

A Comparison of Students' Educational Achievement across Programmes and School Types with and without CLIL Provision

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ABSTRACT: This paper discusses factors that determine school achievement in general, with special reference to school type, and the factors that make schools different, such as the students' economic and sociocultural level and family support. Then, it provides data about academic achievement in CLIL and non-CLIL programme groups and across three different types of schools: public (bilingual and non-bilingual), private (bilingual) and charter (non-bilingual), with a research design that matches students in terms of verbal intelligence and motivation. A total of 13 public (n = 551), one private (n = 42) and three charter (n = 127) schools at both the primary and secondary levels from the provinces of Cádiz and Málaga in Andalusia, Spain, participated in the study. Performance in L1 (Spanish), FL (English) and subjects taught in English in CLIL (or bilingual) schools (Natural, Social and Cultural Environment Education in primary education, Natural Science in compulsory secondary education) is compared. Results show differences in performance between the CLIL and the mainstream, non-CLIL programme and between school types—particularly at the secondary level. Additionally, results from discriminant analyses seem to provide evidence that factors such as motivation, verbal intelligence, extramural exposure to English and socioeconomic status cannot account for differences between CLIL and non-CLIL groups.

Keywords: CLIL, socioeconomic and sociocultural factors, public school, private school, achievement

Comparación del logro educativo de los estudiantes en programas y tipos de centro con enseñanza AICLE y sin ella

RESUMEN: Este artículo aborda factores que determinan el logro escolar, con un énfasis especial en el tipo de centro, así como los factores que diferencian estas instituciones, tales como el nivel económico y sociocultural del estudiante y el apoyo familiar. Asimismo proporciona datos sobre logro académico en grupos de docencia bilingüe (CLIL) y no bilingüe, y en grupos procedentes de tres tipos de centros: público (bilingüe y no bilingüe), privado (bilingüe) y concertado (non-bilingüe), cuyos estudiantes estaban emparejados en cuanto a inteligencia verbal y motivación. Participaron 13 centros públicos (n= 551), uno privado (n=42), y tres concertados (n=127) de las provincias de Cádiz y Málaga (Andalucía, España). Se comparó el rendimiento académico en la L1 (español), la LE (inglés) y asignaturas impartidas en inglés en los colegios bilingües (Conocimiento del Medio Natural, Social y Cultural en Educación Primaria y Ciencias de la Naturaleza en la Enseñanza Secundaria

Obligatoria). Los resultados muestran diferencias entre el grupo bilingüe y el no bilingüe, y entre tipos de centros, particularmente en Secundaria. Asimismo, los resultados obtenidos a partir de los análisis discriminantes parecen arrojar evidencia de que factores tales como la motivación, la inteligencia verbal, la exposición al inglés fuera del aula y el estatus socioeconómico no explican las diferencias encontradas entre los grupos bilingüe y no bilingüe.

Palabras clave: AICLE, factores socioeconómicos y socioculturales, colegio público, colegio privado, rendimiento.

1. INTRODUCTION

This paper investigates the impact of contextual variables on academic achievement. It also focuses on the importance of the variable ‘type of programme’ (CLIL vs. non-CLIL) on the students’ results in different contexts. These contextual factors may refer to a student’s social environment and family background, socioeconomic status, the education programme and type of school the student attends.

With regards to teaching and learning processes, several investigations have shown that social context and school setting are key factors in influencing student results. Furthermore, the way the school is managed and the methodology used in the classroom also depend on the social setting where it is located. This set of factors covers those that relate to the students’ perception of their social context as well as features from the students’ real social and family background and their impact on students’ performance.

A number of studies have indicated that students’ adverse social conditions can result in serious school problems and may be the cause of their being suspended and repeating grades. What constitutes the students’ social context may include several factors—for example, their social background, such as family income and socioeconomic status, parents’ education levels and ethnicity. As we will see, students belonging to low-income families and marginalized minorities are more at risk of obtaining poor results at schools. Students’ diversity, their special needs and interests, multiple intelligences and cognitive styles are also of great importance and influence their academic achievement. Differences in schools and their surroundings can further condition the students’ progress at school. Here, the type of school (urban, rural, public, private, charter) and its ownership are crucial, as we will see in later sections. Several studies have shown that students’ performance is highly related to their parents’ educational background and their classmates’ aspirations and values, which are much higher in private and semiprivate schools. Finally, resource equity is another factor that may exert an important influence on students’ educational opportunities and consequently on their academic results.

Given the importance of the social contexts in which the teaching and learning processes take place, we aim to examine the differences in performance between CLIL and non-CLIL students in different types of schools. After analysing the importance of economic, socio-cultural, family and school variables, we compare the academic performance of students (matched in terms of verbal intelligence and motivation) who are in bilingual (i.e. CLIL) and mainstream programmes in three types of schools: state, private and subsidised private (charter) schools. Subsequently, the results and significant variations between students from different programmes and school types are discussed and, finally, the limitations of the study are acknowledged and the relevant conclusions are summarised.

