Cross-linguistic influence in third language acquisition: The roles of typology and L2 status

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ABSTRACT

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Research has consistently identified two factors which affect how previously learned languages may influence the learning of a third: typological closeness and second language (L2) status. Although typology seems to play a more influential role in the acquisition of lexis in a third language (L3) (e.g., Rossi, 2006), the influence of L2 status has been observed in the acquisition of phonology (e.g., Williams & Hammarberg, 1998). However, these two factors are often confounded with each other, and with other variables such as proficiency. The aim of this study was to control for these variables and investigate the relative influences of L2 status and typology on lexis (lexical inventions) and phonology (aspiration) in L3 production. The research question addressed was: Which is a stronger predictor of the source language for lexical and phonological influence in L3 acquisition: L2 status or typology?

Two groups of L3-Spanish learners, 11 with English-L1 and French-L2, and 11 with French-L1 and English-L2 were recorded reading word lists and describing pictures in their L3. Paired samples *t*-test examined the frequency of French- and English-influenced instances of lexical inventions, as well as the presence or absence of aspiration in the word-initial voiceless stops /p t k/. Findings indicate that French, the typologically closer language to Spanish, had the greatest influence on lexical production, while L2 status had a more marked effect on L3 pronunciation than typology. The results suggest that the two factors investigated may affect different areas of language in different ways.

To Jordan and Jose, mamá and Ana.

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CHAPTER 1: INTRODUCTION

The influence of the first language (L1) on the acquisition of a second language (L2) is a widely discussed topic in the field of Applied Linguistics. However, learning a third or more additional languages is common in our increasingly multilingual world, and it is not clear the extent to which current models of bilingualism and second language acquisition (SLA) in general can account for trilingualism or multilingualism. Prior language learning experience and the fact that the L2 can become a resource for third language (L3) learners are good reasons to believe that the process of acquiring an L3 may differ in some respects from that of acquiring an L2. Therefore third language acquisition (TLA) has become a "distinct area of research" (Hoffman, 2001, p. 1). The studies that have been conducted so far have served mainly to identify the different factors which may play a role in the learning of an L3. However, more research is needed in order to gain insight into how each of the factors identified can privilege influence from one previously known language over the other.

Cross-linguistic Influence in TLA

The effect that previously learned languages can have on the learning of new languages is presently known as cross-linguistic influence (CLI). In many studies in the field, this term is used interchangeably with *transfer*. A frequently cited definition of transfer is that of Odlin (1989), also used by Bull (1995) and Jarvis (2000). He considers it to be "the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired" (p. 27). Because many researchers feel that this term leaves out some of the

contact effects (e.g., avoidance, borrowing, language loss), Sharwood-Smith and Kellerman (1986) made a distinction between transfer and a new, broader term, cross-linguistic influence.

CLI is viewed by different authors as one of the central processes in SLA (Gass & Selinker, 1992; Odlin, 2003; Selinker, 1972) and one that causes a lot of disagreement among researchers with regards to determining what factors trigger it, how it occurs, to which extent and in what areas of language. The most often referred to factors that have been found to have an effect on CLI in TLA can be divided into two groups. Some of them can be said to be learner-based, such as proficiency, amount of target language exposure, linguistic awareness, age, context of acquisition, automaticity and recency, while others can be considered as language-based -that is, language typology, psychotypology[1] and language status. Whereas most studies point to typological closeness as the most decisive factor in determining the likelihood of a language becoming the main source of CLI, another factor, the foreign language (or L2) effect, appears to have a central role with regards to CLI as well. This factor is often referred to in the literature as L2 status.

[1] It is common to regard psychotypology as a component, and sometimes as a synonym, of typology (e.g., Cenoz, 2001; Jarvis & Pavlenko, 2008; Murphy, 2003), rather than to consider them as two separate factors. Therefore, I have classified both typology and psychotypology as language based factors. However, psychotypology does not refer to the actual distance between languages but rather to the learner's perception of distance between languages and, in my opinion, it could be considered as a learner based factor as well.

This Study

The aim of this study is to gain a better understanding of the relative influences of two factors, typology and L2 status, in the acquisition of an L3. For the purposes of this study, L2 is to be interpreted not as any language learnt after the L1, but strictly as the second language learnt by all participants. Therefore L2 status is a factor directly related to the first non-native language acquired after the L1 and the privileged position it could have in becoming a source of transfer in L3 production. As for typology, it refers to the relative distance or similarity among languages. This investigation focused on how these two variables may compete in determining the main source language for CLI in L3 production in two different areas of language: lexis and phonology. In order to narrow the scope of the study, two linguistic features were selected: lexical inventions for the lexical part of the study and aspiration for the phonological part. Both features, as well as both factors, will be defined and findings regarding these issues will be discussed in the review of the literature in chapter two.

The L3 was Spanish for all participants, who also shared the same previously known languages: English and French. The fact that one of these languages is typologically closer to the target language allowed me to put the typology variable to the test. In order to make it compete with L2 status, two groups of participants were required. The first group was made up of 11 L1 English-L2 French speakers and the second one, of 11 L1 French-L2 English speakers. Participants were considered eligible to take part in the study only if they met the following criteria: firstly, they were proficient speakers of their L2 but they were not bilinguals; secondly, they were considerably more proficient in their L2 than in their L3; lastly, they had not learnt any other languages besides English,

French and Spanish.

The data collected from these 22 participants was analyzed in order to answer the two research questions addressed by this study:

1. Which is a stronger predictor in the selection of a source language for lexical influence in L3 acquisition: L2 status or typology?

2. Which is a stronger predictor in the selection of a source language for phonetic influence in L3 acquisition: L2 status or typology?

This study is made up of six chapters. In chapter one, there is an introduction to the field of Third Language Acquisition and cross-linguistic influence as well as the rationale behind the study and a brief description of its components. Chapter 2 presents a review of the literature relevant to the study and the research questions. Chapter 3 provides all details pertaining the methodology, including the participants, the instruments and the procedure followed. Chapter 4 provides the presentation of the results, preceded by the data analysis. Chapter 5 is divided into three sections: issues related to research question 1, issues related to research question 2, and a summary of the discussion. Chapter 6 contains an explanation of how the study contributes to the understanding of CLI in TLA, a series of limitations and directions for future research.

CHAPTER 2: LITERATURE REVIEW

In this chapter, I will provide the definitions for the key terms in the study, namely cross-linguistic influence, typology, L2 status, lexical inventions, and aspiration. The chapter starts with a brief overview on the term cross-linguistic influence, and previous labels found in the literature to refer to the same phenomenon. It is followed by an introduction to the factors that affect CLI in TLA other than the two explored here, to set up the context for my research. A more detailed review of the literature is presented for the two variables chosen for the study, typology and L2 status, as well as for the two linguistic features the investigation focuses on, lexical inventions and aspiration.

Cross-linguistic Influence

Although many SLA theories are related to theories of L1 acquisition in some ways, it is clear that in many respects learning an L2 differs from learning an L1. One of the differences lies in the fact that L2 learners have the L1 to help them or hinder their learning process. Many researchers interpret some instances of deviation from the norm in the speech of L2 learners as a result of influence from their L1. Different names have been used to designate this concept over the years. Weinreich's (1953) term, "interference", seems to imply some negative connotations. Indeed, his definition of the phenomenon focused only on the negative aspects of the influence of the native language on the second one. For that reason, the term "interference" has gradually been supplanted by the word "transfer". Probably the most cited definition of "transfer" is that of Odlin's (1989), since it takes into account many different viewpoints and it includes both positive and negative transfer phenomena. According to Odlin, both the similarities and

differences between the target language and any previously acquired language can result in transfer. Despite the fact that Odlin's term was more inclusive than that of Weinreich's, some researchers still felt that it left out some of the contact effects, such as L2 to L1 transfer and avoidance. Therefore, Sharwood-Smith and Kellerman (1986) made a distinction between transfer and a new, broader term, cross-linguistic influence (CLI). While transfer is often used to refer to the learner's reliance on the L1 (in SLA literature), CLI includes other interference, avoidance, borrowing and L2-related aspects of language loss as well (Sharwood-Smith & Kellerman, 1986).

It is now common for both transfer and CLI to be used interchangeably to refer to the same phenomenon. According to Jarvis and Pavlenko (2008), both words can be considered theory-neutral cover terms, despite the fact that transfer was for some time associated with the behaviorist theory of language learning. In his book, *Cross-linguistic similarity in foreign language learning*, Ringbom (2007) states that transfer is still the most commonly used term, and that most of its associations with structuralism and behaviorism have been lost (p. 30). Throughout this thesis the terms will be used interchangeably to refer to the influence of a person's knowledge of a previously acquired language or languages on the use of the language that is currently being learnt.

Many authors view CLI (Andersen, 1983; Gass & Selinker, 1992; Odlin, 2003; Selinker, 1972) as one of the central processes in SLA. However, there is still a lot of disagreement with regards to determining how it occurs, to which extent, and in what areas of language. Today, CLI is being investigated from a broader, new perspective. CLI is indeed one of the main areas of inquiry in a new field of study, that of TLA. In most TLA studies, the focus of research is to identify the different factors operative in CLI and

their relative effects on the process of acquiring an L3.

Factors that Affect CLI in TLA

In the following paragraphs, the most referred to variables that have been found to have an effect on cross-linguistic influence in TLA will be presented.

Proficiency

There are two main assumptions regarding proficiency and CLI in TLA. On the one hand, a certain level of proficiency in the L2 needs to be achieved for this language to become a source of influence. While most studies resort to their participants' L2 proficiency level as a factor that could help explain their results, to my knowledge only one experiment was designed to target it as a variable (Tremblay, 2006). Results from this study seem to be in agreement with the general consensus that the learner must have reached a threshold in the L2 in order for this language to provide material for transfer (Hammarberg, 2001). However, some studies have pointed to the typologically closest language (Möhle, 1989), or to the most recently acquired (Shanon, 1991), as the source language for transfer, despite the fact that their participants were not particularly proficient in those languages. These claims suggest that the threshold level to be attained for the L2 to become a source language could be relatively low. Further research, in which the L2 proficiency level is targeted, is needed in order to assess its impact on CLI in relation to linguistic distance and recency of acquisition, and very likely to other factors as well.

