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Lexical Crosslinguistic Influence and Study Abroad: Do Learners Use L1-Based Resources Less?

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Abstract: Research in Crosslinguistic Influence (CLI) has traditionally addressed two broad types of lexical CLI—*transfer of form* and *transfer of meaning* (Ringbom 1987)—which were reconceptualized by Jarvis (2009) as *lexemic* and *lemmatic transfer*, respectively. Whereas the former considers the phonological and graphemic structure of words, the latter is related to semantic and syntactic properties. These types of lexical CLI have been analysed in relation to L2 proficiency, but not in relation to factors such as Study Abroad (SA), which the present study aims to investigate. The oral production by 107 Catalan/Spanish learners of English as a Foreign Language (EFL) was analysed in terms of lexical CLI and the amount of input received during their SA. Results show an inverse relationship between the amount of input in SA and lexical CLI; that is, the higher the number of hours abroad, the fewer cases of lexical CLI. Statistical differences were found for *lemmatic* CLI and for one type of *lexemic* CLI. In light of these findings, it is suggested that learners that take part in SA programmes do not rely on L1-based resources when gaps in their knowledge arise.

Keywords: English as a Foreign Language; lexemic transfer; lemmatic transfer; Lexical Crosslinguistic Influence; Study Abroad

1. Introduction

As defined by Jarvis (2009, p. 99), Crosslinguistic Influence (CLI) is “the influence that a person’s knowledge of one language has on that person’s recognition, interpretation, processing, storage and production of words in another language.” Since the number of multilingual speakers has drastically increased all over the world since the 1960s, research in CLI has been recently gaining momentum, as evident from the number of publications in the last ten years (e.g., Alonso 2016; Angelovska and Hahn 2017; De Angelis and Dewaele 2011; Martínez-Adrián et al. 2019; Peukert 2015). Therefore, many terms and concepts from the first wave of experimental studies have been redefined under new paradigms. Such is the case of lexical CLI, which has traditionally addressed two broad types, *transfer of form* and *transfer of meaning* (Ringbom 1987, 2001). Jarvis (2009) reconceptualised these types as *lexemic* and *lemmatic transfer*, respectively, following Kempen and Hoenkamp’s (1987) distinction between *lexeme* and *lemma*. *Lexeme* is related to the phonological and graphemic forms of words, whereas *lemma* specifies semantic and syntactic properties. Thus, *lexemic* transfer reflects “lexeme-level links and processes, in the sense that they appear to be induced largely by formal cross-linguistic lexemic similarities and/or by levels of lexeme activation” (Jarvis 2009, p. 112); it includes cases of *borrowings*, *false cognates* and *coinages*, among others. While the former two types involve the use of an inappropriate word, the latter refers to the modification of the word stem to make the word similar to a word in the Target Language (TL) or to the blending of two morphemes or words from different languages. *Lemmatic* transfer is realized as *semantic extensions* (polysemy is represented in different ways in the languages involved), *calques* (directly translated compound words, idioms and

fixed expressions), and *collocational transfer* and *subcategorization transfer*, which are related to the collocational and syntactic constraints on words.

Several studies on CLI have shown that these two types of lexical CLI seem to appear at different stages in the acquisition of the second language (L2)¹ (Celaya 2006; Celaya and Navés 2009; Ortega and Celaya 2013; Navés et al. 2005; Ringbom 2001), since types of lexical CLI are related to a gradual change from organization by form to organization by meaning as learners become more competent in the TL (Ringbom 2001). However, as acknowledged by Ecke (2015), instances of *form-based CLI* might still affect the production of advanced learners. This is one of the results that Lindqvist (2010) found in her study with 14 very advanced learners of L3 French. That is, although her participants presented more instances of *meaning-based transfer* (54%), especially of *semantic extensions*, they still produced a high amount of *form-based CLI* (46%). Nevertheless, the impact of factors other than L2 competence on lexical CLI is still in need of research. A case in point is the relationship between Study Abroad (SA) and lexical CLI, a line of research which very few studies have dealt with so far and which the present study aims to investigate through the analysis of *lexemic* and *lemmatic* transfer. Among the few studies that have addressed the issue of the relationship between CLI and SA, Andria and Serrano (2013) and Andria (2014) investigated L1 Catalan/Spanish learners of Greek and the transfer of thinking-for-speaking patterns of experiential verbs. The results of these studies suggest that both proficiency and time spent abroad have an effect on the appearance of the type of conceptual transfer under analysis. Although CLI was more evident in beginner and intermediate learners, advanced learners still presented cases of transfer, in line with previous studies on proficiency and CLI. On the other hand, the effect of SA was more salient in pattern recognition than in pattern production, as test scores were positively correlated between the results of the test performed and time spent in Greece.