2. FACTORS THAT INFLUENCE SCHOOL PERFORMANCE

The term 'school performance' is a highly complex construct that depends on various interrelated factors (Edel, 2003; González Barbera, 2003). Garbanzo Vargas (2007) identified three groups of key variables: personal, social and institutional. This paper will mainly focus on the institutional variables relating to the programme and type of school the students attend.

According to Tejedor and Caride (1998), the contextual variables that have the greatest impact on academic performance are those involving aspects that are structural (social class), institutional (type of school) and academic (regular schooling since early years). The variable 'type of school' (state/non-state, fully funded/subsidised/private) has a particularly significant influence on overall grades and specific tests, with scores on average favouring private and subsidised schools.

Cordero, Crespo and Pedraja (2013) have reviewed several papers examining PISA reports and have concluded that, in all the studies, socioeconomic factors play a very important role in explaining educational performance among Spanish students. The educational level of the parents and the socioeconomic and cultural background of students at the school are also important variables. For those authors, the type of school does not have a significant influence on results. Variation in results between school types is relatively small and can be mainly explained by individual features among students, economic status and sociocultural setting.

Whilst this article focuses on the influence of the programme and type of school on academic performance, differences in sociocultural and economic status among the student body and the support they get from their families are the main factors that differentiate state, private and subsidised schools. It is therefore important to analyse these factors before focussing on the impact the type of school has on academic performance. As will be shown below, there is disagreement over the influence of these factors on student results.

Since Coleman *et al.*'s landmark study on equal opportunities in education (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld & York, 1966), *sociocultural and economic status* has been seen as a strong indicator of student performance. In this respect, Coleman *et al.* affirmed that the influence of a student's background was greater than anything that happens within the classroom. Carabaña (1988), however, found the influence of sociocultural level on performance to be small by the end of primary education, almost nonexistent in secondary and completely absent at the university level.

Nonetheless, several studies have demonstrated the impact of the family's sociocultural and economic levels on their child's performance (OECD, 2016). For example, Pérez Serrano (1981) shows that the occupational status of parents and their cultural level have a significant influence on their children's results, improving in relation to higher sociocultural levels. Children from higher sociocultural backgrounds seem to have better incentives, expectations and attitudes toward learning in any curricular area. Mehan (1991) has also highlighted the influence of the parents' social and cultural levels on their children's performance and has revealed the disadvantages that students from lower social classes suffer. In his opinion, strategies employed by parents from middle-class backgrounds, which include high levels of participation in their children's education, are usually successful in contrast to those employed by the lower classes, where education is left exclusively in the hands of the teaching staff (Madrid, 2010).

Students from lower social classes are at a disadvantage because, as stated by Bourdieu (1977) and Bourdieu and Passeron (1977), schools reproduce, reinforce and reward strategies learnt by upper and middle social classes and devalue those from lower social classes, replicating the inequality they are already suffering.

Córdoba, García Preciado, Luengo, Vizuete and Feu (2011) show that the profile of a student with overall high academic achievement consists of being female, attending a subsidised school and enjoying a high economic and cultural status. In that study, it was concluded that the gender, type of centre, year of studies, family structure and economic and cultural family status perpetuate highly significant differences.

In the study that Madrid (2010) conducted on the effect of social class and academic performance, no correlation was found between students' social class and their academic performance in the foreign language (English), in either primary or secondary school (Madrid, 2010). This means that there are students from lower social classes who can perform at the same or higher standards as those from the middle or upper classes.

Parents also play an important role in their children's attitudes towards the foreign language. Several studies on social influence reveal that the attitudes of primary students towards English are influenced 70% by parents, 20% by their teachers and 10% by their friends and acquaintances (Madrid & Alcalde, 1988). McLaren and Madrid (1996) and Madrid (1999) offer similar results.

Other studies also demonstrate that academic results improve in relation to higher economic, educational and sociocultural levels in the student's family (Cummins, 1980 and 1981; De la Orden & González 2005; Mehan, 1991; Pérez Serrano, 1981; Ruiz de Miguel, 2009; Sánchez Herrero, 1990;).

In the specific field of CLIL, growing research and well-grounded discussions have highlighted the necessity of controlling for potentially intervening factors –socioeconomic and sociocultural factors among them– so as to avoid erroneous attributions of higher FL proficiency and academic performance solely to CLIL education (e.g., Bonnet, 2012; Bruton, 2011a, 2011b, 2013, 2015; Dallinger, Jonkmann & Hollm, 2016; Paran, 2013; Pérez-Cañado, 2012; Rumlich, 2017). In a study with a sample of 1,362 German students from 58 classes, Dallinger, Jonkmann and Hollm (2016) set out to investigate the “the possible within-school selectivity of CLIL programmes with respect to differences between CLIL and non-CLIL students' learning prerequisites” (p. 2). The values in the CLIL group were significantly higher than those in the monolingually taught section, in terms of parents' education, socioeconomic status and cultural capital (this variable being measured as the number of books in the household). It is important to note, though, that even when selection effects were controlled for (in addition to the above-mentioned factors, the students' verbal cognitive skills, gender, motivation in the FL, and motivation and achievement in history were taken into consideration), the CLIL students substantially and significantly outperformed their monolingually taught peers in English. These results, however, stand in direct contrast with those obtained by Rumlich (2017) in his longitudinal evaluation of general EFL proficiency carried out in secondary schools in Germany, which led him to conclude: “the observable differences with regard to general EFL proficiency cannot be attributed to CLIL, however. Rather, they are a direct consequence of CLIL-related selection, preparation, and class composition intended to help students master the challenges of CLIL” (p. 128).