On the other hand, it is believed that the lower the proficiency in the L3 (the target language), the greater the influence from the L1 and the L2 (Dewaele, 2001; Sikogukira,

1993; Williams and Hammarberg, 1998). Some studies have provided evidence in favor of this belief (Navés, Miralpeix and Celaya, 2005; Williams and Hammarberg, 1998). It has been claimed that, as proficiency in the L3 rises, the learner is able to resort to the L3 itself (intralingual influence) rather than relying on other languages (interlingual influence). For Odlin (1989), however, this assumption is to be considered with caution as he believes that some types of transfer are more common at the early stages of acquisition, namely negative transfer (e.g., production errors such as calques), while others tend to occur at more advanced stages, namely positive transfer (e.g., resorting to cognate vocabulary). Again, more research is needed if we are to gain a better understanding of how CLI changes as L3 proficiency increases.

Language Exposure and Context of Acquisition and Use

As was the case with proficiency, when looking at the amount of language exposure as a variable, we need to take into consideration both the amount of exposure to the L3 (the target language) and to the L2 (a potential source language). According to previous findings, the following two claims can be made: as L3 exposure increases, CLI decreases (Dewaele, 2001), and the higher the amount of L2 exposure, the higher the L2 influence is on the L3 (Stedje, 1977, cited in Ringbom, 1987; Tremblay, 2006). However, it is worth highlighting a couple of observations with regards to amount of exposure and how it interacts with or how it is affected by other factors, namely proficiency and context of exposure. In fact, amount of exposure and proficiency could be regarded as going hand in hand, since it could be expected that an increased amount of exposure would translate into an increase in proficiency.

As for the context in which the exposure takes place, there are two main

possibilities: the learner can be in a setting in which the target language is used by the community (L2 context), or in a setting in which the target language is not the community's language of use (foreign language learning context). Research has indeed revealed that exposure to the L2 in an L2 context does influence the amount of influence (by increasing it) on the L3 or additional languages (Ringbom, 1987; Stedje, 1977, cited in Ringbom, 1987, p. 121; Vildomec, 1963; Williams & Hammarberg, 1998). If we take those results a step further, we could hypothesize that exposure to the L3 in an L3 setting would result in a decrease of CLI from previously learnt languages, and even raise the question of whether in such case the L3 could become a source of influence for the L2. Fouser's (2001) study seems to offer evidence in favor of this assumption, given that his participants, who were learning Korean as an L3/L5 in Korea, started to show influence of that language on their Japanese, a non-native language they had learnt before moving to Korea. A combination of amount of exposure and the context in which that exposure takes place seem to be a decisive factor with regards to CLI (Pavlenko & Jarvis, 2002).

Recency of Acquisition and Use

Several studies point to recency of use as one of the factors likely to determine whether a language will become a source of influence during the production process in another one or not (Vildomec, 1963; Williams & Hammarberg, 1998). An explanation behind this claim lies on the idea that a language that has been recently used is more accessible. Some authors believe this happens not only for recency of use but also for recency of acquisition. In fact, Shanon (1991) reported the presence of a 'last language effect' in the production of her participants, who seemed to be relying on the last language they had learnt or been in contact with, regardless of their level of proficiency

in it. With regards to order of acquisition and how the mind may establish a special kind of association between the language being acquired and the immediate previously learnt language, Dewaele (1998) offers additional evidence in support of Shanon's claim. In his study, he compared learners of French as an L2 and as an L3 and found that those with French as an L2 relied more on their L1 (Dutch), while those with French as an L3 relied more on their L2 (English) for the production of lexical inventions. It must be mentioned that all participants spoke Dutch as an L1, and that all of them had knowledge of English, as an L2 or an L3. Therefore, the main difference between the two groups of learners was the order in which they had acquired their non-native languages. While the order of acquisition seems to have played a role and overridden a potential typological effect (English and French are lexically closer than Dutch and French), Dewaele's results do not rule out the possibility that proficiency influenced the language chosen as source of CLI. As discussed earlier, it is believed that a threshold level needs to be attained in order for a language to influence another, and it might have been the case the proficiency of Dewaele's participants in English as an L3 was not sufficient to cause influence.

Yet, some studies have shown that languages which were not learnt last and had not even been used for long periods of time did become the source in some instances of influence (Herwig, 2001; Möhle, 1989; Rivers, 1979). Interestingly enough, not only had those languages gone unused for a long time, but in some cases the participants mentioned not being particularly proficient in them. Let us examine one of those studies more closely. Möhle's (1989) study, for instance, looked at data from 22 learners of Spanish. For all of them, German was the L1, and English was the L2. Some of them had studied either French or Latin as an L3, and they were all taking Spanish (L4 or L5)

courses. Contact with other languages, mainly Italian, was also reported by some participants. After discussing the results, Möhle concluded that the most important factor with regards to CLI was the formal relationship between the languages. This seems particularly true if we consider that French did interact with Spanish, even when participants reported having neglected it for many years. And so did Italian, although it was a language with which participants had only had superficial contact. Moreover, English played a very minimal role despite being the strongest and the most used L2 for all participants.

To go over the main points regarding recency, this notion can be applied both to use and to acquisition. On the one hand, the existence of a recency of use effect seems to be supported by the literature (Vildomec, 1963; Williams & Hammarberg, 1998). On the other hand, according to De Angelis (2007), there are a number of studies that offer counterevidence to the existence of a recency of acquisition effect, given that they provide examples of influence from languages which were not learnt last, and had not even been used for very long periods of time (De Angelis & Selinker, 2001; Rivers, 1979).

Psychotypology

In the previous paragraphs, linguistic similarity seems to be a recurrent factor that often interacts with or overrides any other factor that was being discussed. A more technical term to refer to linguistic distance or similarity is typology. Since typology is, in fact, one of the variables in my study, I will return to it later on in this chapter.

While it seems reasonable to believe that it is the actual typological relationship between a given set of languages that matters the most, it is possible that the perception the learner has of that distance may ultimately affect CLI. The perceived linguistic

distance was first referred to as psychotypology by Kellerman in 1983. Several authors have reported psychotypology as a decisive factor in their studies (Ecke, 2001; Kellerman, 1983; Singleton, 1987; Singleton & Little, 1991). At times, studies do not include a measure of psychotypology. Instead, its effect is reported on the grounds of certain comments made by participants during the data collection process, and it is understood as a subcomponent of typology. However, it needs to be kept in mind that actual (typology) and perceived (psychotypology) distance may not always coincide. Therefore, it cannot be assumed that the existence of a typological relation will be perceived by the learners, or that the lack of typological proximity will prevent the learners from perceiving it. Moreover, the perception of relatedness by some learners with regards to certain features or components of two languages (e.g., lexical similarities between Spanish and French) does not imply that the same learners would perceive other features of those languages as being similar as well (e.g., stress patterns in Spanish and French). At other times, psychotypology is measured by the means of think-aloud protocols and/or questionnaires.

It is possible that psychotypology and typology may act, at times, as two different variables and therefore it would make sense to devise and add some kind of psychotypology measure to the research design of studies investigating typological effects. This would be particularly important in the cases in which all languages investigated are related and in cases that go beyond L3 acquisition. This said, it is acknowledged that psychotypology is a rather elusive variable (given that it is highly subjective and may not act or affect all areas of language in a consistent manner) and tapping into it is a great challenge.

The Two Factors Under Investigation

Non-native languages (L2 status) are now regarded as potential sources of influence for the learning of additional languages. And language similarity (typology) is a factor that is likely to affect transfer between languages that are closely related. What follows is an account of previous findings regarding both variables and a brief explanation of why they were selected for this study.

Typology

Typology is one of the most referred to factors that contribute to CLI in the TLA literature. However, it is hard to find a concise definition of typology. Rossi (2006) addresses this issue in her M.A. thesis. In her opinion, most studies present a superficial view of typology, by which the relationship between the languages involved is not described, instead, it is just assumed on the basis of linguistic families. To Rossi, this can be faulty, for two languages from the same family can be similar in some respects and different in others, and belonging to the same linguistic family is not necessarily a guarantee of typological similarity. The null subject parameter is a clear example of a linguistic feature that is not always linked to language family. An example of a clause with a null subject would be: *Tengo un hijo* (I have a son), in which there is no explicit subject because the person and number is expressed on the verb. The ending –'o' in *tengo* indicates the first person, singular, *yo* (I). It is possible to find closely related languages that differ on this point for example French, which does not allow null subjects, and Italian, which does (indeed, French is the only Romance language that does not allow null subjects). There are also clearly unrelated languages that behave alike with respect to this feature (e.g., Italian and Chinese both allow null subjects).

According to Rossi, typology can be understood in a global or in a more restricted way, for there are three kinds of relations implied in the term: a genetic relationship, a geographical relationship, and a formal relationship. Two languages are considered to have a genetic relationship when they belong to the same linguistic family. For instance, classifying French, Italian, Portuguese, and Spanish as Romance languages is to establish a genetic relationship between them. Understanding typology as a genetic relationship is looking at the issue in a global way, which seems to be the kind of relationship privileged in most studies in the field.

A less common approach would be to think of typology in terms of geographical association. However, typological similarity can also be a function of geographical proximity. Albanian, Romanian, and Bulgarian constitute an example of a group of languages that share certain linguistic features due to their geographical relationship but belong to different families. Specifically, these three languages mark definiteness by adding a suffix to the noun, a trait that is not found in any of the language families to which they belong.

As has been discussed above, genetics and geography are global approaches, and a classification based on linguistic family or geographical proximity is not always the most appropriate way to deal with typology. Rossi proposes to look at typology from a formal standpoint, a more restricted understanding of the term. In this regard, Whaley's definition is in order. In Whaley's (1997) words, typology is 'the classification of languages or component of languages based on shared formal characteristics' (p. 7).

For the purposes of this study, typology is to be understood as the formal similarity or distance between the linguistic components of interest across the target

languages. In the following paragraphs, the typological relationship between the two features under investigation (lexical inventions and aspiration) will be established across English, French and Spanish, and with respect to the two different areas of language concerned (lexis and phonology).