The importance of SA learning contexts has been emphasized by several scholars (e.g., Collentine 2009; Freed 1995, 1998), who have considered it a very efficient way to learn an L2. Recent research on the effects of SA programmes on L2 acquisition has highlighted the improvements that learners make while abroad, especially, but not solely, in the area of oral production—as it is the area considered to improve the most (see Tullock and Ortega (2017) for a recent synthesis of studies on multilingualism and SA). This is due to both the quantity and quality of input that learners obtain in this type of setting, as compared to traditional classroom contexts. SA experiences give language learners the opportunity to increase their amount of exposure to the TL, as well as to experience different types of language discourses. That is, learners in a naturalistic environment are more prone to receive both a higher *amount of input* and a more varied and interactive type of input in comparison to the limited language contact that has traditionally characterized instructional settings (Lightbown 2000). In this respect, the *input* that learners receive while abroad is richer. Thus, the increase of both quantity and quality of the *input* leads to language improvement (i.e., DeKeyser 2007; DuFon and Churchill 2006; Freed 1995, 1998; Lafford 2004; Llanes and Muñoz 2009, 2013; Pérez-Vidal 2014; Sasaki 2007; Serrano et al. 2011), although recent research has also highlighted the importance of L2 use, especially in relation to proficiency before departure, (see Faretta-Stutenberg and Morgan-Short 2018). This access to rich *input*, as well as plenty of opportunities to practice the learnt items, enables learners to automatize and proceduralise new knowledge. As a consequence, learners do not need to rely on their previously learnt languages as frequently, since gaps in their knowledge have been filled but also because, as shown in Linck et al. (2009), the L1 seems to be inhibited in immersion contexts. In this study, the researchers analysed a group of L1 English learners of L2 Spanish in a semester abroad in Spain and compared it against a group from the same American university that followed regular classes at home during the same time period. The participants who were abroad produced fewer category exemplars in the L1 in the verbal-fluency task as well as no sensitivity to L1-related distractors in the translation task, thus suggesting that L1 influence was attenuated while abroad.

¹ L2 is used in this paper as standing for any language acquired subsequent to the first (L1).

Apart from an increase in the *amount of input* while abroad, learners are also exposed to different types of input. It is a good opportunity for them to interact with native speakers of the language, which guarantees a high-quality type of input. The need for native-like input has been acknowledged by some researchers, (e.g., [Piske et al. 2001](#)) as a key determinant in learning a foreign language. In fact, in the study by [Muñoz \(2014\)](#) the number of hours abroad of her EFL learners positively correlated with measures of lexical diversity.

The above findings lead us to pose the following research question: Does SA have an effect on amount and type of lexical (*lexemic* and *lemmatic*) CLI in L2 oral production? It is hypothesized that those learners who have spent more hours abroad will present a lower amount of lexical CLI, which will especially affect lemmatic CLI.

2. Materials and Methods

The participants in the present study are part of the “Age, input and aptitude. Effects in the long run in the acquisition of English in formal contexts Project” from which 107 students of EFL (87 females, 20 males) at two different universities in Barcelona were selected. All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of Project HUM2007-64302. They are all adult bilingual (Spanish/Catalan) EFL learners, with ages that range from 18 to 32 years of age (mean age 22.6). Their level of proficiency in English is mainly from intermediate to advanced; proficiency was controlled for, and is used as a control variable in the present study. The impact of SA was explored through hours spent in an English-speaking country; in this line, the participants spent between 0 h and a maximum of 4320 h in SA, with a mean of 965.6 h in an English-speaking country.

Participants in the study performed a series of tests, which aimed to test the learners’ general proficiency in English, and answered a background questionnaire and an interview to gather data on the *amount* and *type of input* received during their English learning history, including their SA, if any. A film retelling task (an eight-minute segment, called “Alone and Hungry,” from Charles Chaplin’s silent film “Modern Times”) was used to elicit oral production by the learners, from which instances of lexical CLI were identified for analysis. The scene features Charles Chaplin and Paulette Goddard and shows how a poor young girl tries to steal a loaf of bread, is then arrested and finally escapes with the help of Chaplin. This elicitation task “provides [learners] with a uniform prompt from which to speak” ([Gass and Mackey 2007](#), p. 136), and it has already been used in transfer studies by [Jarvis \(1998, 2000\)](#).