In sum, although he refers to the particular case of CLIL education in Germany, Bonnet's (2012) interpretation of evaluation data could also reflect the wider situation of CLIL: "there are strong indications from evaluation research...that social selection plays an important role in German CLIL. Therefore, high outcomes in CLIL groups might well be ascribed to factors other than classroom practice" (p. 67).

2.1. Type of school and academic achievement

According to the OECD (2011), students who attend private schools usually perform better in PISA tests than students who attend state schools; but students in state schools who are immersed in a similar socioeconomic context to students from private schools usually perform just as well. This report also stresses that countries which have a greater number of private schools do not perform better in PISA.

The effect caused by the type of school on student performance has sparked deep interest in educational research (Calero & Escardíbul, 2007; Choi & Calero, 2012; Mancebón-Torrubia, Calero, Choi & Pérez Ximénez-de-Embún, 2012).

Choi and Calero (2012) examined and analysed the main factors behind the gap in results between state and private schools. In their study, private schools held a clear advantage over state schools. The authors show that if differences of economic and sociocultural origin are eliminated, there are no longer many significant differences between the results in one type of school and the other.

However, private and subsidised centres are not always superior to state schools, as discussed by Gutiérrez (2009), who reports the opposite situation in a study carried out in Catalonia. Other papers are in agreement. For example, the PISA 2006 report considered non-significant the difference in results according to school type when eliminating the influence of student socioeconomic status. Therefore, strictly speaking, private education does not add anything to what is already provided by the home. It simply requires or maintains it (Jehangir, Glas & van den Berg, 2015; MEC, 2006).

According to the 2009 PISA report, in 16 OECD countries and 10 partner countries and economies, the average student from a private school performed better than the average student in a state school. This private school advantage is revealed in PISA reading scores, which are 30 points higher among students in private schools than among students in state schools (OCDE, 2011: 1).

PISA has discovered that when state schools are given the same level of autonomy as private schools and when state schools attract a similar student population to private schools, the advantage of the private school is not apparent in 12 of the 16 OECD countries which suggested this advantage at first sight (OECD, 2011: 1). PISA shows that state schools with comparable student populations display the same advantages, whilst the average state school with a more diverse student body does not usually show these advantages.

Madrid and Hughes (2011) provide data on the differences between state and subsidised schools with students who study in CLIL bilingual programmes and others who study in Spanish and study English as a foreign language (hereafter EFL). In this volume, Villoria, Hughes and Madrid (2011) study the differences between L2 use (English) between CLIL and EFL students from state and subsidised schools in both primary and secondary education. They find significant differences in primary between CLIL students from state schools

and EFL students in subsidised schools in favour of the state school CLIL students. When comparing CLIL state school students with EFL state school students, they also found that CLIL students perform better, which is not surprising as they are taught English for more hours. They also find differences in secondary education between CLIL state schools (which dedicate a greater number of hours to English) and EFL subsidised schools in favour of the state CLIL schools. When comparing EFL public schools with EFL subsidised schools, the subsidised schools perform better.

Finally, Madrid (2011) examined the differences in levels in the subject of social sciences in both primary and secondary for both state and subsidised schools that teach CLIL and EFL. He found significant differences in primary between state and subsidised schools that both teach EFL in favour of the subsidised schools. In secondary, he examined both state and subsidised EFL schools and the subsidised schools also performed better.

In summary, as the OECD (2011) has stated, private schools and state schools with students coming from socioeconomically advantageous backgrounds benefit from the students who attend their centres. There is, however, no evidence suggesting that private schools help raise achievement in the education system as a whole.

3. DESIGN

3.1. Objective and research questions

The objective of the study is to investigate the differences in performance between two educational programmes –CLIL and the monolingual mainstream (non-CLIL)– and between three different types of schools. More specifically, the study seeks to investigate the following research questions:

1. Are there statistically significant differences in performance between CLIL and non-CLIL students regarding the L1 (Spanish), the FL (English) and content subjects taught in English in the CLIL programme? These subjects were Natural, Social and Cultural Environment (hereafter NSCE) Education (in primary education) and Natural Science (in compulsory secondary education).
2. Are there statistically significant differences in performance in Spanish (L1) and content subjects when strands (CLIL and non-CLIL) within the same school type and across school types (public and charter) are compared?
3. Are there statistically significant differences in performance in English when strands (CLIL and non-CLIL) within the same school type and across school types (public, private and charter) are compared?

