

Who Transfers More . . . and What? Cross-linguistic Influence in Relation to School Grade and Language Dominance in EFL

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Cross-linguistic influence (CLI) is receiving increasing attention in multilingual learners (Cenoz *et al.*, 2001). Research with bilingual learners has analysed CLI in relation to language dominance (see, for instance, Hulk & Müller, 2000; Yip & Stephen, 2000) and to language dominance and grade in school settings (Cenoz, 2003; Lasagabaster, 2003a; Sanz, 2000). The aim of this study is threefold: (a) to analyse the relationship between CLI and grade; (b) to investigate whether learners transfer more content words than function words; and (c) to analyse whether language dominance (in Catalan, Spanish or balanced bilingualism) moderates the relationship between CLI and grade. We examine CLI as measured through the use of borrowings and lexical inventions of EFL bilingual Catalan–Spanish learners ($n = 474$) ranging from grades 5 to 12 in a writing task. The analyses of variance lead us to conclude that (a) learners at higher grades use fewer borrowings and lexical inventions; the differences are statistically significant for borrowings; (b) learners transfer similar proportions of content words and function words; (c) Spanish-dominant learners behave differently from balanced bilinguals and Catalan-dominant learners both in the use of borrowings and lexical inventions. For borrowings, the differences between the groups are significant for grade.

Keywords: CLI, EFL, language dominance, multilingualism, writing

Review of the Literature

Cross-linguistic influence (CLI) is receiving increasing attention in multilingual contexts (Cenoz *et al.*, 2001). Research with bilingual learners has analysed CLI in relation to language dominance (see, for instance, Hulk & Müller, 2000; Yip & Stephen, 2000) and to language dominance and grade in school settings (Cenoz, 2003; Lasagabaster, 2003a; Sanz, 2000).

The present study forms part of a larger project on the acquisition of English as a foreign language (EFL) in the school context, carried out in Barcelona, where both Spanish and Catalan are spoken and where English is taught as a foreign language (L3) in schools (Muñoz *et al.*, 2002). The aims of this study are to analyse whether and how CLI, as measured through the use of borrowings and lexical inventions, varies according to grade, and whether it is affected by language dominance.

It is difficult to separate grade from age and amount of instruction in school contexts, because as learners get older, they also become more proficient (see Muñoz, 2003). Studies on the relationship between CLI and age generally find that younger learners draw on the L1 more often than older learners (see Liddicoat, 1991 for a review). Studies carried out in bilingual communities in

Spain show that younger learners use more borrowings than older learners (Celaya & Torras, 2001; Gost & Celaya, 2004; Lasagabaster, 2003a). Cenoz (2003), however, reports that it is the oldest learners who transfer the most.

CLI has been related to (see Murphy, 2003 for a review): (a) language dominance (Cenoz, 2001, 2003; Lasagabaster, 2003a; Müller & Hulk, 2001; Navés *et al.*, 2004); (b) psychotypology (Bild & Swain, 1989; De Angelis & Selinker, 2001; Kellerman, 1983, 1986; Möhle, 1989; Ringbom, 1983, 1987, 2001), (c) age (Celaya *et al.*, 2001; Harley *et al.*, 1986, 1990; Navés *et al.*, 2003a; Singleton, 1989, 1999; Singleton & Lengye, 1995); (d) grade (Celaya & Navés, 2004; Cenoz, 2001, 2003; Navés *et al.*, 2003b, 2004); (e) strategic competence (Kellerman, 1986; Olsen, 1999); and (f) level of proficiency in the target language (Möhle, 1989; Navés, 2004; Poulisse, 1990; Poulisse & Bongaerts, 1994; Ringbom, 1987, 2001; Wang, 2004).

Studies which focus on proficiency conclude that low proficiency learners tend to transfer more elements from their first language than more advanced learners (Möhle, 1989; Poulisse, 1990; Poulisse & Bongaerts, 1994; Woodall, 2002). However, the opposite finding has also been reported; that is, the more proficient students are, the more they transfer, especially as regards the number of borrowings used (Sánchez, 2003; Sanz, 2000). One explanation for these controversial findings may be that, as Wang (2004) argues, high-proficient learners fall back on the L1 in different ways.

Borrowings have been analysed in several studies in relation to content words and function words. Poulisse and Bongaerts' 1994 study with Dutch learners at Grades 9, 11 and undergraduates found that EFL learners transfer more function than content words from their first language in an oral task. Cenoz (2001), however, reports that bilingual Basque–Spanish learners of English as an L3 transfer more content than function words at Grades 2, 6 and 9. This tendency is evident in Grades 2 and 9 (with the youngest and the oldest learners, respectively) but the differences are not so clear-cut in Grade 6, where similar numbers of content and function words are transferred.

Since the 1990s, studies on bilingualism have concluded that the degree of bilingualism is a powerful predictor of English-language achievement (Cummins, 1999; Swain *et al.*, 1990; Thomas, 1988). Although some studies report that monolingual subjects perform significantly better than bilinguals in specific tests, for instance, the Boston Naming Test in Kohnert *et al.* (1998) and Roberts *et al.* (2002), other studies confirm that the more balanced bilingual learners are, the better they perform in the L3. The latter has been found in Basque–Spanish bilinguals (Cenoz, 1996, 2000; Cenoz & Valencia, 1994; Huber & Lasagabaster, 2000; Sagasta, 2003) and in Catalan–Spanish bilinguals (Sanz, 2000).