Typological Relationships in this Study

At the lexical level, establishing a relationship becomes a tricky matter due to the "unique mixture of Germanic and Romance elements" (Lipka, 1990, p. 7) of English. In fact, there are authors like Gachelin (1990) who have even suggested English might be a semi-Romance language with regards to lexis. Granger (1996) offers two main explanations for the extensive impact of Romance vocabulary on English: firstly, Norman French became the language of the upper classes in England after being conquered by the Normans, resulting in the infiltration of thousands of French words in English; secondly, English has borrowed, over the centuries, a greater number of Latin words than any other Germanic language. Granger refers to this "combined import of French and Latin words" (p. 105) as the Romance stratum of the English language. The Romance stratum was added to the Germanic stock and, as a consequence, there are Romance-Germanic pairs of synonyms such as *descend / go down*, that differ stylistically. In these pairs, which Granger calls doublets, the Romance words belong to the low frequency or subject-specific repertoire. On the other hand, the high-frequency words are of Germanic origin. This is a key fact in establishing a typological relationship between the three languages of this study. The level of the participants in the L3 and the tasks that will be used to elicit data make high-frequency words the targeted ones. Therefore, despite its Romance stratum, English will be considered as a Germanic language with regards to lexis.

At the phonological level, establishing the typological relationship between English, Spanish and French regarding aspiration is a more straightforward matter. English, French and Spanish fall under the same category of languages with respect to the number of groups of stops that characterize their sound inventories. The sets of stop phonemes /p b/, /t d/, and /k g/ in all three languages are distinguished phonologically by voicing, where the voiceless group is made up of the stops /p t k/ and the voiced group consists of the stops /b d g/. Despite this phonological similarity, the stop phonemes are produced differently in the three languages. More precisely, they differ in the voice onset time (VOT) or the lag patterns they display. VOT is the term that Lisker and Abramson (1964) coined in their pioneering study that looked at voicing in onset stops across eleven languages. It is used to refer to the time interval from the release of a stop until voicing for vowel production begins (Yavaş, 2006). This is a widely reported measure as it correlates with the voiced-voiceless distinction established across the world's languages.

VOT is measured in milliseconds (ms.). Therefore it results in a quantifiable difference for the three languages involved in this study. On the one hand, in French and Spanish voiced stops are implemented with VOT values of less than 0 ms. (lead VOT), while typical VOT values for voiceless stops (/p t k/) range from 0 to 30 ms. (short-lag, non-aspirated stops). On the other hand, English voiced stops are usually produced with short lag, whereas /p t k/ are produced with VOT values that typically range between 60 and 100 ms. (long-lag, aspirated stops; Lisker & Abramson, 1964). While voiced stops will not be investigated here, it is of interest to highlight the fact that values for voiced stops (/b d g/) in English correspond to, and overlap to a certain extent, with values for voiceless stops in Spanish and French, as illustrated in Figure 1.

The long lag for voiceless stops in English results in aspiration, which is typically described as a burst of air noticeable on the release of /p t k/ in English when they occur in stressed onset position (Avery & Ehrlich, 1995; e.g., [p^{h}et] 'pet', [ə.k^{h}juz] 'accuse', where a superscripted "h" represents aspiration and a period "." syllable boundaries), except when the relevant segment is preceded by an /s/ (e.g., [step] 'step'), or in word-internal stressed onset position. Aspiration is absent in French and Spanish.

For the purposes of establishing a typological relationship between English, French and Spanish, a look at aspiration and VOT patterns (see Figure 1) allows for the conclusion that French and Spanish are typologically close to each other and distant from English.

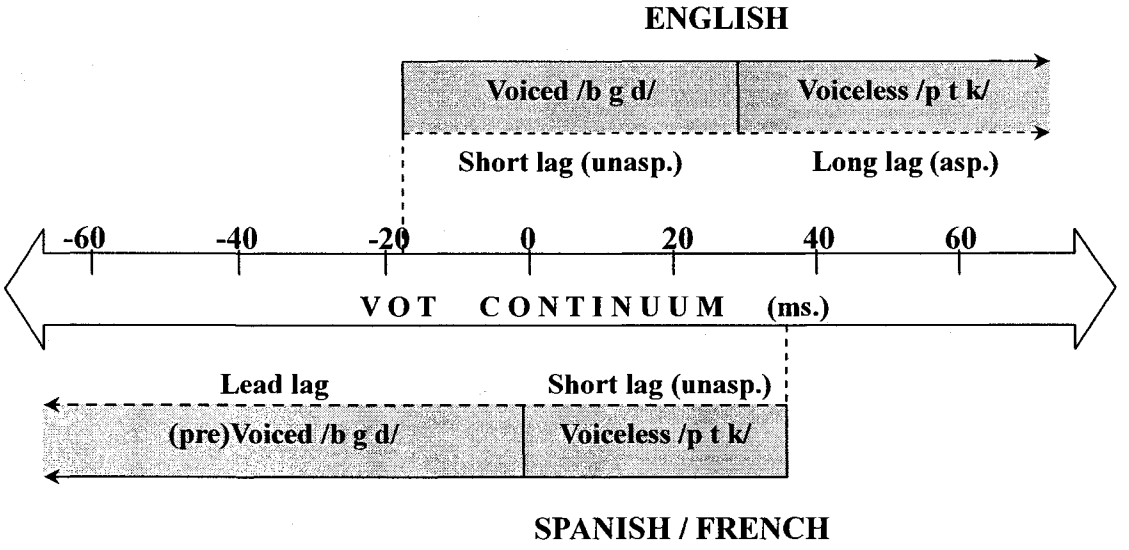


Figure 1
Schematic representation of the VOT continuum showing the relationship between English, French and Spanish stops

Previous Findings Regarding Typology

In SLA, similarity between the L1 and the L2 may facilitate transfer (Andersen, 1983). In fact, and according to Jarvis (2000), most transfer-related research from the 1970s and 1980s provided evidence to support the claim that the similarities, and not only the differences, between the L1 and the L2 were responsible for many instances of L1 influence. Likewise, in TLA, language similarity or typological closeness has proven to be a determinant factor in many instances of influence of the known language on the one that is being learnt (Ahukana, Lund & Gentile, 1981; Cenoz, 2001; De Angelis, 2005; Möhle, 1989; Ringbom, 2001). Möhle (1989), for example, claimed that typology was in fact the crucial factor in CLI, for she found that her informants' knowledge of French exerted more influence in their learning of Spanish as a fourth language than any of the other languages they spoke, regardless of proficiency, amount of exposure or recency of use. However, data in Möhle's study is presented rather in a qualitative way, with many examples and comments interpreting what the researcher perceived in analyzing the data. The reader is not provided with any numbers to quantify influence from English versus French, or any other previously acquired languages. It is an exploratory study that provides valuable insights into the role of typology nonetheless.

Ringbom (1986) also reported typology as being a more determinant factor. Despite living in Finland, their L2 environment, and being quite proficient in their L2, his L1-Swedish-L2-Finnish participants did not seem to resort to Finnish in their L3 (English) production. On the other hand, his L1-Finnish-L2-Swedish participants tended to draw extensively on their L2 for their L3 (English) production. A closer typological relationship between Swedish and English would help explain the difference in L2 to L3

transfer patterns across Ringbom's two groups.

Cenoz (2001) found a strong typological effect in the transfer pattern of her participants as well. She discovered a higher amount of transfer from Spanish in the L3 (English) of her participants, despite the fact that Spanish was the L2 for some of the learners (who spoke Basque as their L1) and the L1 for others (who spoke Basque as their L2). Rossi's (2006) study of Spanish L3 also found an effect for typology. She looked at two groups of learners: Anglophones with French as their L2 and Francophones with English as their L2. Both groups resorted more to French than to English as a source language for lexical transfer in their oral production in Spanish.

All studies presented in this section provide evidence that L3 learners rely on close languages as sources of information and that typology tends to override other factors. However, there are a few studies that have reported reliance on distant languages, even when the learners know closely related languages as well (Rivers, 1979; Schmidt and Frota, 1986). More research may be needed to account for those instances in which a distant language outweighs the influence of a close one.

L2 Status

There are also studies that point to L2 status as the variable that predicts CLI in TLA (Dewaele, 1998; De Angelis & Selinker, 2001; Hall & Ecke, 2000, in Ecke, 2001; Williams & Hammarberg, 1998).

L2 status is the term used to refer to 'languages other than the L1" (Cenoz, 2001, p. 9). It is an important factor because of the "foreign language effect" (Meisel, 1983) associated with it. According to De Angelis (2005), the non-native languages will fall under the category "foreign languages" in the mind of the learner, which creates a

cognitive association between them. The native language is excluded from this association, and it becomes easier for the speaker to block it. In one of her studies on lexical transfer, De Angelis labeled this cognitive process as "association of foreignness" (2005, p. 11) and argued that it would favor non-native lexical transfer, giving the L2 a privileged status. This variable is directly linked to the concept of language mode, proposed by Grosjean (1995). His claim is that the languages we know can be placed in a language mode continuum where they fluctuate from dormant to active. The more activated one of the languages is, the more CLI it can cause. The key question to be asked is whether it is the association of foreignness or rather typological closeness that does in fact help to keep a language activated.

According to Murphy (2003), Grosjean's model can be adapted to trilingual speech. This model could help explain why the L2 may be the preferred source of influence if we believe that activating or deactivating a language can be linked to the control a speaker has over it. More control over the L1 would make it easier for the speaker to deactivate it, being left in a "foreign language mode" (Hammarberg, 2001; Williams & Hammarberg, 1998) that is, the languages perceived as foreign remain activated.

Previous Findings Regarding L2 Status

That was one of Williams & Hammarberg's (1998) claims with regards to their results: The fact that the L2, just like the L3, looked foreign to their participant, helped explain the greater influence of the informant's L2 on her L3 lexical production. This seminal case study is one of the most cited works in the TLA field, and one of the key studies backing the predominant role of the L2 as a source of CLI at the early stages of

L3 acquisition, both for lexical and phonological production. Their data, collected over the period of two years, came from a native English speaker who had attained a native-like command of her L2 (German) after living in the L2 context for a few years. At the time of the data collection, she was learning Swedish as an L3 in Sweden. Their results seemed to point to a division of roles for the two previously known languages: The L1 having an instrumental role (being used as a tool to facilitate communication in the form of metalinguistic comments, asides, requests for help, etc.), and the L2 being the default supplier for lexical construction attempts.

Preliminary evidence of the effect of the L2 on L3 pronunciation was also reported. According to some native speaker judges, the informant sounded like a German speaker learning Swedish at the initial stages. Over time, the L3 took over the role of supplier for lexical production, and her pronunciation started to show more of an L1 influence.