3.2. Participants

A total number of 720 school students from thirteen public ($n = 551$, 76.5%), one private ($n = 42$, 5.8%) and three charter schools ($n = 127$, 17.6%) at both the primary and the compulsory secondary levels participated in the study. Of these, 247 (34.3%) were sixth- grade primary school students, aged 11-12 years, and 473 (65.7%) were fourth-grade secondary students, aged 15-16 years. There were 364 (50.6%) males and 356 (49.4%) fe-

males. The majority of students attended urban schools ($n = 594$, 82.5%) (see Tables 1 and 2 for further information on the sample). The schools were located in southern Andalusia, more specifically in the provinces of Cádiz and Málaga. The participating public schools had bilingual (i.e., CLIL) and monolingual strands, the charter school was monolingual and the private school was bilingual.

Table 1. Information on the primary education sample

School type		Programme		Sex	
Public n (%)	Charter n (%)	CLIL n (%)	Non-CLIL n (%)	Men n (%)	Women n (%)
182 (73.7)	65 (26.3)	81 (67.2)	166 (32.8)	111(44.9)	136 (55.1)

Table 2. Information on the secondary education sample

School type			Programme		Sex	
Public n (%)	Charter n (%)	Private n (%)	CLIL n (%)	Non-CLIL n (%)	Men n (%)	Women n (%)
369 (78.0)	62 (13.1)	42 (8.9)	275 (58.1)	198 (41.9)	253 (53.5)	220 (46.5)

3.3. Instruments and measures

3.3.1. Test for verbal aptitude

The subtest for verbal aptitude *Evaluación factorial de las aptitudes intelectuales* (EFAI) (Santamaría, Arribas, Pereña & Seisdedos, 2014) was used at a preliminary stage of the investigation in order to match groups for verbal intelligence. The level 2 verbal aptitude subtest was used for primary students; for secondary students, the level 4 subtest was employed. The authors report acceptable levels for the difficulty index (percentage of correct responses) and the discrimination index (biserial correlation coefficient) (Level 2: difficulty index (M) = 52%; discrimination index (M) = 0.40, $SD = 0.17$; Level 4: difficulty index (M) = 52%; discrimination index (M) = 0.34, $SD = 0.15$) and good internal reliability (coefficient $\alpha = 0.75$ for Level 2 subtest and $\alpha = 0.70$ for Level 4 subtest). They also report adequate measures of validity for the overall test.

This subtest is entirely multiple-choice, and each question has four possible answers. The level 2 subtest contains 26 multiple-choice items, and the level 2 subtest, 23 multiple-choice items. Students were allowed five minutes to complete it.

3.3.2. Motivation questionnaire

In order to ensure the homogeneity and, hence, comparability, of the sample, groups were also matched for motivation. The students' performance on the MA motivation ques-

tionnaire (Pelechano, 1994) was used as a measure of this variable. This self-report questionnaire consists of 36 statements, each of which has a dichotomous (yes/no) response format and identifies four motivational factors: (1) desire to work and self-esteem (10 items); (2) exam anxiety (9 items); (3) lack of interest in studying (9 items); and (4) realistic personal self-demand (7 elements). No time limit was set to complete this questionnaire.

3.3.3. *English test*

An *ad hoc* English test was designed for the purpose of this study. The students' overall performance in the sections of use of English, vocabulary, listening and reading was used as one of the two measures of proficiency in English. Additionally, the speaking performance of a group of learners in each school was measured. Speaking performance was assessed based on the following criteria: grammatical accuracy, lexical range, fluency and interaction, pronunciation and task fulfilment. This attainment test has shown adequate reliability and validity properties (see Madrid, Bueno & Ráez, in press, for the test and a detailed explanation of the design and validation procedure).

3.3.4. *End-of-year score*

End-of-year scores in L1 (Spanish) and in subjects taught partially (a minimum of 50% of the allocated instructional time) in English at bilingual schools (NSCE Education in primary education, and Natural Science in compulsory secondary education) were used as measures of performance in these subjects.

3.3.5. *Extramural exposure to English*

Time spent by participants on extramural activities in English was measured through a questionnaire based on an instrument developed by Sundqvist and Sylvén (2014). Extramural English is a term coined by Sundqvist (2009, cited in Sundqvist & Sylvén, 2014) to refer to “all types of English-related activities that learners come in contact with or are engaged in outside the walls of the English classroom, generally on a voluntary basis” (Sundqvist and Sylvén, 2014: 4).

3.3.6. *Socioeconomic status*

Information was collected from parents concerning their educational background (no formal education, school-leaving certificate, high school diploma, vocational training, Bachelor's degree or doctorate). Parental education was used as a proxy for socioeconomic status (i.e., for the purpose of the study, the higher the level of education obtained by the father or the mother, the higher the socioeconomic status of the student was).

3.4. **Data gathering**

Prior to the data-gathering stage of the study, the requisite permission had been obtained from the Andalusian Education Administration and schools had agreed to participate in the study.

Tests and questionnaires were distributed in all the participating schools during class time under the researchers' supervision. The test for verbal aptitude and the motivation questionnaires were administered in the same session in February-March 2015 and the English test in May-June 2015. The schools provided the researchers with the end-of-year scores in the subjects mentioned above.