Some of the studies that analyse the relationship between language dominance and CLI conclude that this factor is not a good predictor of CLI. Hulk and Müller (2000), Müller and Hulk (2001) and Müller (2002) claim that the grammars of the two languages in bilingual children are separated very early on. However, these researchers also state that CLI may take place under two conditions: when an interface level between two modules of grammar is involved, and when the two languages overlap at the surface level. Findings in these studies suggest, therefore, that CLI is due to language-internal factors and not to external factors such as language dominance.

Different methods have been used to determine language dominance in bilingual learners (for a detailed review, see Flege *et al.*, 2002). Language dominance can be elicited, for instance, by means of tests that measure the individual's performance in each of the two languages (Abrams, 2000; Gerken & Deichmann, 1979), self-reported ratings in which the subjects assess their own abilities in both languages (Flege *et al.*, 2002), and language background scales, which elicit biodata of the subjects' language use (Baker & Jones, 1998). In the present study, a self-report questionnaire on language use was chosen.

Nicoladis (2002) analysed three factors – frequency, ambiguity and language dominance – to explain transfer as reflected in the form of compound reversals by bilingual French–English children. Results show that language dominance did not affect the number of reversed compounds used in the nondominant language; however, the balanced group reversed more French compounds than English compounds.

Other studies have found a relationship between CLI and language dominance. Paradis (2001) found evidence for the effect of language dominance on French-dominant children's prosodic structure in English words. Costa and Santesteban (2004) argue that differences may exist in the type of mechanisms involved in lexical access for low and high proficient bilinguals. Yip and Stephen (2000) claim that language dominance is a major determinant of transfer from Cantonese to English in three areas where the two languages contrast typologically in a bilingual Cantonese-dominant child.

Cenoz and Valencia (1994) found that L1 Basque–Spanish learners outperformed L1 Spanish learners in an EFL proficiency test. However, in a grammaticality judgement task García Mayo (2003) reports no differences in English as L3 performance depending on learners' language dominance. Sanz (2000) evaluated the impact of bilingualism on L3 proficiency, and found evidence of a positive relationship between Catalan–Spanish bilingualism and knowledge of EFL. Sanz's and Cenoz & Valencia's results are in agreement with those of Swain *et al.* (1990), who investigated the impact of L1 literacy on L3 (French) proficiency in Toronto. Results from the Catalan, Basque and the Canadian studies challenge the general belief that literacy in the L1 interferes with or retards achieving control over the L2 and L3 (see Swain *et al.*, 1990).

Such conflicting findings indicate the need for further research. The three research questions (see below) have been investigated through a similar design as in Cenoz (2001, 2003) but with different typologically related L1s (Basque–Spanish versus Catalan–Spanish) and as in Sanz (2000) with the same L1s involved (Catalan–Spanish) but a different context (ESL versus EFL). To examine the extent to which the findings reported in Cenoz (2001, 2003) and Sanz (2000) are confirmed in our context, we followed the descriptive methodological design reproducing Cenoz's methodology (2001, 2003) as far as possible, but we also included analyses of variance to check whether the differences reach statistical significance.

Hence, the present study aims to answer the following questions:

- (1) Does CLI (borrowings and lexical inventions) change in relation to school grade (age and amount of instruction in L3)?

- (2) How does grade (age and amount of instruction in L3) influence the transfer of content and function words in young low-proficient learners?
- (3) Does language dominance moderate the relationship between CLI and amount of instruction in L3?

Three different studies have been carried out to investigate each of these research questions, as described below (see Method).

Method

Participants

Participants in this study form part of a larger sample in the Barcelona Age Factor Project (*BAF*). They are bilingual (Catalan–Spanish) learners of English as a foreign language, attending Catalan-medium state-funded schools in Barcelona. Catalan is used as the language of instruction and communication, and the presence of Spanish is lower at primary than at secondary levels. English is taught as a compulsory subject at primary and secondary school. See Tables 1, 2 and 3 for the specific characteristics of the subjects in each study.

Table 1 Participants Study 1

n = 474		
200 hours	416 hours	726 hours
Group 1	Group 3	Group 5
Grade 5	Grade 7	Grade 11
10.9 years	12.9 years	16.9 years
<i>n</i> = 105	<i>n</i> = 102	<i>n</i> = 50
Group 2	Group 4	Group 6
Grade 7	Grade 9	Grade 12
12.9 years	14.9 years	17.9 years
<i>n</i> = 102	<i>n</i> = 65	<i>n</i> = 50

Instruments

The participants wrote a timed composition about themselves for 15 minutes. They also completed an adapted version of Baker and Jones' (1998) *Language Background Measurement Questionnaire* translated into Catalan and Spanish to elicit information on their linguistic profile, in particular about their language dominance.