Instances of lexical CLI were classified into subtypes of *lexemic* and *lemmatic* transfer, the former divided into 7 types and the latter into 6 (see categorization and examples from the data in [Tables 1 and 2](#) below). The data analysis was data-driven and consisted of the search for forms that exhibited traces of L1 influence. Interrater measures were used in the coding of the narratives. Interrater reliability agreement of 10% of the data reached 86.4%. Due to the great deal of variance in the number of tokens produced by the participants, the percentage of tokens that did not present L1 influence was obtained and its logarithm was used in the analysis as the distribution of residuals was close to normal.

Table 1. Classification of *lexemic* Crosslinguistic Influence (CLI) and examples from the data.

Language switches	Borrowing	There’s a woman that saw all the <i>escena</i> [scene]
	Editing terms	She ran away but she <i>bueno</i> she stopped with a man [well]
	Meta-comments	A man sees her and follows her and she <i>no sé com es diu xoca</i> and she finds with another man [I don’t know how to say crash]
	Insert implicit elicit	In this time the man that was catch the first time goes to a <i>cafeteria</i> and takes a lot of food [cafeteria]
Lexical invention	They’re eating huge piece of meat a <i>bistreak</i> [steak]	
False cognates	And then he <i>presents</i> himself [introduces]	
Lexemic self-repairs	He doesn’t pay the <i>com com</i> I don’t know [how how]	

Table 2. Classification of *lemmatic* CLI and examples from the data.

Semantic extensions	Then the man enters in a <i>coffee</i> and eat a lot of things [café/cafeteria]
Calque	Both the woman and the man meet in <i>the van of the police</i> [the police van]
Collocational transfer	She <i>makes the meal</i> [cooks/prepares the meal]
Subcategorization—Preposition	Then he sees no the police phones <i>to the police department</i> [phones the police department]
Subcategorization—Type of complement	They are sitting <i>in the table</i> [at the table]
Lemmatic self-repair	There is a girl that <i>he has hungry who is hungry</i>

NVivo was used for qualitative analysis and data were afterwards submitted to statistical treatment (Multiple Linear Regression) with SPSS (Statistical Package for the Social Sciences) v20; alpha was set at 0.05. “Lexical CLI occurrences” was established as the dependent variable and “hours abroad” as the independent one; a control variable—proficiency—was also introduced in the analysis, since it has been found to be directly related to lexical CLI in previous research. A backward method through blocks was used. Normality of the data was tested through the Kolmogorov-Smornov Test.

3. Results

The total number of lexical CLI occurrences was 604 out of a total of 48,748 words. As regards the two broad types of lexical CLI, *lemmatic* transfer (480 occurrences, 79.5%) was much more frequent than *lexemic* transfer (124 occurrences, 20.5%) (see Table 3 below). However, it is important to note here that the number of occurrences was not equally distributed across the different participants. Thus, while 9 of the participants did not produce any instances of CLI, up to 22 instances of transfer were identified in one of the learner’s oral production. When the data were analysed according to each of the subcategories, *lexemic* transfer appeared as *language switches* in 88 instances (71%), followed by *lexical inventions* (21 instances, 17%), *false cognates* (13, 10%), and, finally, *lexemic self-repair* (2, 2%).

Table 3. Tokens and percentages of *lemmatic* and *lexemic* transfer.

Lemmatic transfer Total: 480 (79.5%)	<i>semantic extensions</i>	244 (50.8%)
	<i>subcategorization transfer</i>	82 (17.1%)
	<i>subcategorization CLI</i>	52 (10.8%)
	<i>calques</i>	58 (12.1%)
	<i>lemmatic self-repairs</i>	30 (6.25%)
	<i>collocational transfer</i>	14 (2.9%)
Lexemic transfer Total: 124 (20.5%)	<i>language switches</i>	88 (71%)
	<i>lexical inventions</i>	21 (17%)
	<i>false cognates</i>	13 (10%)
	<i>lexemic self-repair</i>	2 (2%)