3.4. Data processing

Means and standard deviations were calculated and differences between group means, compared statistically. The T-test was used to identify significant differences between types of programmes and schools in L1 (Spanish), the FL (English) and the subjects taught through CLIL in English (NSCE Education in primary education and Natural Science in compulsory secondary education). A p value of $p < 0.05$ was considered statistically significant. Also, the size effect was calculated through Cohen's d coefficient (Cohen, 1988). Finally, discriminant analyses were performed, including the studied variables of motivation, verbal intelligence, extramural exposure to English and socioeconomic status, in order to determine whether CLIL is truly responsible for the differences observed between CLIL and non-CLIL groups.

4. RESULTS AND DISCUSSION

4.1. Research Question 1

Our study results (Tables 3, 4 and 5) seem to provide further evidence that CLIL enrolment does not exert a negative impact on the students' mother tongue –mother tongue competence being operationalised as the end-of-year score in Spanish– despite the reduction in exposure to Spanish during school class time that it entails. However, an advantage (or a disadvantage) of CLIL over non-CLIL samples can only be established by studies with baseline data and a pre-post design. Nonetheless, these results seem consistent with those obtained across CLIL contexts in Europe, e.g. Finland (e.g., Merisuo-Storm, 2007; Merisuo-Storm & Soininen, 2014; Seikkula-Leino, 2007), the Netherlands (Admiraal, Wetshoff & de Bot, 2006), Estonia (Mehisto & Asser, 2007), Germany (Gebauer, Zaunbauer & Möller, 2012), and Spain (Ramos, Ortega & Madrid, 2011).

As to the effect of belonging to a CLIL stream on content subject scores, mixed evidence is found, as, while in primary education, CLIL and non-CLIL groups obtained quite similar end-of-year scores (Table 3), thereby lending further support to the conclusion that CLIL education is not detrimental to non-linguistic content learning, non-CLIL secondary students obtained significantly higher grades in Natural Science (effect size is small to medium, though) (Tables 4 and 5).

Some other studies have attested to the potential disadvantage of CLIL students in subjects taught in English. For example, the study by Marsh, Hau and Kong (2000) in Hong Kong secondary schools provided some worrying results. The authors conclude, "In summary, Hong Kong high school students were very disadvantaged by instruction in English in geography, history, science, and, to a lesser extent, mathematics. The size of this disadvantage was reasonably consistent across the first three years of high school" (Marsh,

Hau & Kong, 2000: 337). Similarly, the randomised controlled field experiment reported by Piesche, Jonkmann, Fiege and Keßler (2016) showed that the learning gains achieved by bilingually instructed secondary students were smaller than those demonstrated by the monolingually taught ones, both immediately after the intervention and also six weeks later. In addition, the results in Seikkula-Leino's (2007) study in a Finnish comprehensive school suggest that the CLIL group might have been disadvantaged. In the Spanish context, Fernández-Sanjurjo, Fernández-Costales and Arias (2017) also found that the results of primary students on a science test in mainstream schools were higher than those of their counterparts in the CLIL programme. Possibly, a conceptually complex content may be more difficult to understand and learn if the language of instruction is a foreign language (Bruton, 2011a; Seikkula-Leino, 2007).

It may also be the case that the effect of CLIL enrolment works differently in terms of impact on subject content learning according to the education level in some contexts. This, however, needs further research.

Also, not surprisingly, the CLIL sample outperformed the non-CLIL sample at a significantly higher level in the two measures of English attainment: the composite measure of use of English, vocabulary, listening and reading, and that of speaking. Besides, Cohen's effect size values suggest a high practical significance, most remarkably in speaking performance among the CLIL students (around 45% of the variance in speaking attainment is accounted for by CLIL programme registration) (Table 5). This result is in line with previous research in the Spanish context (e.g., Alonso, Grisaleña & Campo, 2008; Lorenzo, Casal & Moore, 2010; San Isidro, 2010; Villoria, Hughes & Madrid, 2011). Particularly outstanding is the difference in speaking performance between primary CLIL and non-CLIL strands: the average student in the CLIL group scored higher than 98% of the non-CLIL group (Table 5).

Table 3. Descriptive information on the primary education sample results (research question 1)

Subject	Programme	N	Mean	SD
Spanish	Non-CLIL	96	7.05	1.86
	CLIL	20	7.05	1.70
Natural, Social and Cultural Environment Education (<i>Conocimiento del Medio Natural, Social y Cultural</i>)	Non-CLIL	96	7.13	1.73
	CLIL	20	7.85	1.72
English (Use of English, Vocabulary, Listening & Reading)	Non-CLIL	166	33.63	13.50
	CLIL	81	45.40	12.69
English (Speaking)	Non-CLIL	37	5.48	2.19
	CLIL	16	9.00	1.11

Table 4. Descriptive information on the secondary education sample results (research question 1)