Procedure

The composition was administered to participants in their own classroom by the researchers in an exam-like situation. In a different session, they

Table 2 Participants study 2

n = 115	
200 hours	300 hours
Group 1	Group 3
Grade 5	Grade 5
10.9 years	10.9 years
<i>n</i> = 30	<i>n</i> = 27
Group 2	Group 4
Grade 7	Grade 7
12.9 years	12.9 years
<i>n</i> = 30	<i>n</i> = 28

Table 3 Participants study 3

n = 474								
Group 1			Group 2			Group 3		
200 hours			416 hours			726 hours		
(Grades 5 & 7)			(Grades 7 & 9)			(Grades 11 & 12)		
<i>n</i> = 207			<i>n</i> = 167			<i>n</i> = 100		
Cat	Sp	Bal	Cat	Sp	Bal	Cat	Sp	Bal
Dom	Dom	Biling	Dom	Dom	Biling	Dom	Dom	Biling
<i>n</i> = 60	<i>n</i> = 76	<i>n</i> = 71	<i>n</i> = 49	<i>n</i> = 43	<i>n</i> = 75	<i>n</i> = 25	<i>n</i> = 32	<i>n</i> = 43
28.99%	36.71%	34.30%	29.34%	25.75%	44.91%	25.00%	32.00%	43.00%

completed the questionnaire mentioned above. Instructions were given in their L1s to avoid misunderstandings.

Data analysis

Data were coded for the presence of borrowings from L1s and lexical inventions, which are the two categories of CLI analysed in this study. Because the two languages of the community (Catalan and Spanish) are typologically close and both have ‘shallow’ writing systems, unlike English, it is almost impossible to decide on the source of CLI. Therefore, in contrast to other studies, the source language was not reported.

Borrowings refer to ‘the use of an L1 (or L_n) word without any phonological and/or morphological adaptation’ (Poulisse, 1990: 111). In our study, we focused on terms in either L1 which were inserted in a clause written in English. We disregarded any clauses written completely in the L1. Following

Celaya *et al.* (2001a: 87–98), a clause was defined as ‘any unit with a minimum of two constituents in English’. The following examples from our data illustrate borrowings:

- (1) *Tengo [I have] 1 dog, 2 birds, 2 hamsters*
- (2) The house is very big *para [for] my family*
- (3) The hobby is the *gimnasia [gymnastics]*
- (4) In my house *hablamos [speak] Catalan and Spanish* Lexical inventions are ‘the lexemes in (...) interlanguage (IL) which are morpho-phonologically adapted to the target language (TL) but which are never used by native speakers’ (Dewaele, 1998: 471), as we can see in the following examples from our data.
- (5) Art is my favourite *assignature [subject] [Catalan: assignatura; Spanish: asignatura]*
- (6) In the house are five *menbrius [members] [Catalan: membres; Spanish: miembros]*
- (7) I like play *scondite [hide-and-peek] [Catalan: fet i amagar; Spanish: escondite]*
- (8) I hasn’t *unfriends [enemies] [Catalan: enemies; Spanish: enemigos]*

In order to answer the first question, i.e. whether CLI (borrowings and lexical inventions) change in relation to school grade, we first carried out a descriptive analysis as in Cenoz (2001) and Sanz (2000) and then checked whether the differences found reached statistical significance. For the descriptive analysis, both borrowings and lexical inventions were calculated not only as the total number of instances as in Cenoz (2001) and Sanz (2000), but also weighted against the total number of words and the total number of subjects. For the statistical analysis a one-way between groups ANOVA was conducted.

For the second research question, i.e. how the amount of instruction in L3 influences the transfer of content and function words in young low-proficient learners from Grades 5 and 7, borrowings were further classified into content and function words, as all the instances of lexical inventions in the data were content words. In this study we counted nouns, adjectives, lexical verbs and adverbs as content words. Function words included prepositions, pronouns, determiners, numerals, conjunctions, modal and auxiliary verbs (Biber & Reppen, 2002; Biber *et al.*, 1999; Huddleston & Pullum, 2002).

Two two-way between groups ANOVAs were conducted to answer the third research question on the impact of language dominance and hours of instruction on the use of borrowings and lexical inventions respectively.

Results

Study 1

The first study examined whether CLI changes in relation to school grade. As Table 4 shows, there was a general, steady decrease from lower to higher grades in the use of borrowings, as measured in three different ways: (a) the percentage of borrowings per total number of words, (b) the percentage of subjects who use borrowings, and (c) the mean borrowings used by subjects.

Table 4 Borrowings

<i>Borrowings</i>	<i>n</i>	<i>Mean TW</i>	<i>sd</i>	<i>Raw number of borrowings</i>	<i>Percentage of borrowings per TW</i>	<i>Percentage of subjects who use borrowings</i>	<i>Mean borrowings used by subjects</i>	<i>Mean borrowings used by subjects who use borrowings</i>
1. Grade 5 – 200 h	105	20.32	1.56	75	3.51	32.38	0.714	2.21
2. Grade 7 – 200 h	102	29.36	1.29	86	2.87	42.16	0.843	2.00
3. Grade 7 – 416 h	102	48.07	1.38	76	1.55	36.27	0.745	2.05
4. Grade 9 – 416 h	65	86.29	1.13	36	0.64	29.23	0.554	1.89
5. Grade 11 – 726 h	50	94.02	0.98	17	0.36	16.00	0.340	2.13
6. Grade 12 – 726 h	50	95.16	0.36	5	0.11	8.00	0.100	1.25
Total	474	62.20		295	1.00	30.59	0.622	2.03

The only exception appeared between Grades 5 and 7 (both with 200 hours of instruction): a slight rise was observed in cases (b) and (c).