In the case of *lemmatic* transfer, 244 (50.8%) instances of *semantic extensions* were traced back. The second most frequent subcategory was *subcategorization transfer* that involved the choice of the wrong complement, as 82 occurrences (17.1%) were singled out in the corpus. The type of *subcategorization CLI* that involved the choice of the wrong preposition within the prepositional phrase was fewer in number—52 cases (10.8%). A similar number—58 occurrences (12.1%)—were identified as *calques*, and 30 cases of *lemmatic self-repairs* (6.25%) appeared in the data. Finally, the less frequent type of *lemmatic* CLI was *collocational transfer*, which has been identified on 14 occasions (2.9%). However, it is important to highlight that the high number of *semantic extensions* in the data can be explained by the appearance of the word “police” instead of “policeman” or ‘police officer,’ which accounts for 40% of the total number of semantic extensions in the data. Learners used the term ‘police’ when they want to refer to a single policeman or police officer, since “policia” in Spanish or Catalan (although with

different pronunciation) can refer to both the officer and the department; the learner, thus, extends these two uses in English.

Table 4 below presents the results of the multiple linear regression. The adjusted R square shows the amount of variance in each dependent variable that can be explained by hours abroad. As can be observed in the table, hours abroad explain 24% of lexical CLI (see Figure 1 for the distribution of values). Regarding lemmatic CLI and language switches, hours abroad account for 27% and 13% of the variance respectively.

Table 4. Multiple Linear Regression. Predictor variable: Hours abroad. Dependent variables: lexical CLI, lemmatic CLI, language switches.

Predictor Variable	Dependent Variable	R Square	Adjusted R Square	Std. Error of the Estimate
Hours Abroad	Lexical CLI	0.25	0.24	0.01
	Lematic CLI	0.29	0.27	0.008
	Language switches	0.16	0.13	0.004

The results of the statistical analysis performed on the data yielded statistically significant differences between lexical CLI and hours abroad for one of the types of *lexemic* CLI, namely, *language switches* ($p = 0.008$), and for *lemmatic* transfer overall ($p < 0.001$). In both cases, there exists an inverse relationship between hours abroad and amount of lexical CLI; in other words, a higher number of hours spent in an SA programme implies a decrease in *language switches* and in *lemmatic* transfer. The statistical analysis performed with the different subtypes of *lemmatic* transfer appeared to be nonsignificant.

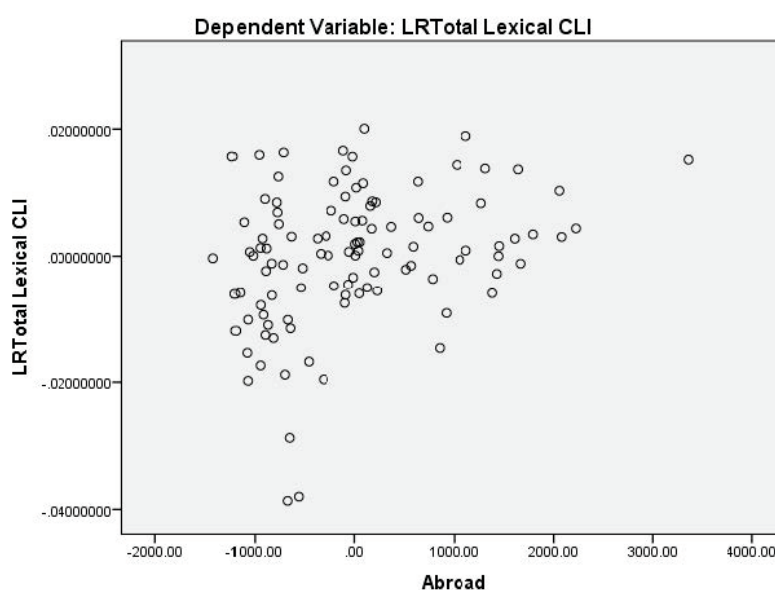


Figure 1. Scatterplot: Lexical CLI—Hours Abroad.

