesario al nivel de competencia de tus alumnos?	1	2	3	4	5	6
18. ¿Utilizas estrategias de apoyo para fomentar y guiar la interacción en el aula?	1	2	3	4	5	6
19. ¿Analizas los componentes culturales presentes en los contenidos curriculares y lingüísticos?	1	2	3	4	5	6
20. ¿Adaptas los textos orales y escritos al nivel de conocimiento lingüístico de tus alumnos?	1	2	3	4	5	6
21. ¿Planteas habitualmente a tus alumnos actividades de comprensión oral y escrita de los textos en ese orden?	1	2	3	4	5	6
22. ¿En qué medida desarrollas estrategias para el aprendizaje de vocabulario relacionado con el contenido?	1	2	3	4	5	6
23. ¿Programas habitualmente actividades para reforzar las estructuras gramaticales que demandan los contenidos?	1	2	3	4	5	6
24. ¿Partes de ejemplos personales y casos particulares de tus alumnos para explicar los contenidos?	1	2	3	4	5	6
25. ¿En qué grado incluyes estrategias de trabajo en grupo o por parejas?	1	2	3	4	5	6
26. ¿En qué medida tus programaciones incluyen estrategias de resolución de problemas, aprendizaje por descubrimiento/proyectos, etc.?	1	2	3	4	5	6
27. ¿Proporcionas estrategias para clarificar y ayudar a los alumnos a llegar a conclusiones por sí mismos?	1	2	3	4	5	6
28. ¿Indicas de alguna manera la relación entre actividades y competencias que desarrollan los alumnos en tu programación?	1	2	3	4	5	6
29. ¿Utilizas alguna taxonomía cognitiva o similar para definir los criterios de evaluación de los estándares de aprendizaje que utilizas para evaluar los objetivos que programas?	1	2	3	4	5	6

30. ¿Realizas actividades específicas para conocer los estilos de aprendizaje de tus alumnos?	1	2	3	4	5	6
31. ¿Sueles programar distintas actividades sobre un mismo contenido para adaptarte a los diferentes niveles de competencia de tus alumnos?	1	2	3	4	5	6
32. ¿En qué grado tus actividades están relacionadas con los objetivos curriculares del nivel/área que impartes?	1	2	3	4	5	6
33. ¿Crees que tus actividades son motivadoras y relevantes para tus alumnos y les permiten crear un resultado final que pueden mostrar y/o compartir?	1	2	3	4	5	6
34. ¿Programas actividades para evaluar los procesos de aprendizaje?	1	2	3	4	5	6
35. ¿Elaboras recursos para apoyar las demandas lingüísticas del contenido que impartes?	1	2	3	4	5	6
36. ¿Incluyes materiales didácticos que reproducen recursos de la vida real en la realización de tareas?	1	2	3	4	5	6
37. ¿Utilizas las TIC como recurso para promover la interacción y el aprendizaje autónomo?	1	2	3	4	5	6
38. ¿Incluyes actividades de evaluación de la lengua inglesa en tus programaciones?	1	2	3	4	5	6
39. ¿Programas actividades de autoevaluación y coevaluación de los alumnos para la evaluación de los contenidos curriculares?	1	2	3	4	5	6
40. ¿En qué grado combinas estrategias de evaluación formativa (para retroalimentar y ayudar a los alumnos) y sumativa (para calificarlos)?	1	2	3	4	5	6
41. ¿Además de los exámenes y tests, utilizas con regularidad herramientas de evaluación como hojas de observación, ckecklists, rúbricas u otras similares para evaluar a tus alumnos?	1	2	3	4	5	6
42. ¿Tus alumnos reciben más de un 30% del horario lectivo en lengua inglesa?	1	2	3	4	5	6
43. ¿Consideras importante no impartir áreas curriculares en lengua española e inglesa a un mismo grupo de alumnos?	1	2	3	4	5	6
44. ¿Crees que es necesario un entorno afectivo positivo en el aula AICLE?	1	2	3	4	5	6
45. ¿En qué medida adaptas la organización (disposición de las mesas) y decoración del aula (apoyos visuales para el contenido) al contenido que los alumnos aprenden en ella?	1	2	3	4	5	6
46. ¿En qué grado crees que planificas tu docencia?	1	2	3	4	5	6
47. ¿En qué medida crees que una buena planificación docente influye en el aprendizaje de los alumnos?	1	2	3	4	5	6
48. ¿Crees que tu grado de conocimiento de los principios AICLE te permite realizar una programación docente adecuada a las necesidades de la enseñanza impartida a través de este enfoque?	1	2	3	4	5	6