The proportion of subjects who use borrowings fell drastically after Grade 7 with 200 hours from 42.16% to just 8% of the learners at grade 12, as shown in Table 4 above. The mean borrowings used by learners steadily decreased from Grade 7 to Grade 12. There was almost 1 borrowing per subject and composition at Grades 5 and 7 but only 0.5 borrowings per subject and composition at grade 9; by grade 12, the figure had fallen to 0.1. In other words, at Grade 12, only one in 10 learners used 1 borrowing while at Grades 5 and 7, every learner used an average of almost 1 borrowing in their compositions. However, the mean borrowings used by learners who used them remained quite stable, around 2, across grades. It was not until learners reach grade 12 that this figure fell to 1.25, among those who used them.

The percentage of borrowings per total number of words is seldom reported in the literature but is highly revealing. As Figure 1 shows, the percentage of borrowings per total number of words decreased steadily as the grade increases. Learners at Grade 5 used 3.5 borrowings per 100 written words, while learners at Grade 12 used only 0.1 borrowings per 100 written words.

As Table 5 shows, the use of lexical inventions decreased steadily across grades in: (a) the percentage of lexical inventions per total number of words, (b) the percentage of subjects who use lexical inventions, and (c) the mean lexical inventions used by subjects. The only exception appeared between Grades 5 and 7 with 200 hours of instruction, where a slight rise was observed.

This steady decrease was clearly seen in the percentage of lexical inventions per total number of words (see Figure 2). Both the percentage of lexical inventions used per total number of words and the mean lexical inventions used by subjects followed a similar pattern to that found for borrowings, that is, at higher grades the number of lexical inventions decreased steadily. However, a different pattern emerged in the percentage of subjects who use borrowings and lexical inventions. Whereas the percentage of subjects who used lexical inventions remained relatively stable across grades (around 17% of learners used lexical inventions at Grades 7, 9, 11 and 12), the pattern was clearly opposite to that found for borrowings, where the percentage of subjects who borrowed decreased with grade.

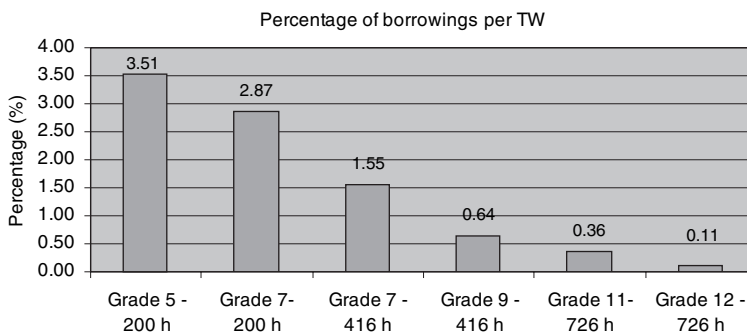


Figure 1 Percentage of borrowings per total number of words

Table 5 Lexical inventions

<i>Lexical inventions</i>	<i>n</i>	<i>Mean TW</i>	<i>Raw number of lexical inventions</i>	<i>sd</i>	<i>Percentage of lexical inventions per TW</i>	<i>Percentage of subjects who use lexical inventions</i>	<i>Mean lexical inventions used by subjects</i>	<i>Mean lexical inventions used by subjects who use lexical inventions</i>
1. Grade 5–200 h	105	20.32	17	0.70	0.80	9.52	0.162	1.70
2. Grade 7–200 h	102	29.36	25	0.62	0.83	18.63	0.245	1.32
3. Grade 7–416 h	102	48.07	29	0.67	0.59	18.63	0.284	1.53
4. Grade 9–416 h	65	86.29	16	0.61	0.29	16.92	0.246	1.45
5. Grade 11–726 h	50	94.02	12	0.59	0.26	18.00	0.240	1.33
6. Grade 12–726 h	50	95.16	6	0.39	0.13	10.00	0.120	1.20
Total	474	62.20	105		69	14.56	0.222	1.52

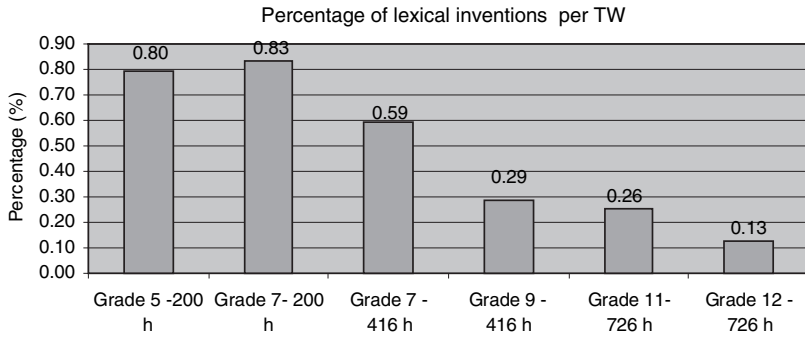


Figure 2 Percentage of lexical inventions per total number of words

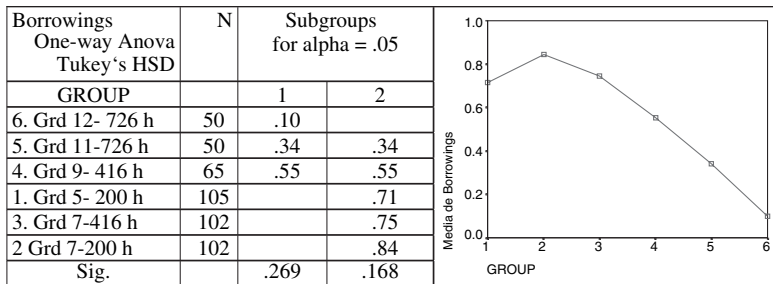


Figure 3 Borrowings

As stated above, after completing the descriptive analysis of CLI in line with previous studies but adding the measurement of text length, the differences observed were checked for statistical significance using two one-way between-groups analyses of variance.