4. Discussion

As explained above, our findings show that *lemmatic* CLI appeared more frequently than *lexemic* transfer in the learners’ oral productions. It is suggested here that the difference in the occurrence of both types of lexical CLI can be accounted for by the fact that *lemmatic* CLI is a more complex type that extends, in most cases, to the word unit. These results are in line with previous studies on lexical CLI; as Ringbom (2001) pointed out, there seems to be a change from organization by form to organization by meaning as the learners’ language proficiency develops. In other words, while *transfer of form* or *lexemic* CLI might be most predominant at the earliest stages of acquisition, *transfer of meaning* or *lemmatic* CLI seems to develop at a later proficiency stage. This suggests that CLI might work in different ways at different levels of proficiency and due to the different needs that learners have. Both factors are

intrinsic to the definition of SA contexts. Similar findings appear in studies on CLI and proficiency, such as Celaya's (2006) longitudinal study of the written productions of Catalan/Spanish learners of EFL, where the researcher found that whereas *borrowings* and *coinages* (two types of *lexemic* CLI in her study) decreased as L2 proficiency increased, *calques* (one type of *lemmatic* CLI) increased with higher levels of proficiency. This suggests that not all types of lexical CLI develop in the same way, as also evident in Navés et al.'s (2005) study where the researchers found a statistically significant decrease of *borrowings* as proficiency increased. Lindqvist's (2010) study with 14 very advanced learners of L3 French points in the same direction, as her participants presented more instances of *meaning-based* transfer (54%), especially of *semantic extensions*, than of *form-based* CLI (46%). The difference appeared to be more striking in the present study, which can be accounted for by the fact of having used a slightly different classification of *meaning-based* transfer and, thus, including the categories of *collocational CLI* and *subcategorization CLI*, as suggested by Jarvis (2009).

Furthermore, our findings suggest an impact of SA on the amount of lexical CLI, as in previous studies, (see Collentine and Freed 2004), that is, the more hours spent abroad, the less L1-based lexical CLI, as in the case of the lower number of *language switches* (*lexemic* transfer), and also the less *lemmatic* transfer overall. It also has to be highlighted that language switches were the type of *lexemic* transfer that occurred more frequently in the data, whereas the other types were scarce. This could account for the fact that no other statistically significant results were found with the other subtypes. Furthermore, such findings may also be due to the fact that, as claimed by Kroll and Stewart (1994, p. 168), "cross-language connections between lexical representations, and between lexical representations and concepts, are asymmetric" in bilingual memory.

Access to rich input and plenty of opportunities to practise the TL are put forward as the reasons for such an outcome, since as claimed by Bolibaug and Foster (2013), immersion settings provide a better environment for learning the more subtle aspects of the language. In other words, SA allows for both the automatization and proceduralisation of new knowledge, (e.g., DeKeyser 2007; Llanes and Muñoz 2009; Pérez-Vidal 2014) and for the inhibition of the L1 (Linck et al. 2009) and this is why we suggest that SA especially determines the occurrence of *lemmatic* transfer and one type of *lexemic* transfer, namely, *language switches*, which decrease with a higher number of hours abroad (see Hammarberg 2001); that is, when gaps in learners' knowledge arise, they draw on their L1 less (*lexemic* transfer). As Tremblay (2006) has argued, exposure to the L2 is needed for the L2 to become automatized, since high proficiency in the L2 alone is not enough. Cortés's (2005) study with L1 English learners of Spanish also confirms the importance of language exposure in a naturalistic setting for the decrease in occurrences of transfer. She pinpointed that the learners in her study that had studied the language for a longer time, as well as in a naturalistic environment, presented fewer cases of CLI. Pavlenko and Jarvis (2002) further argued that the level of socialization in the source language is important for transfer to take place from this language. Therefore, as Andria and Serrano (2013) and Andria (2014) claimed, more research is needed to analyse the impact of SA contexts on the acquisition of second languages, since factors other than total time abroad might be reliable predictors of pattern restructuring, for example, the concentration of the stays, the type and amount of contact with the L2 while abroad, or whether the learners also receive formal instruction in the host country. In other words, more detailed information of actual contact with the language is needed in further research.

5. Conclusions

The present study suggests that, since SA programmes provide more hours of contact and a more varied type of input than regular instruction, the use of L1-based resources in learners' oral production is impacted upon; in other words, there seems to exist an inverse relationship between amount of input in SA and lexical CLI: the more hours of SA, the fewer the cases of L1-based resources, as in the case of *language switches* in the present study, and also the fewer the cases of *lemmatic* CLI. However, for further research it is essential to obtain very precise information about the learners' use of the L2 before and after the SA so as to be able to carry out detailed analyses of the impact of SA on CLI, since

in many cases the amount of input during the SA might be limited due to the lack of opportunities to interact with native speakers, as Muñoz and Singleton (2011) have thoroughly discussed.

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