Two observations should be made with regards to Williams and Hammarberg's results. In the first place, it is possible for typology to have played a role in promoting L2 influence, given that German could be closer, and also could have been perceived as closer (psychotypology) to Swedish than English. Typology and L2 status are therefore confounded in this study, since German was both the informant's L2, and the language that was typologically more similar to the TL. In the second place, no acoustic analysis backs the claims made with respect to the participant's pronunciation. Both these issues should be addressed in future research.

In brief, the review of the literature presented so far has shown how two factors have been reported by different authors as being the most determinant when it comes to

the selection of a previously learnt language as a source of CLI in TLA. With one exception, the claims were made from studies investigating lexis; only Williams and Hammarberg (1998) commented on phonology, but because the study was not designed to investigate phonology, the observations were anecdotal.

The Two Features Under Investigation

I now turn to discuss previous findings regarding lexical inventions and aspiration. Lexical inventions were chosen because there have been targeted in a number of previous studies on lexical transfer in TLA. To explore phonological transfer, aspiration (operationalized as voice onset time – VOT) was chosen because it has been widely investigated in SLA studies, and it allows for the establishment of a straightforward typological relationship for the three target languages of the study: English, French, and Spanish. To my knowledge, at the time of the conception of the study, no TLA study had targeted aspiration to investigate CLI.

Lexical Inventions

In order to investigate CLI in lexical production, previous studies have looked at language switches, lexical inventions, and often both phenomena. Languages switches are non-target units of language that can vary in length from a single word to a whole sentence uttered during production in the target language. These units are taken from another language in an unmodified form. An instance of a language switch (in italics) can be found in the following example taken from my data. Participant A01 was describing a picture of a man sitting on a bench in a park. He was reading a book and making a funny face. At one point during the description of the picture the participant said about the man reading in the park:

A01: 'Me gusta eso [...] porque es cómico y (laughs) *he looks like a geek* (laughs). No sé cómo se dice eso'.

Some researchers, such as Ringbom (1987), do not consider language switches as true examples of CLI because, in filling a lexical gap, it seems as if the speaker has chosen not to attempt to use the target language.

Lexical inventions, on the other hand, can be regarded as an attempt on the part of the learner to make a word sound and/or look as if it belonged to the target language. In more technical words, a lexical invention is a non-target "lexeme which is morpho-phonologically adapted to the target language but which is never used by native speakers" (Dewaele, 1998, p. 471). An example of a lexical invention would be the word *magasinando* (shopping), in which the ending *(-'ando')* that corresponds to a Spanish gerund has been added to a French verb root (*magasiner*). Many are the terms that the different authors have used to refer to this phenomenon. These are the examples I have found in the literature that I have reviewed: "lexical invention" (Dewaele, 1998; Tremblay, 2004), "lexical innovation" (Singleton, 1987), "lexical error" (Ecke, 2001), "morphological interlanguage transfer" (De Angelis & Selinker, 2001), "hybrid", "blend" and "relexification" (Ringbom, 1987), and "foreignising" (Cenoz,2001, the term seems to have been taken from Poulisse, 1990, who used it for transfer in the acquisition of an L2).

Since they undergo adaptations that can come from inter- and intralingual sources, inventions are a useful tool in determining CLI in the area of lexis. Among the researchers that have looked at lexical inventions in the acquisition of the L3 are Dewaele (1998), Cenoz (2001), Tremblay (2006) and Rossi (2006). These studies can be divided into two main groups: those in which it is argued that the L2 plays a predominant role in

CLI (Dewaele, 1998), and those that suggest that typology is a stronger predictor for lexical influence (Cenoz, 2001; Tremblay, 2006; Rossi, 2006).

Dewaele looked at the lexical inventions produced by a group of learners of French as an L2 (n= 32), and by a group of learners of French as an L3 (n= 7). Both groups spoke Dutch as their L1 and had English as their other non-native language. Dewaele's findings are interesting in that his data revealed a significant difference in the French L2 and the French L3 of the participants. The French L2 speakers created more inventions from their L1 (Dutch) but the French L3 speakers resorted more to their L2 (English). This led the author to argue in favour of a higher activation of the L2 during L3 oral lexical production. However, it has to be noted that French and English share more cognates than do French and Dutch, and that typology and L2 status are confounded in this study, as it was the case with Williams & Hammarberg's (1998). The reason the group of L1-Dutch, L2-French, L3-English speakers may have neglected English as a source language, regardless of a closer typological relationship with the TL, could be related to the level of their L3 proficiency. It is possible that their level of English was too low for this language to override the influence from the L1.

Tremblay (2006) looked at the level of proficiency attained in an L2 and the influence this could have on lexical transfer in learners' L3 production. Her participants were native speakers of English with French as their L2, who were in the process of learning German. She found different rates of CLI among the low, versus intermediate and high L2 proficiency levels. Her findings suggest a marginal L2 influence on the L3 of the low proficiency group. As for that of the high proficiency group, she concluded that traces of the L2 were found as slips of the tongue in the L3, but informants seemed to

take little advantage of their L2 knowledge to create lexical inventions or even to code-switch. For all the groups, and contrary to Tremblay's hypothesis, the L1 was the main supplier language for both inventions and switches. This suggests that typology (English and German are more closely related lexically than French and German) is a stronger predictor regardless of proficiency in the L2. Nonetheless, a higher level of L2 proficiency was related to a higher degree of L2 activation. Tremblay concluded that, according to her results, there was a tendency for the L1 influence to decrease in favour of the L2 as proficiency in the L2 increased. This may lead one to presume that a typologically distant L2 could compete with a typologically closer L1 if the speaker had a very high command of the L2.

A slightly different pattern of transfer emerged from Rossi's study (2006). While Tremblay combined two Germanic languages and a Romance one, Rossi looked at the opposite combination: two Romance languages (Spanish and French), and a Germanic one (English). She divided her groups so that the L2 would be typologically closer to the TL for one group (L1-English, L2-French, L3-Spanish), and that the L2 would be typologically more distant to the TL for the other (L1-French, L2-English, L3-Spanish). In most cases, and regardless of whether French was the L1 or the L2 of the participants, a French word served as a base for L3 lexical inventions. She also noted that, when the source was an English word, it had a cognate in French, as in the example *contructir* (lexical invention) *construct* (En.) and *construire* (Fr.).

In line with Tremblay (2006) and Rossi (2006), Cenoz (2001) found a strong effect for typology in her analysis of the borrowings (the way the author referred to language switches) and the 'foreignisings' (the term used by Cenoz to refer to lexical

inventions) produced by three groups of L1-Spanish, L1-Basque and bilingual speakers. They were a total of 90 elementary and high school students who differed in age and level of proficiency in English, their L3. She found that only half of her participants transferred at all and when they did, most of the samples were borrowings. Out of 198 transferred terms, only sixteen were lexical inventions, and they all had Spanish as the source language. This would definitely give typology an advantage over L2 status, which is exactly the finding reported by the researcher. But Cenoz does not report if these inventions come from participants from all groups or from participants from just one group. Moreover, the author does not provide any information about the "foreignisings" other than the number, and this makes it rather difficult for the reader to see a trend or to determine a role for the L2 regarding this phenomenon.

According to the previous review of the literature, lexical inventions tend to be created using a word from the language that is typologically closer to the TL, regardless of its status (L1 or L2). In the cases in which the base for the invention is taken from the more distant language, this word usually shares a cognate with the typologically closer one, as Rossi noted.

Aspiration, Measured Through Voice Onset Time

While lexis is a commonly investigated area of language in TLA, and lexical inventions are a frequent item of investigation in studies dealing with CLI in this field, the acquisition of L3 phonology remains a fairly unexplored subject. To the best of my knowledge, only one study (Tremblay, 2007) has aspiration, more specifically VOT, as the research focus to determine CLI in TLA. She analyzed acoustic samples from four native speakers of English, with French as an L2, who were at the early stages of learning

Japanese as an L3. The different VOT patterns for English and French were presented on pages 16 and 17. As a brief reminder, it can be said that voiceless stops in English are produced with values that range between 60 and 100 ms. On the other hand, French native-like VOT values are much shorter, and fall within 0 and 40 ms. In this respect, Japanese is a peculiar language in which voiceless stops are produced with values ranging from 30 to 60 ms, -that is, intermediate to what are typically considered non-aspirated and aspirated stops.

Tremblay interpreted the intermediate VOT values produced in the L3 Japanese (i.e., native-like) of her English-French bilinguals as an L2 effect. Her participants had not studied or been exposed to Japanese long enough to have acquired VOT native-like values in that language. Instead, it seemed reasonable to presume that learning an L2 had modified their L1 VOT, as documented in previous studies (Gurski, 2006; Flege & Eefting, 1987), and this modified VOT was being transferred to the language in the process of being acquired. Moreover, she argued that the L2 had had an effect not only on the L3 but also on the L1 of three out of her four participants, since the intermediate value was produced for voiceless stops across the three languages.

Tremblay's conclusions are of particular relevance to my study. The L2 arose as a determinant factor for L3 production thus providing evidence in favour of a predominant role for L2 status even with regards to phonology. However, it has to be noted that typology was not really at play in this study. Indeed, the typological closeness between English and Japanese can be judged similar to the closeness between Japanese and French with regards to VOT. While voiceless stops are aspirated in English and unaspirated in French, they could be considered as semi-aspirated in Japanese for VOT

values in Japanese fall in between those reported for aspirated and unaspirated stops. Since there are no other studies that explore VOT as an indicator of CLI in TLA, the question of whether L2 status overrides typology remains unanswered.

Although an uncommon feature of investigation in TLA, the acquisition of VOT is a well studied segment of speech in SLA, and a review of some of the findings could provide TLA researchers with some helpful insights from which to carry on. A detailed review of SLA investigations on this topic, however, would go beyond the scope of this study. Therefore, I will focus on a few relevant studies that have examined the languages explored herein.

Most L2 VOT studies seem to highlight the fact that learners are hardly ever able to attain native-like VOT values in their L2 (Caramazza, Yeni-Komshiam, Zurif & Carbone, 1973; Díaz-Campos, 2004; Fellbaum, 1996). This does not imply that learners produce the L2 and L1 stops with the same values, but rather that their L2 values differ from those of monolingual native speakers of both that L2 and their L1.