A one-way between-groups ANOVA was performed to explore the impact of grade on borrowings. Participants were divided into six groups according to school grades (Group 1: Grade 5 with 200 hours of instruction; Group 2: grade 7 with 200 hours of instruction; Group 3: Grade 7 with 416 hours of instruction; Group 4: Grade 9 with 416 hours of instruction; Group 5: Grade 11 with 726 hours of instruction; Group 6: Grade 12 with 726 hours of instruction). There was a statistically significant difference at $p < 0.05$ in the use of borrowings between grades [$F(5,468) = 3.161$; $p = 0.008$]. However, the effect size, calculated using the η^2 , was small ($\eta^2 = 0.01$). Post-hoc comparisons using the Tukey HSD test indicated that the mean score of group 6 ($M = 0.12$, $sd = 0.385$) was significantly different from group 1 ($M = 0.16$, $sd = 0.695$), from group 2 ($M = 0.25$, $sd = 0.620$) and from group 3 ($M = 0.28$, $sd = 0.666$) at $p < 0.05$. Groups 4 ($M = 0.25$, $sd = 0.613$) and group 5 ($M = 0.24$, $sd = 0.591$) did not differ from either Groups 1–3 or Group 6. In other words, the groups can be divided into two subgroups as regards the use of borrowings: Groups 1–3 are only found in one of the subgroups, Group 6 is only found in the other subgroup while Groups 4 and 5 fit in between (Figure 3).

A one-way between-groups ANOVA was performed with the same participants to explore the impact of grade on lexical inventions. No

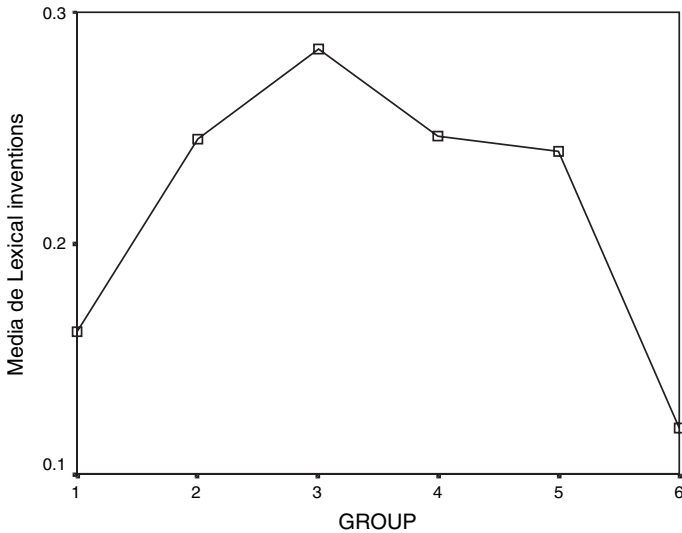


Figure 4 Lexical inventions

significant differences at $p < 0.05$ were found between the groups [$F(5,468) = 0.721$; $p = 0.608$]. Figure 4 shows how the means change in relation to grade.

To sum up, the pattern found in the descriptive analysis, that is, a steady decrease in the use of borrowings and lexical inventions, was statistically significant for borrowings. This suggests that school grade has an influence on CLI as far as the use of borrowings is concerned, but that its effect on the use of lexical inventions is less powerful.

Study 2

This study investigated how grade (age and amount of instruction in L3) influences the transfer of content and function words. As shown in Table 6, the total percentage of words transferred (both content and function) decreased as learners' ages increase and/or as learners have more hours of instruction. Of the total amount of words they produce, more than 10% were transferred terms in the younger and less instructed group, while these terms accounted for less than 1.5% with the older and more instructed students. Therefore, age alone (10 or 12) and the amount of instruction alone (200 or 300 hours) seem to account for the decrease in the total amount of words transferred.

However, of all the words that young bilingual learners of EFL use in L1, the prevalence of content words and function words was highly similar, around 50% each. This proportion changed slightly in Grade 7 with 300 hours, where for some more content words than function words were transferred, but it remained fairly stable within all the groups. This tendency to use similar proportions of each type of word (content and function) is more clearly appreciated in columns that give percentages, as they contrast the types of words transferred with the whole learners' production (both in L3 and L1/L2 and in L1/L2) (see Table 6).

Table 6 Content and function words transferred in each group

n = 115		<i>Raw numbers</i>	<i>Mean</i>	<i>Percentage of transfer per TW</i>	<i>Percentage of transfer per total number of borrowings</i>
1. Grade 5, 200 h, n = 30	Function	112	3.73	12.27	54.37
	Content	94	3.13	10.29	45.63
2. Grade 5, 300 h, n = 27	Function	32	1.18	2.63	45.71
	Content	38	1.41	3.12	54.29
3. Grade 7, 200 h, n = 30	Function	31	1.03	2.09	52.54
	Content	28	0.93	1.89	47.46
4. Grade 7, 300 h, n = 28	Function	27	0.96	0.52	27.03
	Content	10	0.36	1.42	72.97

Study 3

This study aimed to answer the third research question, that is, whether language dominance moderates the relationship between CLI and the amount of instruction in English L3.