Subject	Programme	N	Mean	SD
Spanish	Non-CLIL	118	6.58	1.89
	CLIL	123	6.67	1.74
Natural Science (<i>Ciencias de la Naturaleza</i>)	Non-CLIL	101	7.52	1.64
	CLIL	102	6.90	1.73
English (Use of English, Vocabulary, Listening & Reading)	Non-CLIL	198	34.82	15.41
	CLIL	275	53.85	11.70
English (Speaking)	Non-CLIL	54	6.40	2.12
	CLIL	50	8.57	2.19

Table 5. Statistical differences between groups: *p* value and Cohen's *d* (in brackets) (research question 1)

Programme	Spanish		NSCE Education (Primary) Natural Science (Secondary)		English (Vocab- ulary Listening, Reading & Use of English)		English (Speaking)	
	PE	SE	PE	SE	PE	SE	PE	SE
CLIL – non-CLIL	0.996 (0.000)	0.700 (-0.049)	0.092 (-0.415)	0.009 (0.366)	0.001 (-0.889)	0.001 (-1.422)	0.001 (-1.810)	0.001 (-1.001)

4.2. Research Question 2

When CLIL and non-CLIL groups from public schools are compared, results in measures other than English proficiency differ in primary and secondary education (Tables 6 and 7). The CLIL primary group achieved significantly higher end-of-year scores in NSCE education, whereas no significant difference was noted in Spanish, although that group scored slightly higher than the monolingual group (Tables 6 and 8). In secondary education, the reverse is the case in terms of statistically significant difference, and both groups scored equally well in Natural Science (Tables 7 and 8).

Our results show similarities, but also discrepancies, with those reported in previous studies concerning subject content learning, although direct comparisons across studies are difficult to establish because the instruments used to assess content learning –and hence the

resulting measures– are different. Madrid (2011) found no significant differences between the public CLIL and non-CLIL groups in primary education, although, as was the case in our study, the former obtained higher scores on the test. The CLIL secondary education group also performed higher than its non-CLIL counterpart, and the difference was statistically significant. It does need to be noted that, unlike our study, Madrid (2011) developed tests to assess curricular content learning (in the areas of NSCE for primary education, and Geography and History for secondary) in the different study groups and, consequently, the instrument used to measure subject content learning was identical for all the groups involved in the study.

In the case of Spanish (L1), Ramos, Ortega and Madrid (2011) also designed *ad hoc* tests for primary and secondary education in conformity with the curriculum. They found statistically significant differences between public school CLIL and non-CLIL groups, with the former outstripping the latter on both levels.

School-level differences are also observed between CLIL public and non-CLIL charter school groups. While in primary groups no significant differences are found between these school types concerning end-of-year scores in Spanish and NSCE Education, at the secondary level the charter school group scores significantly higher in Natural Science (Table 8).

Ramos, Ortega and Madrid (2011) also found no significant difference between these two school types in Spanish in primary education; in secondary education, however, the charter monolingual group scored significantly higher than the CLIL public school one. In addition, no significant differences were found by Madrid (2011) either in NSCE Education in primary or in Natural Science in secondary education. However, the charter school group obtained higher scores –more notably in secondary education– than the CLIL public group.

Table 6. Descriptive information on the primary education sample results (research question 2)

Subject	School type	Programme	N	Mean	SD
Spanish	Public	Non-CLIL	32	6.75	1.83
		CLIL	20	7.05	1.70
	Charter	Non-CLIL	64	7.20	1.79
Natural, Social and Cultural Environment Education (<i>Conocimiento del Medio Natural, Social y Cultural</i>)	Public	Non-CLIL	32	6.78	1.71
		CLIL	20	7.85	1.72
	Charter	Non-CLIL	64	7.30	1.73

Table 7. Descriptive information on the secondary education sample results (research question 2)

Subject	School type	Programme	N	Mean	SD
Spanish	Public	Non-CLIL	57	6.04	1.81
		CLIL	123	6.67	1.74
	Charter	Non-CLIL	61	7.08	1.83
Natural Science (<i>Ciencias de la Naturaleza</i>)	Public	Non-CLIL	39	6.90	1.69
		CLIL	102	6.90	1.73
	Charter	Non-CLIL	62	7.92	1.49

Table 8. Statistical differences between groups: *p* value and Cohen's *d* (in brackets) (research question 2)

School type and programme	Spanish		NSCE Education (Primary) Natural Science (Secondary)	
	PE	SE	PE	SE
Public CLIL – Public Non-CLIL	0.567 (-0.164)	0.027 (-0.356)	0.034 (-0.622)	0.989 (0.000)
Public CLIL – Charter Non-CLIL	0.741 (0.083)	0.138 (0.230)	0.216 (-0.318)	0.001 (0.618)
Public Non-CLIL – Charter Non-CLIL	0.263 (-0.242)	0.002 (-0.570)	0.172 (-0.301)	0.003 (-0.647)

4.3. Research Question 3

As can be seen in Tables 9 and 10, the bilingual private school group performed higher than any other group in secondary education. Additionally, the public school CLIL groups slightly outperformed the two non-CLIL groups at both educational levels. It is also worth noting that, while the non-CLIL public group slightly outperformed the charter school group at the primary level, the level of attainment in English of the latter was markedly higher than that of the former at the secondary level, and the difference reached a significant value (Table 11).