In his study of the acquisition of L2 Spanish phonology in two different contexts of learning, Díaz-Campos (2004) pointed to the suppression of aspiration of voiceless stops as one potential area of difficulty for native speakers of English. Based on Eckman's (1977) Markedness Differential Hypothesis (MDH), learning to suppress aspiration to produce target-like voiceless stops in Spanish would pose no problem for native English speakers since the presence of aspirated stops presupposes the presence of non-aspirated ones in a language. However, the results from Campos' work revealed a different story: The English speakers participated in the study (n=8) failed to produce native-like non-aspirated Spanish stops. Similar findings were reported by Fellbaum

(1996) after conducting a preliminary study on the acquisition of voiceless stops by both learners of Spanish and English. Her eight Anglophone learners of Spanish, as those in Campos', fell outside the accepted VOT range for /p/ and /t/ in Spanish. Her seven Hispanophone learners of English, on the other hand, were able to achieve a closer VOT mean to the target sound in the L2, but still differed from native-like values in their L2.

The impossibility to aspirate as a native speaker of English when coming from a Romance language, or for an English speaker to suppress aspiration when learning a Romance language, is not only an obstacle that can be attributed to adult learners. Caramazza et al. (1973) found that even in the case of L1 French-L2 English bilinguals in Canada, who had began to acquire English at no later than seven years of age, there was a difference in the production of stop consonants when compared to two groups of English and French monolinguals. These bilinguals showed a shift towards English VOT patterns, in that they produced higher values in English than in French. Nevertheless, those values were not high enough for the target language, indicating that the informants fell short of producing native-like voiceless stops in their L2 English.

Other studies regarding the acquisition of VOT in the L2 show that, for the most part, L2 learners are able to create a new category for the L2 sound, but that this category differs from that of native speakers of the two languages involved. It is not uncommon to find L2 proficient speakers who produce stops in their L2s with VOT values that are intermediate between those of monolinguals of their L1 and of their L2 (e.g., Flege & Eefting, 1987; Laeufer, 1996). The term "compromise VOT" has been used to refer to this intermediate value L2 speakers produce in the L2.

Research Questions

In the research conducted in the field of TLA, two factors appeared to be emerging as competitors with regards to determining the source language for CLI in the acquisition of L3 lexis: typology and L2 status. Among the reasons to presume that typology is a more decisive factor is the idea that there is some evidence to show that similarity between languages can favour transfer in SLA. But going from SLA to TLA naturally implies adding one more language to the mix. This added L2 is argued to form a special relationship with the L3: both languages would be classified in the mind of the learner as foreign, creating a special connection between them. Most of the studies reviewed above did claim that typology overrode many other factors. Those studies investigated only lexis. Yet, the seminal study conducted by Williams & Hammarberg (1998) reported a predominant L2 effect for lexis, and pointed to an L2 effect also in phonology. A potential explanation for this finding was that the L2 could also be typologically closer to the L3.

In reviewing the literature, it became evident that: (a) results regarding whether typology did in fact override L2 status were inconclusive, (b) lexis and phonology could but needed not be influenced by the same factor in the same way. Therefore, my study was set out to explore the competition between those two factors in those two different areas of language. The aim was to contribute to the literature by doing three things that had not been done: (a) tease apart the two factors, (b) look at how the two factors affected two different areas of language, and (c) study a new combination of languages.

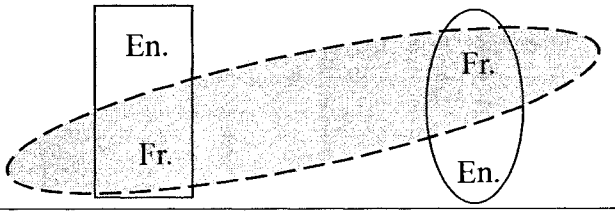
The two research questions this study was intended to provide answers for are the following:

1. Which is a stronger predictor in the selection of a source language for lexical influence in L3 acquisition: L2 status or typology?

2. Which is a stronger predictor in the selection of a source language for phonetic influence in L3 acquisition: L2 status or typology?

As there has been insufficient research to predict the direction of the findings (especially in the case of phonology), or there was a lack of unambiguous data in favour of either factor (especially in the case of lexis), no hypotheses were stated a priori. However, if one of the two factors were to be more influential than the other, the two possible outcomes were as follows: (i) typology would override L2 status, in which case both groups would transfer mainly from French (L1 for group F and L2 for group A), as indicated by the shaded and dotted balloon in Table 1; or (ii) L2 status would override typology, in which case both groups would transfer mainly from their L2's (English for group F and French for group A), as illustrated by the unshaded balloon in Table 1. It must be noted that because both factors are confounded for group A (French is both their L2 and the typologically closest language to the L3, as shown by the intersection of balloons in Table 1), group F's results will be essential to the interpretation of our findings. Both potential outcomes are represented in Table 1.

Table 1
Potential Outcomes: Typology and Language Status

Group	L1	L2
A		
F		

Yet, a possibility that must not be overlooked is a predominant influence from the L1. Therefore, a third potential outcome was the L1 overriding both typology and L2 status, in which case group A would resort mostly to English, whereas group F would resort mostly to French (represented by the rectangle in Table 1).

CHAPTER 3: METHODOLOGY

This chapter provides information on the main elements and processes pertaining to the design and implementation of my project. It starts with the description of the participants and ends with a detailed explanation of the data collection (instruments and procedure).

Participants

Twenty-two informants divided into two groups took part in the study. The first group, henceforth Group A (L1= English), was made up of eleven native speakers of Canadian English (E) with a high command of their L2, Canadian French (F). The second group, henceforth Group F (L1= French), consisted of eleven native speakers of F with an advanced knowledge of their L2, E. The level in Spanish for both groups was intermediate, as illustrated in Table 2 (En.= English; Fr.= French; Sp.= Spanish). Informants were recruited at different Montreal colleges (cégeps[2]) and universities. All participants gave informed consent in their L1 (see consent forms in Appendixes A and B) and were offered a monetary compensation for their time, regardless of whether their data were used or not. In fact, data from some participants could not be retained for analysis. I will return to this point further below.

[2] Cégep is the French acronym for *collège d'enseignement general et professional.* Exclusive to the province of Québec, cégeps are post-secondary education institutions similar to community colleges in English-speaking Canada. The main difference between cégeps and community colleges is that cegeps are compulsory for those students that which to attend university in Québec.

Table 2
Language Profiles of Participants

Group	*n*	L1	L2	L3
A	11	En.	Fr. (Ad.)	Sp. (In.)
F	11	Fr.	En. (Ad.)	Sp. (In.)

In the selection of participants, three criteria were of critical importance: First, their level of proficiency in the L2 (English or French) needed not be native-like but advanced; second, they were more proficient in their L2 than in their L3 (Spanish); and third, their VOT values for [p t k] in their L2 differed from those expected for [p t k] for monolinguals of their L1 (e.g., they had learnt to aspirate or to suppress aspiration to a certain degree in their L2). These characteristics were important because, an advanced level in the L2 would allow this language to compete with the L1; a lower level in the L3 would increase the possibilities of finding CLI (it has been shown that the higher the proficiency in the L3, the more likely the change of intra- instead of inter-linguistic influence; and a difference in pronunciation between the L1 and the L2 would allow to trace L3 pronunciation to one of the two previously known languages.

The actual number of informants tested was 45 (17 Anglophones and 28 Francophones). The data collected from 23 out of those 45 participants was disregarded for different reasons, mainly damaged recordings, proficiency issues, and the number of languages spoken. The recordings for three of those informants were damaged, which made the data analysis impracticable. Despite the fact that during the recruiting process potential participants were asked to list any other languages they knew besides English, French and Spanish, five people neglected to do so when they signed up for participation,

but declared knowledge of, or exposure to, other languages in the language background questionnaire. Moreover, two other participants stated that they were bilingual during the testing session, and were therefore disqualified. Finally, 12 informants were excluded from the analysis based on their vocabulary scores, according to which their proficiency in the L2 or the L3 was either too low or too high to meet the proficiency criterion that had been established.

Data Collection

This section is divided into two main parts: a description of the instruments designed for the study and an explanation of the order in which they were administered.

Instruments

The instruments used in the study were: a language background questionnaire, two vocabulary tests, three word lists, and a semi-guided picture description task. All of the instruments, except for the pictures, can be found in the appendixes. When there was more than one version (in different languages) of an instrument, it is presented in two or three separate appendixes.

Language Background Questionnaire

The language background questionnaire or LBQ (appendixes C and D) was designed to help determine the participants' language acquisition history and use. The main source consulted for the creation of this questionnaire was the pretest version of the language contact profile (LPC; Freed, Dewey, Segalowitz & Halter, 2004). A first version of the LPC was used by Seliger (1977) and it has since then been fine-tuned by different researchers in a number of studies. Two versions of the LCP (pretest and posttest) were developed and published to be shared with other researchers by Freed et al. Since they

were created to assess L2 contact, I needed to adapt one of the LCP versions to include L3 contact as well. Ideas for questions about the order of language acquisition (first page of the questionnaire) and for self-assessment of proficiency (last section of the questionnaire) were taken from Tremblay's (2004) questionnaire. The answers obtained served two main purposes: they ensured the participants' suitability in terms of number and order of acquisition of the languages they spoke, and provided a first measure of proficiency (self-assessed), since the informants were asked to self-rate their proficiency in their L2 and their L3 with regards to the four skills (reading, writing, listening, and speaking) by assigning themselves to one of the following levels of proficiency: native-like, advanced, intermediate or beginner. They were also asked to provide a rating, on a scale of 1 to 10, of their overall proficiency.

Vocabulary Tests

The second measure of proficiency in the participants' two non-native languages came from two Yes/No Vocabulary Tests. These vocabulary tests (appendixes E, F and G) followed a yes/no format. Yes/No vocabulary tests consist of checklists on which testees are asked to tick off the words they are sure they know. These Yes/No Vocabulary Tests were built using words taken from the website http://www.swan.ac.uk/cals/calsres/lognostics.htm. This webpage provides different lists of words classified according to frequency levels in different languages. They are the same word lists used in the _Lex tests, the University of Swansea tests, which purpose is to measure vocabulary breath. The _Lex tests are based on research by the Vocabulary Acquisition Research Group, under the supervision of Paul Meara, at the University of Swansea (Wales), and are considered to be a quick way of evaluating competence in a second language.