As far as the use of borrowings is concerned, the behaviour of Catalan-dominant and balanced bilinguals was very similar. The number of borrowings used by Spanish-dominant learners did not decrease as much as in the other two groups; regardless of the amount of instruction, Spanish-dominant learners used a similar number of borrowings (see Table 7 and Figure 5).

As for lexical inventions, the behaviour of Catalan-dominant and balanced bilinguals was similar (see Table 8 and Figure 6). The pattern followed by Spanish-dominant learners was different from either Catalan-dominant or balanced bilinguals. With 416 hours of instruction, both Catalan-dominant learners and balanced bilinguals used more lexical inventions than after 200 hours, while Spanish-dominant learners did not. With 726 hours of instruction, both Catalan-dominant and balanced bilinguals used fewer lexical inventions than with 416 hours but a similar number as with 200 hours. Spanish-dominant learners followed a different pattern; they started by using more lexical inventions than the other two groups, but as the amount of instruction increased the number of lexical inventions fell.

A two-way between-groups analysis of variance was conducted to explore the impact of language dominance and the amount of instruction on the use of borrowings. Subjects were divided into three groups according to the amount of instruction received (Group 1: Grades 5 and 7 with 200 hours, Group 2: Grades 7 and 9 with 416 hours and Group 3: Grades 11 and 12 with 726 hours). Learners were classified into three groups according to language dominance: Catalan-dominant, Spanish-dominant and balanced-bilingual learners. There was a statistically significant main effect for amount of instruction

Table 7 Borrowings and language dominance

<i>Instruction</i>	<i>Lang. dominance</i>	<i>Mean</i>	<i>sd</i>	<i>n</i>
1	1. Catalan dominant	0.85	1.745	60
	2. Spanish dominant	0.58	1.158	76
	3. Balanced bilingual	0.93	1.397	71
	Total	0.78	1.431	207
2	1. Catalan dominant	0.84	1.375	49
	2. Spanish dominant	0.56	1.297	43
	3. Balanced bilingual	0.63	1.239	75
	Total	0.67	1.292	167
3	1. Catalan dominant	0.12	0.332	25
	2. Spanish dominant	0.50	1.218	32
	3. Balanced bilingual	0.07	0.258	43
	Total	0.22	0.746	100
Total	1. Catalan dominant	0.71	1.460	134
	2. Spanish dominant	0.56	1.204	151
	3. Balanced bilingual	0.61	1.205	189
	Total	0.62	1.280	474

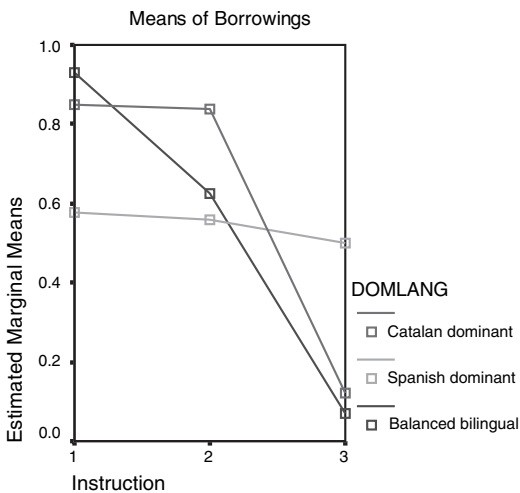
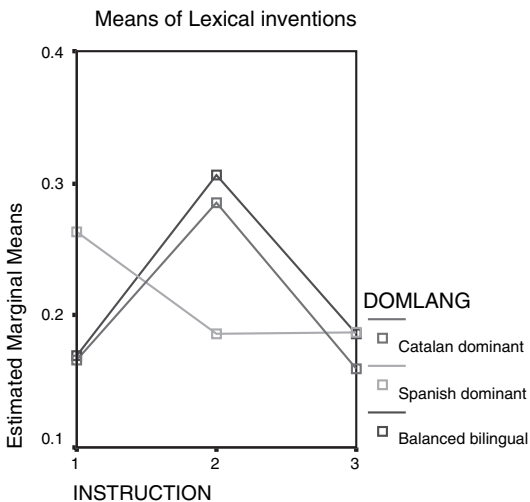


Figure 5 Borrowings and language dominance over time (200 h, 416 h and 726 h)

[$F(2, 465) = 6.428, p = 0.002$]; however, the effect size was small ($\eta^2 = 0.027$). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 ($M = 0.786, sd = 0.088$) was significantly different from Group 3

Table 8 Lexical inventions and language dominance

<i>Instruction</i>	<i>Lang. dominance</i>	<i>Mean</i>	<i>sd</i>	<i>n</i>
1	1. Catalan dominant	0.17	0.587	60
	2. Spanish dominant	0.26	0.822	76
	3. Balanced bilingual	0.17	0.507	71
	Total	0.20	0.659	207
2	1. Catalan dominant	0.29	0.645	49
	2. Spanish dominant	0.19	0.450	43
	3. Balanced bilingual	0.31	0.735	75
	Total	0.27	0.644	167
3	1. Catalan dominant	0.16	0.473	25
	2. Spanish dominant	0.19	0.592	32
	3. Balanced bilingual	0.19	0.450	43
	Total	0.18	0.500	100
Total	1. Catalan dominant	0.21	0.589	134
	2. Spanish dominant	0.23	0.685	151
	3. Balanced bilingual	0.23	0.598	189
	Total	0.22	0.623	474

**Figure 6** Lexical inventions and language dominance

($M = 0.230$, $sd = 0.130$) but not from Group 2 ($M = 0.674$, $sd = 0.101$). Group 2, however, was significantly different from Group 3. The main effect for language dominance did not reach statistical significance at $p < 0.05$

[$F(2,465) = 0.092$, $p = 0.912$], nor did the interaction effect [$F(4,465) = 1.434$, $p = 0.222$].