Most surprising is that, while statistically significant differences were found –as expected– between CLIL public school and non-CLIL charter school groups in primary ed-

ucation with respect to the measures of English proficiency with large effect sizes, no significant advantage for the CLIL group was detected for speaking in English at the secondary level (Table 11). Ruiz de Zarobe (2007) also found a significant difference between the secondary CLIL and the non-CLIL groups in only one dimension, an oral retelling task, although the researcher hypothesised that it “could be due to the fact that the difference in the amount of hours (210) is not sufficient to obtain significantly better results” (p. 51). Also, Dalton-Duffer (2007) found in her observations of CLIL lessons that student oral responses and interactions in the FL did not abound. Our results, however, run counter to previous findings concerning the superiority of CLIL over non-CLIL students in speaking attainment (e.g., Alonso, Grisaleña, & Campo, 2008; Navés & Victori, 2010; Ruiz de Zarobe, 2008; Ruiz de Zarobe & Lasagabaster, 2010). Our results are also partly in contrast with previous research conducted by Villoria, Hughes and Madrid (2011), who found significant differences in performance in all the skills (listening, speaking, reading and writing) covered by the English test between the CLIL public and the charter monolingual group at both levels of education, and, as expected, the CLIL groups outperformed the monolingual ones.

A trend similar to that observed between CLIL public school and non-CLIL charter school groups can be recognised when the non-CLIL public and charter school groups are compared. In primary education, these two types of schools do not differ significantly on any measure used; in contrast, statistically significant differences in favour of the charter school group are found in all measures at the secondary level, with an effect size from medium to large. Performance on the English speaking proficiency test is, once more, the measure in which the two school types differ the most; more precisely, the average student in the charter school group scores higher than 95% of the public school non-CLIL group.

When public and private secondary schools are compared, results show that the private school group performs significantly higher than both the CLIL and the non-CLIL public school groups in the two measures of English proficiency. The effect size value is medium when CLIL public and private school groups are compared and large when it comes to comparing the non-CLIL public and private school groups. The comparisons between the CLIL private and the non-CLIL charter school groups yield similar results: statistically significant differences are found in favour of the private school in English proficiency. Cohen’s effect size values are large, which suggest a high practical significance.

In Villoria, Hughes and Madrid’s (2011) study, statistically significant differences were also noted between non-CLIL public and private CLIL groups, and between the private CLIL and the non-CLIL charter school group in both the primary and the secondary education groups. The private secondary education CLIL group also performed better than the public CLIL group in the skills of listening and speaking; in the case of reading and writing, nonetheless, no statistically significant differences emerged.

Table 9. Descriptive information on the primary education sample results
(research question 3)

Subject	School type	Programme	N	Mean	SD
English (Use of English, Vocabulary, Listening & Reading)	Public	Non-CLIL	101	34.82	12.90
		CLIL	81	45.40	12.69
	Charter	Non-CLIL	65	31.78	14.29
English (Speaking)	Public	Non-CLIL	15	5.56	2.14
		CLIL	16	9.00	1.11
	Charter	Non-CLIL	22	5.43	2.28

Table 10. Descriptive information on the secondary education sample results
(research question 3)

Subject	School type	Programme	N	Mean	SD
English (Use of English, Vocabulary, Listening & Reading)	Public	Non-CLIL	136	31.73	14.94
		CLIL	233	52.68	12.01
	Charter	Non-CLIL	62	41.61	14.29
	Private	CLIL	42	60.33	6.91
English (Speaking)	Public	Non-CLIL	37	5.54	1.86
		CLIL	39	8.29	2.40
	Charter	Non-CLIL	17	8.29	1.26
	Private	CLIL	11	9.54	0.52

Table 11. Statistical differences between groups: *p* value and Cohen's *d* (in brackets)
(research question 3)

School type and programme	English (Vocabulary Listening, Reading & Use of English)		English (Speaking)	
	PE	SE	PE	SE
Public CLIL Public Non-CLIL	0.001 (-0.826)	0.001 (-1.591)	0.001 (-2.030)	0.001 (-1.274)
Public CLIL Charter Non-CLIL	0.001 (-1.014)	0.001 (-0.884)	0.001 (-1.895)	0.999 (0.000)

Table 11. Statistical differences between groups: *p* value and Cohen's *d* (in brackets) (research question 3) (Continuation)

School type and programme	English (Vocabulary Listening, Reading & Use of English)		English (Speaking)	
	PE	SE	PE	SE
Public CLIL Private CLIL	–	0.001 (-0.672)	–	0.004 (-0.580)
Public Non-CLIL Charter Non-CLIL	0.158 (0.226)	0.001 (-0.670)	0.858 (0.061)	0.001 (-1.614)
Public Non-CLIL Private CLIL	–	0.001 (-2.118)	–	0.001 (-2.396)
Charter Non-CLIL Private CLIL	–	0.001 (-1.574)	–	0.001 (-1.200)

Some reasons can be hypothesised to account for the differences found in the study when comparing educational programmes and school types.