The basic assumption behind this kind of Yes/No Test is that there is a relationship between a learner's overall proficiency in a language, and the number of words that learner knows. The Yes/No Vocabulary Test is expected to give an estimate of vocabulary size by showing how a testee knows a high or low percentage of words from each frequency level tested. However, it needs to be kept in mind that testees are not asked to prove their knowledge of the words they report to know. As a check on whether the learner reports his/her knowledge honestly, the test includes many non-words. The testee's score is adjusted according to the extent to which he/she reports these non-words as "known".

Vocabulary tests following a yes/no format are very attractive due to practical reasons: they are easy and quick to construct, and they are not very demanding time wise or from an administration point of view, neither on the part of the tester nor on the part of the testee. Therefore, it is not uncommon to see these tests being used for research purposes (Meara & Jones, 1988). Meara and Buxton (1987) were the first to look at these tests as a quick and practical tool that could prove useful in assessing the L2 abilities of participants taking part in empirical research.

Some problems have been reported in the literature regarding the validity of Yes/No Tests. One of those problems is the possibility of encountering 'mock' hits (Anderson & Freebody, 1983), which consist in the recognition of a non-word by identifying it as a similar real, known word, for instance, interpreting *emplícito* (non-word) as *implícito* (implicit). A second problem is related to potential cognate effects. The fact that *captivité* and *captivity* are cognates in French and English could lead a learner to tick the non-word *captivise* by mistake. Or, students could accept a word whose meaning

they ignore due to similarity with a word in their L1 and guess right, potentially resulting in an overestimation of their knowledge. A third problem is the unpredictable way in which low-level learners seem to react when confronted with non-words, and causing them to under-perform. Despite the issues mentioned above, Meara (1996) found moderate correlations with tests of other language skills, such as clozes, and listening or reading comprehension tasks. This gave me the option to use these tests in order to test my participants' proficiency. Due to the number of tasks I wanted to ask them to complete, and keeping in mind that I needed to assess their proficiency in their two non-native languages, I needed a quick and not excessively demanding task. Therefore, of all the choices available, the Yes/No Vocabulary Tests appeared the most suitable option.

My tests consisted of three pages (A, B, and C) containing 40 words and 20 non-words each (see Table 3). The proportion of words and non-words per frequency level correspond to the proportion used by Meara (1992). In this kind of test, the non-words are included to discourage guessing. Non-words are created to resemble real ones. *Skemp* and *inertible* are examples of two non-words included in my Yes/No English Test. Participants were instructed to check only the words whose meaning they were sure they knew, and were warned that some of the words they were about to read did not exist. An example to illustrate the procedure was provided as part of the instructions.

Initially, the L2 and the L3 tests were designed to target two different proficiency levels, and for the most part they were regarded as being independent from each other. The L2 vocabulary tests sought to determine which participants out of my pool were advanced (target), which intermediate, and which had a native-like command of their L2. A first step was to look at a given candidate's total score in the L2. If his or her score was

high enough to be considered advanced, and not so high that he or she would be considered to have a native-like proficiency in their L2, then the L3 test score was calculated. Since the purpose was to identify advanced learners, it seemed appropriate, in designing the tests, not to include 1000-level words in the L2 sheets, as they would have made the test longer and would have not been used as an indicator of proficiency. Participants were presented with words from the 2000 to the 5000 levels, distributed among the three pages as illustrated in Table 3.

Table 3
Composition (per Sheet) of Vocabulary Tests

Sheets	**L2 (En. / Fr.) tests**	**L3 (Sp.) test**
A	20 – 2000 level words 20 – 3000 level words 20 – non-words	40 – 1000 level words 20 – non-words
B	40 – 4000 level words 20 – non-words	40 – 2000 level words 20 – non-words
C	40 – 5000 level words 20 – non-words	20 – 3000 level words 20 – 4000 level words 20 – non-words

The L3 vocabulary tests were administered in order to obtain an estimate of the participants' level of proficiency in Spanish. Any participant with a high intermediate to advance knowledge of Spanish was to be disregarded for analysis. Since the L3 test was

designed to pinpoint participants at a lower proficiency level than the L2 tests, it was decided not to include any 5000 level words. Hence, the words chosen for the three L3 sheets came from the 1000 to 4000 levels, as shown in Table 3.

Word Lists

Three word lists (appendixes H, I, J) were developed in order to measure aspiration in the L2 and the L3. Lists are a controlled way of gathering samples of word-initial voiceless stops. With regards to the analysis, tokens collected via the word lists will represent samples of formal speech (formal context).

The L3 (Spanish) list was the longest, as it was the one used to assess the influence from previously known languages on L3 oral production. It contained 60 target words and 4 training items to be produced in isolation. All 60 target tokens were disyllabic, real words in Spanish (20 /p/-, 20 /t/ -, 20 /k/- initial words). To ensure that all tokens were produced after a pause, the stimuli were presented on a computer screen, one word at a time, as part of a PowerPoint presentation. The 60 words were randomized and followed the 4 training items, which were also disyllabic, real words in Spanish, but started with other consonants (e.g., /b/). The interviewer was responsible for changing the slides.

Participants were also asked to read aloud a list in their L2. The L2 lists were slightly shorter than the L3 list, and were included in the study as a means to assess the degree to which the informants had learnt to aspirate or to suppress aspiration in their non-native language. This was an important requirement because I would only be able to trace their behaviour in their L3 to one of the two previous languages they knew if they behaved differently in the L1 and in the L2. That is, if they aspirated (to a certain degree)

in English (L2), and suppressed aspiration (to a certain degree) in French (L2). Participants were not tested in their L1, as it was assumed that all the native speakers of English (Group A) would aspirate voiceless stops in English 100 % of the time. It was also assumed that all the participants in Group F (native speakers of French) would never aspirate their voiceless stops in French (0 % aspiration), in compliance with the native phonology of their languages.

The L2 English list contained 42 target words and 4 training items. As was the case with the Spanish list, all 42 English real words were disyllabic (14 /p/-, 14 /t/-, 14 /k/- initial words). Similarly, the L2 French list contained 42 target words, and 4 training items. However, and due to the stress pattern of French (i.e., iambic, with word-level stress falling on the rightmost syllable), most target words were monosyllabic instead of disyllabic, in order to ensure that each voiceless stop would be produced in word initial, stressed position.

Picture Description Task

The word reading tasks and vocabulary tests were followed by an open-ended, semi-guided picture description task. Although, at first glance, it may seem an ordinary picture description task, the goal of the exercise was to have the participants produce specific target words, containing voiceless stops in stressed onset positions as part of a flowing, informal conversation. Thus, this task was expected to do double duty, since it was intended to elicit lexical inventions as well as tokens to be analyzed for a second measure of aspiration. With regards to the analysis of aspiration, tokens elicited via the pictured task will represent samples of informal speech (informal context), as opposed to formal speech (reading lists).

There were 15 simple pictures in which the objects that represented the target words they were intended to elicit were salient – that is, if the word to be elicited was *casa* (house), the most prominent element in the picture was a house. There were five pictures in which the target word started with /p/, five with /t/ and five with /t/. These are the target words in the pictures: *pato* (duck), *perro* (dog), *parque* (park), *pelo* (hair), *pez* (fish), *toro* (bull), *taza* (cup), *tarta* or *torta* (pie), *tabla* (board), *torre* (tower), *cara* (face), *casa* (house), *coche* or *carro* (car), *caja* (box) and *coco* (coconut). To construct this task, three native speakers of Spanish were asked to describe 30 pictures in order to see whether the target objects would be named. This trial was successful, (the names of all objects were given by all three speakers) and a pilot study was set up as a means to test the 30 pictures with learners of Spanish as an L3. Four informants participated in the pilot. The goal was to have them talk for 30 minutes (one minute per picture), and ensure that: a) non-native speakers of Spanish were able to name the target objects (to be analyzed for a second measure of aspiration), and b) a set of unconnected pictures were a suitable instrument for the elicitation of lexical inventions. The pilot study revealed that, on the one hand, the participants found the amount of pictures overwhelming and, on the other hand, some pictures were not interesting enough for participants to talk about. An example of this was a picture of a dog that had buried its head in the sand. It served its purpose and elicited the target word *perro* (dog), and in some cases the additional target word *cola* (tail) as well. But all informants reported not knowing what to say besides naming the animal and the setting, a beach. As a result, 15 of the 30 pictures were chosen for the study: all 15 had elicited the name of the object and some discussion from the pilot study participants. These pictures have not been included as an appendix because of

copyright reasons.

The target words in the pictures follow the same syllabic and segmental structures as those in the reading lists. In some cases, some words were present in both the Spanish list and one of the pictures. An example would be *pato* (duck), a word that can be found in the list, and a target word in one of the pictures, where a little girl is having a bath while playing with some rubber ducks. Besides those target words, it was expected that participants could spontaneously produce any other samples of disyllabic, paroxytone words starting by /p/, /t/ or /k/, which would also be considered for analysis.

Although the interviewer's intervention was kept to a minimum throughout the administration of this task, she did ask simple, general questions such as *"¿Qué es esto?"* (What is this?), if she felt the participant was trying to avoid a target word. In no case did the interviewer name the object in her question, nor were participants given any target words during the completion of the task. Participants had been told prior to starting the picture description that they could not ask the interviewer for any words they did not know.

Procedure

The data collection took place at a research office at Concordia University or, when requested, in an empty classroom at the informant's cegep / university. All interviews were conducted by the same person. The interviewer was a native speaker of Castilian Spanish for whom English and French were her second and fourth languages respectively.

Four main steps were followed in each data collection interview. Firstly, each participant was greeted and asked to fill out a consent form in his or her L1. Secondly, the

interviewer switched to the participant's L2 in order to give instructions for the L2 tasks (a reading list and a vocabulary test). The third step consisted of collecting the L3 samples. The interviewer administered the L3 tasks, a reading list, a vocabulary test, and a semi-guided picture description task, in the participant's L3. In the last place, the informant completed the language background questionnaire containing questions about his or her language acquisition history, language use and a self-assessment of proficiency for both the L2 and the L3.