A two-way between-groups analysis of variance was conducted to explore the impact of language dominance and amount of instruction on the use of lexical inventions. Neither of the main effects – language dominance [$F(2,465) = 0.025$, $p = 0.976$] or amount of instruction [$F(2,465) = 0.628$, $p = 0.534$] – reached statistical significance at $p < 0.05$; nor did the interactional effect [$F(4,465) = 0.527$, $p = 0.716$].

Discussion and Conclusions

This cross-sectional analysis of CLI in EFL writing clearly suggests that learners at higher grades rely less heavily on the use of borrowings and lexical inventions than learners at lower grades. This seems to confirm previous studies on transfer as a compensatory strategy (Celaya, 1992; Möhle, 1989; Poulisse, 1990; Ringbom, 1987, among others), which report that less proficient students present more CLI. Cenoz (2001: 14) however, found opposite results when she compared 90 learners from Grades 2, 6 and 9: 'half of the participants ($n = 45$) use this compensatory strategy, and the rest do not. grade 9 students use a slightly greater number of transferred terms than the other two groups, and a slightly greater number of subjects in grade 9 use this strategy.' She concluded that 'the results indicate that older learners present more CLI than younger learners; the total number of transferred terms and the number of subjects who transferred from Basque and or Spanish is higher in grade 9 than in the other grades.' (p. 16). However, the mean number of transferred terms by subjects who transfer decreases across grades in Cenoz's (2001: 13) study, a figure that is not explicitly reported but can be easily calculated by dividing the number of transferred terms by the number of subjects who transfer. Using this measure and comparing our study to hers, we see that the number of borrowings and lexical inventions used by the subjects who transfer remains relatively stable across grades in our study, although overall it decreases slightly (see Tables 4 and 5); in Cenoz (2001) if the number of transferred terms by subjects who transfer is calculated, it decreases across grades (from Grade 2 with a mean of 5.17, Grade 6 with a mean of 4.4 to Grade 9 with a mean of 3.89).

Cenoz (2001: 16) concludes that the fact that grade 2 learners (who are less proficient than Grade 6 and Grade 9 learners) do not present more CLI than the other two groups could be due to the fact that all subjects have similarly limited proficiency. According to a study on proficiency conducted with the participants in the present study (Muñoz, 2004), as grade increases so does proficiency, i.e. Grade 5 are the least proficient and Grade 12 are the most proficient of all. The fact that we have a higher range in proficiency levels than in Cenoz's study may account for the differences between the results. Another possible explanation for these apparently contradictory findings may lie in the way in which transfer has been computed in these studies. As Cenoz (2001: 16) puts it, 'the higher number of terms transferred by grade 9 students could also be related to the fact that their productions are longer'. This is why, in the descriptive part of the present study, we decided to take into account not only

length but also the ratio of terms transferred by subjects and by subjects who transfer, as both have proved to be powerful measures to allow for comparisons between studies.

There are several possible reasons for the differences found: (a) language typology, (b) language mode (written versus oral), (c) learners' ages, grades and proficiency and (d) L3 versus L_n. A major difference in the design of the two studies discussed is that as our learners grow older, they have also received more instruction, while the amount of instruction in Cenoz's study was approximately the same.

Showing trends at the descriptive level only may yield misleading conclusions. For example, in the present study even if the two patterns in the use of borrowings and lexical inventions were alike at the descriptive level, the statistical analysis of variance reveals that the differences between the means of the groups are significant for borrowings but not for lexical inventions. However, the low numbers of borrowings and especially of lexical inventions may contribute to the fact that no statistically significant differences were found in the analyses performed in the present study (see also discussion of study 3 below). Cenoz (2003) found that the percentage of subjects who transfer increases from 77% to 85% from Primary 5 to Secondary 5 but did not state whether this trend was statistically significant. The present study, however, found the reverse trend: the percentage of learners who transfer and the number of terms transferred decreased as learners present more hours of instruction.

To summarise, we examined the use of borrowings and lexical inventions in a writing task with six groups of learners from school grades 5 to 12 with ages ranging from 10.9 to 17.9. In agreement with previous research studies (see literature review above) it was found that at lower grades learners use these strategies more extensively. We found that older learners at higher grades use fewer borrowings and lexical inventions. Statistical differences were only found at the end of the age span and only for borrowings, not for lexical inventions. These findings suggest the need for further investigation of CLI in instructional EFL contexts and in writing in particular. Research on the effects of age on the acquisition of a foreign language suggests that older learners show a superior rate of acquisition in academic tests than in nonliteracy-related skills (Muñoz, 2003, 2004).

As regards the second research question, we found that similar percentages of content and function words are transferred by the youngest groups (Grades 5 and 7), corroborating the results of Miralpeix (2002). These results apparently contradict Cenoz's (2001) findings; i.e. that learners transferred more content than function words, but they are actually quite similar as far as the intermediate grades are concerned. We examined adjacent groups to hers (5 and 7 with different amounts of instruction, instead of Grade 6) and the results show that at this stage a similar proportion of each type of words is used in the L1. Further research is needed to determine whether these differences are significant and how older and more instructed learners would behave.