As has been quite convincingly discussed in the literature, student selection most probably has a decisive role in results obtained by CLIL groups (Bonnet, 2012; Bruton, 2011a, 2011b, 2013, 2015; Dallinger, Jonkmann & Hollm, 2016; Paran, 2013; Rumlich, 2013; 2017 San Isidro, 2010). Students who opt for the CLIL stream tend to be more academically motivated, they receive more parental support, and their parents are more actively involved in their academic performance.

Besides, as was pointed out earlier, contextual conditions that have been identified to underlie academic achievement are more commonly found in private and subsidised schools; i.e. socioeconomic and sociocultural factors play a particularly crucial role in performance among Spanish students (Pérez Serrano, 1981; Cordero, Crespo & Pedraja, 2013; OECD, 2016).

The role of socioeconomic status on language learning attainment in a CLIL programme has recently been investigated by Alejo and Piquer-Píriz (2016). They found that, of the variables considered (socioeconomic status, age of onset, extramural activities, attitudes and overall academic achievement), socioeconomic status explained most of the variance in attainment. It needs to be noted that this study used the social milieu (urban vs. rural), and not the parents' educational level, as a proxy for socioeconomic status.

In our study, results from the discriminant analyses at both the primary and the secondary levels established that neither of the potentially intervening variables controlled for in the analysis (motivation, verbal intelligence, extramural exposure to English and socioeconomic status) can be regarded as the cause of the differences found between CLIL and non-CLIL groups, therefore confirming that CLIL was responsible for such differences (Tables 12 and 13).

Table 12. Test of equality of group means table

Primary Education	Wilks' Lambda	F	df1	df2	Sig.
Socioeconomic status	0.950	11.271	1	213	0.001
Secondary Education	Wilks' Lambda	F	df1	df2	Sig.
Lack of interest	0.981	8.88	1	471	0.003
Use of English	0.686	216.04	1	471	0.000
Vocabulary	0.768	141.94	1	471	0.000
Listening	0.796	120.83	1	471	0.000
Reading	0.860	76.70	1	471	0.000

Table 13. Eigenvalues tables (primary and secondary education)

Primary Education				
Function	Eigenvalue	% of variance	Cumulative %	Canonical correlation
1	0.053	100.0	100.0	0.224
Test of functions	Wilks' Lambda	Chi-cuadrado	df	Sig.
1	0.950	10.957	1	0.001
Secondary Education				
Function	Eigenvalue	% of variance	Cumulative %	Canonical correlation
1	0.500	100.0	100.0	0.577
Test of functions	Wilks' Lambda	Chi-cuadrado	df	Sig.
1	0.667	190.013	5	.000

5. CONCLUSIONS

Our study has found differences in performance between the CLIL-oriented and the mainstream, non-CLIL-oriented programme and between school types –particularly at the secondary level.

Overall, the CLIL group obtained higher scores than the non-CLIL one. Additionally, no consistent trend can be identified when comparing the charter and the public school groups concerning measures other than English at the primary level. When it comes to the two measures of English, however, both the CLIL and the non-CLIL public school groups obtained higher scores than the charter school group. Conversely, in secondary education, the

charter school sample outperformed both the CLIL and the non-CLIL public school sample in Spanish and Natural Science, and the non-CLIL public school sample in the composite measure of use of English, vocabulary, listening and reading, and in the measure of speaking. As expected, the CLIL groups at this educational level obtained significantly higher results in the two English measures of attainment used in the study. Contrary to expectations, however, the difference in speaking achievement between the non-CLIL charter school and the CLIL public school one does not reach statistical significance in secondary education.

Dissimilar results according to educational level (primary and secondary) lead to the conjecture that this variable might indeed be a factor when it comes to the effects of enrolment in a CLIL class on learning outcomes.

Our study clearly has some limitations. Given the lack of baseline performance data and the unfeasibility of a pretest-posttest design, the discussion cannot be framed in terms of assessing the impact of CLIL on attainment or learning, but rather in terms of attesting to attainment in different education programmes and school types. Also, given the sample size, the geographical area that the study covers and the peculiarities of the CLIL approach in Andalusia, the findings might not be transferable to other contexts. Furthermore, the end-of-year scores that were used as a proxy for achievement in Spanish and NSCE Education/Natural Science might reflect different levels of attainment in the different participating institutions.

Further work needs to be done in the field of CLIL education that (1) controls for the effect of potentially key intervening variables that might, at least partially, account for the learning outcomes currently attributed to CLIL in order to confirm or refute our results; (2) uses a pretest-posttest study design with a control group, not only in FL learning research but also in research aiming at ascertaining content subject learning; (3) uses standardised instruments to measure achievement in the FL, the mother tongue and the non-linguistic subjects; and (4) includes a larger sample of schools and students (see, e.g., Pérez-Cañado in this volume).

Notwithstanding these limitations, our study fills a void in the existing literature on CLIL as it expands its discussion to an area, that of the intersection between school programmes and types, and the socioeconomic and/or sociocultural factors, that CLIL education research has not sufficiently explored so far.

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