As can be inferred from the previous paragraph, tasks were grouped and administered according to language. The L2 tasks (word list, and vocabulary test) were completed first. Then, they were followed by the L3 tasks (word list, vocabulary test, and picture description task). The order of the tasks was decided based on feedback received after conducting a pilot study.

As shown in Table 4, in the pilot study, the informants were greeted in Spanish and received all spoken instructions in that language, although written instructions for the L2 tasks were in English or French, depending on the participant's L2. The type of task determined the order of administration -that is, the participants read the two lists first, then they took the two vocabulary tests, and in the last place they described the set of pictures. Participants had been greeted in their L1, and they had filled out a consent form and a language background questionnaire, both in their L1, prior to completing any of the tasks. All of the six participants spontaneously reported having trouble reading the list in their L2 after reading the Spanish list. Therefore, the need was felt to modify the task order for the larger study, as to minimize this feeling that one language interfered with the other.

For the present study, Anglophones were greeted and filled out a consent form in English and Francophones, in French. It seemed appropriate to greet them and have them fill the consent form in their L1 (the L2 or L4 for the interviewer) for two different reasons. Since their level in Spanish was low, it was hoped that starting the interview in the two languages they mastered would help put them at ease. If the interviewer talked to them in her L2 and L4, they might feel less intimidated when describing the pictures in Spanish in front of a native speaker. Besides reducing their anxiety levels, the use of the participants' L1 ensured that it had the chance to be as activated as the L2, a condition potentially necessary to cause CLI.

Then, the interviewer switched to the L2 in order to have the participants complete the L2 tasks (the word list, and the vocabulary test). Participants read the word list before completing the vocabulary test so that there would be a silent interval between the reading of the L2, and the L3 lists. The same procedure was followed in the L3: the interviewer switched to Spanish to ask the participants to read the L3 word list, take the L3 vocabulary test, and engage in the picture description task. Each session lasted between 45 minutes and one hour, and ended by filling out the LBQ. In starting the interview with the participant's L1 and finishing it with the L3 tasks, the chronological order in which the participants acquired their languages was followed. The order of administration followed in the actual study is also illustrated in Table 4.

Both lists and the picture description task were audio recorded using an Edirol R-1 24-bit digital recorder and an Audio-Technica AT831b lavaliere microphone.

Table 4
Task-Administration Order in the Pilot and Actual Studies

Pilot study	Actual study
Greeting (in Spanish)	Greeting (in participant's L1)
Consent form (in participant's L1)	Consent form (in participant's L1)
Reading of L3 (Spanish) word list, oral instructions in Spanish	Reading of L2 (English or French) word list, oral instructions in L2
Reading of L2 (English or French) word list, oral instructions in Spanish	L2 vocabulary test, oral and written instructions in L2
L3 vocabulary test, oral and written instructions in Spanish	Reading of L3 (Spanish) word list, oral instructions in L3
L2 vocabulary test, oral instructions in Spanish, written instructions in L2	L3 vocabulary test, oral and written instructions in L3
Picture description task, instructions in Spanish	Picture description task, instructions in Spanish
Language background questionnaire (in participant's L1)	Language background questionnaire (in participant's L1)

CHAPTER 4: ANALYSES AND RESULTS

In this chapter, I will describe how the different kinds of data were selected, categorised, and coded. This account will be done in the following order: (a) vocabulary tests: scoring method and results; (b) description of self-assessment of proficiency reported in the LBQ, (c) lexical inventions: classification and coding, inter-coder reliability, statistical results, and additional results; and (d) aspiration: coding of voiceless stops, statistical results (L3 list and picture description task), and additional results (L2 lists and VOT means).

Vocabulary Tests

Scoring Method

Vocabulary scores were calculated according to each participant's total number of hits and misses. It was considered a hit when a participant ticked a real word, indicating it as being known. To ensure that participants were penalized for guessing, it was considered a miss when a participant ticked a non-word. The final score consisted of a percentage of the words a participant rated as known out of all the frequency bands he or she was tested for, and once the misses had been subtracted from the hits. The calculation process was the same introduced by Meara and Buxton (1987) when they first tested this type of test with L2 learners.

The different composition (i.e., words from different frequency levels) of the L2 and L3 tests made within-participant comparisons hard. Moreover, and after scoring the L2 tests, it appeared that cegep and university students might be reacting differently to the 5000-level sheet (sheet C). This impression, together with some participants' comments as to the leap in difficulty from sheet B to C, brought about the decision to

disregard sheet-C results from the final L2 score. This decision made the L2 and L3 tests even more unequal, both in terms of length and of the frequency bands tested. An easy solution was to disregard the 1000-level sheet (sheet A) from the L3 test as well. By not taking into account results from sheet C in the L2 test and sheet A in the L3 tests, the scores were made more comparable with regards to vocabulary size knowledge in both non-native languages, given the fact that, after those modifications, both tests targeted the same frequency levels, namely, 2000, 3000, and 4000, as shown by the shaded columns presented in Table 3 in the previous chapter.

These vocabulary tests are not conventional tests. Although more concrete than self-rating instruments, they are also a self-rating elicitation technique in so far as they do not require the participants prove their actual knowledge of the words they claim to know.

Results

As previously stated, the main purposes of the tests were to: (a) check whether participants had an advanced knowledge of their L2, (b) find out whether participants had a intermediate, preferably low intermediate, knowledge of their L3, and (c) to ensure that each informant showed a marked difference in proficiency across his or her two non-native languages. The score ranges all participants needed to fall within in order for their data to be retained for analysis were: (a) 67 – 94% for the L2, and (b) 21- 69 % for the L3. The mean scores per group and language are reported in Table 5. The exact scores per participant are documented in Appendix K.

Table 5
Mean Scores for Vocabulary Tests

Group	L2		L3	
	Mean	SD	Mean	SD
A	82.5	7.88	48.41	16.36
F	83.86	9.07	41.14	11.65

As evident from the means and the corresponding standard deviations reported in the table above, I was dealing with two groups which were rather homogeneous and quite similar in terms of L2 proficiency, albeit some variation across participants. All informants seemed to be advanced speakers of their L2's. Differences between participants were greater with regards to the L3. Their proficiency seemed to vary from high beginner to different levels of intermediate. At an individual level, all participants were considerably weaker in their L3 than in their L2. For individual L2 and L3 scores refer to Appendix K.

Self-assessment of Proficiency

Besides taking the corresponding vocabulary tests, participants were asked to self-rate their proficiency in their non-native languages according to the four skills (speaking, reading, writing and listening) and assign themselves one of the following levels: N (native-like), A (advanced), I (intermediate) or B (beginner). Out of the four skills, the most relevant to the study was the speaking dimension, given the nature of the data elicitation tasks. In addition, participants were asked to provide a rating, on a scale of 1 to 100, of their overall proficiency in their L2 and L3. A complete account of self-ratings

participants assigned themselves per skill and non-native language, as well as the overall rating of proficiency, is provided in Tables 6 and 7[3].

Table 6
Group's F Self-assessment of Proficiency in their L2 and L3

Participant	L2					L3				
	Self-ratings				Ov.	Self-ratings				Ov.
	Sp.	Li.	Wr.	Re.		Sp.	Li.	Wr.	Re.	
F02	A	A	A	A	70	B	B	B	B	30
F06	I	I	I	I	80	B	I	I	I	20
F07	I	A	A	A	75	B	A	I	I	60
F09	I	A	I	A	75	I	I	I	I	60
F10	A	A	A	N	85	I	I	B	B	50
F11	A	A	A	A	85	I	I	I	I	60
F16	A/N	N	N	N	90	B/I	I	I	B/I	75
F18	N	N	N	N	95	I	I	I	I	65
F21	A	A	A	A	88	I	I	I	A	75
F22	I/A	A/N	A	N	80/85	B	I	I	I	40
F24	I	A	I	A	85	B	B	B	B	35

Table 7
Group's A Self-assessment of Proficiency in their L2 and L3

Participant	L2					L3				
	Self-ratings				Ov.	Self-ratings				Ov.
	Sp.	Li.	Wr.	Re.		Sp.	Li.	Wr.	re.	
A01	I/A	A	I	A	78	B	B	B	B	30
A08	N	N	N	N	95	I	I	I	I	40
A09	A	A	A	I	90	A	I	A	I	85
A10	B	A	B	A	45	A	I	A	I	65
A11	I	A	A	A	70	I	I	I	I	--
A12	N	N	N	N	85	I	I	I	I	70
A13	N	A	A	A	90	B	I	I	I	70
A14	A	A	A	N	70	B	B	B	I	25
A15	A	A	I	A	85	I	I	I	A	70
A16	A	A	A	A	90	A	I	I	A	85
A17	A	A	I	A	87	B	I	B	I	20

[3] Sp.= speaking, Li.= listening, Wr.= writing, Re.= reading, Ov.= overall rating, A= advanced, B= beginner, I= intermediate, N= native like.

Although self-assessments were collected as an additional measure of proficiency, it was unsure whether I would be able to use them as a reliable indicator of proficiency, and how. Determining a degree of reliability was not an obvious process. Moreover, it became evident that the self-assessments did not, in some cases, reflect the scores obtained through the vocabulary tests, or that similar scores corresponded to different self-ratings (e.g., A01's vocabulary score was 78.75, her speaking rating was intermediate to advanced, and her overall rating was 78; whereas F16's speaking rating for the same vocabulary score was native-like and her overall self-rating was 90) as illustrated in Tables 8 and 9. Some patterns of "consistent overall agreement between self-assessments and ratings based on a variety of external criteria" (Blanche & Merino, 1989, p. 315) have been documented in the literature. Indeed, it could be the case that many students tend to report good to very good self-estimates of their proficiency. And in my study, some overall self-ratings were an exact match to the vocabulary score (see F02 in Table 8 or A01 in Table 9). However, there were also some mismatches (see F16 in Table 8).