Our results are not in agreement with those of Poulisse and Bongaerts (1994), as they found a higher rate of transfer of function words than of content words. There may be several reasons for this difference: the ways of counting

numerals (as open or closed class words), the characteristics of the corpus (written versus oral), the age of the participants (Grades 5 and 7 versus grade 15 and undergraduates) or the different context (L2 versus L3).

One major difference between the above-mentioned studies and the present study is that numerals are regarded here as function words, while Poulisse & Bongaerts and Cenoz consider them as content words. Because numerals are so commonly used in young learners' writing as a strategy of enumerating, the different ways of coding numerals may have had a bearing on the results. Following Biber *et al.* (1999) and Huddleston and Pullum (2002), numerals – and cardinals in particular – usually work as determiners and as such they should be regarded as function words and not content words: 'the cardinal numerals are primarily determiners but they have a secondary use in which they inflect for number and hence belong in the noun category (...). In practice, only low or round numerals are used this way.' (Huddleston & Pullum, 2002: 385). The only property that numerals share with open-class words is that, in principle, they are unlimited.

To conclude, it is difficult to predict which type of word – content or function – is more likely to be transferred because both have properties that make them potentially transferable and potentially nontransferable. There are several reasons for thinking that function words are not likely to be transferred but will either be used properly in the L3 or omitted: they are a closed class (a limited inventory), they are frequent in the language, which means that learners will find opportunities to learn them, and they do not carry much information weight, meaning that learners can still convey their message without them. Broeder *et al.* (1988) excluded quantifiers from their classification and suggested that function words gain strength during the acquisition of a language, but that even at the first stages adult learners make major use of function words in L2 oral production. However, as Poulisse and Bongaerts (1994) point out, learners pay less attention to formal aspects of the message than to content, which is conveyed by content words; in this view, function words would be transferred more frequently. Content words, on the one hand, are more imageable (especially nouns); because they refer to objects, actions and qualities, not relationships between concepts, they are easier to learn. Moreover, in a school context, especially during the first years of learning a language, the emphasis is on content words and it is at more advanced stages that learners' productions begin to contain a higher proportion of function words (Ghadessy, 1989). On the other hand, as content words constitute an open class, it is impossible to know them all, and learners may find gaps in which transfer will probably take place. Furthermore, words taught at school, especially at low levels (e.g. crocodile, grasshopper, lollipop) are not the most widely used in everyday conversations (Biber & Reppen, 2002; Milton & Vassiliu, 2000). Learners may find themselves in need of words that have not been taught, and so in this case we may well find transfer.

Studies on the acquisition of a third language (L3) in a bilingual context have shown that literacy in two languages facilitates the acquisition of a third (Cenoz & Valencia, 1994; Sanz, 2000; Swain *et al.*, 1990, among others). The present study seeks to contribute to this line of research by comparing the acquisition of English as an L3 by Catalan–Spanish bilingual high school students in relation

to their language dominance (Catalan dominance, Spanish dominance or balanced bilingualism). In the third study we examine whether language dominance moderates the relationship between CLI and hours of instruction. Our results indicate that while Catalan-dominant learners and balanced bilinguals behave alike as far as the use of borrowings and lexical inventions, i.e. they use fewer borrowings and lexical inventions than Spanish-dominant learners (independently of age and amount of instruction), the differences between the groups regarding language dominance do not reach statistical significance. There are several reasons that may account for the differences between our findings and previously published results: (a) language typology, when comparing our results to Cenoz & Valencia (1994), Paradis (2001), Yip and Stephen (2000); (b) degree of bilingualism among learners (Costa & Santesteban, 2004; Sanz, 2000); and (c) presence and prestige of language in society, in school and as a means of instruction (Lasagabaster, 2003b).

Other factors that may explain the lower rate of transfer in Catalan-dominant and balanced bilingual learners than Spanish-dominant learners (though the differences were not statistically significant) may be (a) the different ways in which language dominance is elicited in studies and (b) the fact that in our context school learners could be best described as balanced bilinguals regardless of their perception of their own degree of bilingualism. If learners in the Catalan context are fully bilingual, that is, if they can be broadly regarded as balanced bilinguals, no differences based on language dominance should appear. Further research analysing degree of bilingualism is needed to shed light on this issue.

As could be expected, we also found significant differences for the second main factor, instruction, i.e. more instructed learners use significantly fewer borrowings, though not significantly fewer lexical inventions. These results mirrored those found when answering the first research question. To conclude, as far as language dominance is concerned, no statistically significant differences were found in learners' use of borrowings and lexical inventions based on the self-reported degree of bilingualism, although there seems to be a trend suggesting that the behaviour of Catalan-dominant and balanced bilinguals is highly similar.

To conclude, the present study supports previous research examining CLI, in particular in relation to the use of borrowings and lexical inventions in multilingual contexts, in that (a) older and more proficient learners rely less heavily on their L1s as measured by the use of borrowings and lexical inventions than younger and less proficient learners; b) young and less proficiency learners (Grades 5 and 7) transfer similar proportions of content and function words, and (c) language dominance in the Catalan bilingual context may not be a key factor in explaining the differences observed in CLI between Catalan-dominant, Spanish-dominant and balanced bilingual EFL learners.

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