Table 8
Comparison of Group F's Self-ratings of Proficiency to Vocabulary Scores

Participant	L2			L3		
	Speaking	Overall Self-rat.	Vocabulary Scores	Speaking	Overall Self-rat.	Vocabulary Scores
F02	A	70	70	B	30	43,75
F06	I	80	83,75	I	20	27,5
F07	I	75	80	A	60	41,25
F09	I	75	67,5	A	60	45
F10	A	85	90	I	50	38,75
F11	A	85	92,5	I	60	27,5
F16	A/N	90	78,75	B	75	35
F18	N	95	92,5	B	65	40
F21	A	88	90	I	75	51,25
F22	I/A	80/85	83,75	A	40	33,75
F24	I	85	93,75	B	35	68,75

Table 9
Comparison of Group A's Self-ratings of Proficiency to Vocabulary Scores

Participant	L2			L3		
	Speaking	Overall Self-rat.	Vocabulary Scores	Speaking	Overall Self-rat.	Vocabulary Scores
A01	I/A	78	78,75	B	30	26,25
A08	N	95	85	I	40	21,25
A09	A	90	71,25	A	85	65
A10	B	45	67,5	A	65	46,25
A11	I	70	85	I	--	63,75
A12	N	85	91,25	I	70	63,75
A13	N	90	92,5	B	70	53,75
A14	A	70	86,25	B	25	42,5
A15	A	85	82,5	I	70	63,75
A16	A	90	88,75	A	85	56,25
A17	A	87	78,75	B	20	30

Self-assessing proficiency is a very subjective process, in which factors such as affectivity and personality traits play a very important role, as stated by Blanche and Merino (1989, p. 314). Given that I did not provide my participants with any guidelines as to how to rate themselves, it was decided to disregard this measure in the final grouping of the informants and take into consideration the vocabulary scores only. Despite their potential drawbacks, all participants took the same vocabulary tests, which made the final scores more comparable than the self-ratings.

Lexical Inventions

I now turn to the data collected for the actual analysis of CLI in TLA. I will first address the feature employed to explore CLI in the acquisition of lexis, lexical inventions. The feature used to investigate CLI in the acquisition of phonology will be addressed in the following section of this chapter.

One of the main components of the study consisted of the collection of oral

samples in the L3, Spanish, by the means of a picture description task. These samples were transcribed in order to identify both lexical inventions and tokens of voiceless stops in the target language. This part of the interview with the twenty-two participants yielded a total of 352 minutes and 51 seconds (close to six hours) of recorded oral production in Spanish: group A produced 147 minutes and 57 seconds (almost two hours and a half), whereas group F produced 203 minutes and 54 seconds (almost an hour more than the other group). The time each participant individually took to complete this task is shown in Tables 10 and 11, in the column labelled duration. Following the transcription and analysis of the transcribed recordings, a total of 196 lexical inventions and 642 tokens of word-initial voiceless stops were identified for further analysis. The exact number of tokens of lexical inventions and voiceless stops (per task) analyzed per participant is provided in Tables 10 and 11 (WL2 = L2 word list, WL3 = L3 word list, PD = picture description task). Please note that Tables 10 and 11 also contain the number of voiceless stops elicited via other instruments (L2 and L3 word lists), to which I will refer in the different sections of this chapter.

Table 10
Tokens of Lexical Inventions and Voiceless Stops, by Participant and Task, Group A

Participant	WL2	WL3	PD		
			Stops	L. inventions	Duration
A01	38	56	29	6	21'03"
A08	38	55	12	13	13'54"
A09	38	52	52	17	14'24"
A10	36	55	23	6	8'45"
A11	38	56	25	3	16'49"
A12	38	53	25	5	14'56"
A13	38	56	33	4	13'20"
A14	38	56	14	8	12'04"
A15	38	55	44	2	9'08"
A16	38	56	40	7	13'44"
A17	38	55	18	16	19'50"

Table 11
Tokens of Lexical Inventions and Voiceless Stops, by Participant and Task, Group F

Participant	WL2	WL3	PD		
			Stops	L. inventions	Duration
F02	38	55	25	13	19'55"
F06	39	56	17	4	19'15"
F07	39	56	31	6	13'47"
F09	38	56	48	12	15'23"
F10	39	56	33	3	18'37"
F11	39	55	21	4	17'04"
F16	39	55	32	8	19'23"
F18	39	56	41	23	26'40"
F21	39	56	27	18	24'16"
F22	39	56	19	7	15'29"
F24	39	55	33	11	12'05"

Data Analysis Procedure

Sources of Influence

One of the goals of this study was to explore whether, in the acquisition of an L3, the L1 would exert more influence than the L2 for the creation of new words, the underlying assumption being that either a typological or a foreign language effect would privilege one or the other in the mind of the learner. To that end, the lexical inventions in the Spanish interlanguage of my participants needed to be traced to a source. A classification according to source language that seems to have become a point of reference is the one provided by Dewaele (1998), and later on adopted by Tremblay (2004). In his study, Dewaele distiguinshed among one intralingual category, three purely interlingual categories, and three mixed intra- and interlingual categories.

Dewaele understood intralingual as target language-related, which means that in trying to fill a lexical gap in Spanish, for example, my participants would resort to Spanish itself to create a word. For obvious reasons, my study does not include any

lexical inventions with a purely intralingual source, such a slips of the tongue, like saying *capitral* instead of *capital* (example taken from Dewaele's) or the overgeneralization of a TL rule, for example saying *prendent* instead of *prennent*, assuming that in French *prendre* is a regular verb when it is not (example taken from Dewaele's).

Of more relevance to my study are those instances of lexical inventions attributed to interlingual sources. Dewaele's categories apply to my data in the following manner:

1. Influence from English: lexical invention believed to have been created from an English word. An example from my data would be *pictura*, in which the word *picture* has been adapted to the TL by substituting the English noun ending –"e" by the Spanish ending –"a". For my informants, influence from English can be linked to the L1, in the case of Group A, and to the L2 (L2 status variable), in the case of Group F, and for all of them, English is the typologically distant language.

2. Influence from French: lexical inventions believed to have been created from French words. An example from my data would be *suriendo* (smiling), in which the Spanish for the gerund form –"iendo" has been added to a French verb root "sour"-. For my informants, influence from French can be linked to the L1, in the case of Group F, and to the L2 (L2 status variable), in the case of Group A, and for all of them, French is the typologically close language (typology variable).

3. Mixed influence: lexical inventions for which it was not possible to determine a single source of influence. Dewaele made a distinction between the different combinations of mixed influence (L1+L3, L2+L3, and L1+L2+L3) however, such distinction was not made in my coding. I believe Dewaele's mixed interlingual subcategories were devised after taking a close look at his data. He then established the

set of subcategories that best fitted and described the lexical inventions produced by his participants. A data-driven approach to determine the sub-categorization of my mixed lexical inventions was also taken. Let us consider these two examples produced my participants: *capable* and *golfo*. The target word corresponding to the first example is *capaz*, and the target word corresponding to the later, *golf*. The words *capable* and *golf* are present both in the French and the English lexicons. Moreover, *golf* is also considered a word in Spanish, and *capaz* stems from the same Latin root as *capable* does. In the case of *capaz*, it is hard to determine which of the previously learnt languages was used as a source, or if they acted as a combined source. In the case of *golfo*, even the target language could be added to the source pool. The main difference that seemed to set those two instances apart was the fact that *capable* had ended in the English lexicon through a borrowing from French, and *golf* was a borrowing in the opposite direction. The etymology of all mixed lexical inventions in the data was determined and the lexical inventions in this category were then subdivided into Romance and Germanic sources (*capable* = mixed invention with a Romance origin; *golfo* = mixed invention with a Germanic origin). This allowed me to further examine the typological effect.

Types of Lexical Inventions

Although coding the lexical inventions in my data according to source of influence would suffice to answer my research question regarding lexis, a second classification according to type of invention was devised. The aim behind this decision was to have a working framework that would help me identify lexical inventions in the data. In addition, the framework was expected to ensure consistency in determining what could be considered as and what was not a lexical invention. The framework was also

used by a second coder, who revised and recoded a subset of my data, as will be explained later on.

Ringbom (1997) seems to be the author of the most elaborate account of lexical transfer errors. He proposed a classification of transferred words along a continuum that would have borrowings at one end and lexical transfer at the other. Three of the types of inventions used in this study correspond to Ringbom's category number four (hybrids, blends, and relexifications) in his framework of 'overt cross-linguistic lexical influence in production' (Ringbom, 1987; p. 117).

For her MA thesis, Tremblay (2004) employed a set of categories for her lexical inventions that could be considered as a combination of Dewaele's and Ringbom's approaches to understanding and classifying this phenomenon. In her study, she provided a set of terms that were taken mainly from Ringbom but had been defined in more detail to show some of the distinctions and characteristics proposed by Dewaele. Given that the combination of languages (English, French, German) Tremblay studied was closer to my own (English, French, Spanish) than Ringbom's (Finish, Swedish, English), and since her categories were used to investigate cross-linguistic influence in the acquisition of lexis in an L3, her categories were taken into consideration for a first classification of my data. It must be noted, however, that her target language was German, whereas mine was Spanish. Therefore, there was the possibility of some differences arising between her data and mine, since word formation processes are different in German and Spanish. A data-driven approach was used to fine-tune Tremblay's categories so they would be a better fit for the lexical inventions produced by my participants. I needed to subdivide her hybrid category in two (to accommodate lexical inventions that coincided with actual Spanish words), and

add a new subcategory to her two word-coinage categories. Differences between her classification of lexical inventions and mine will be highlighted as the different types are defined, below.

1. Hybrids: form consisting of a non-target word that takes on a TL bound morpheme. There are 2 categories depending on whether the resulting form is or not an existing word in the TL:

1(a) non-existing TL forms: the form created does not exist in the TL, as is the case of *pictura*: L1 word *picture* + TL bound morpheme –'a'. This category corresponds to Tremblay's only hybrid category.

1(b) existing TL forms: the form created does exist in the TL but a native speaker would never use it in that context. The relationship between the hybrid and the TL word is that of deceptive cognates (if the two words share the same form and have or had in the past an etymological relationship) or clang associates / chance cognates (if the two words share the same form but an etymological relationship between them is unlikely). An example of the former would be *repasar*: French word *repasser* (to iron) + TL bound morpheme –'ar'. The hybrid form *repasar* (that was used to mean *to iron*) is a deceptive cognate of the existing TL word *repasar* (to review). An example of the latter would be the word *golfo*: English word *golf* + TL bound morpheme –'o'. In the case of creating the hybrid form *golfo* (used by the participant to refer to the sport of *golf*), the participant may have relied on a clang associate or a chance cognate: the existing TL word *golfo* (bum, good-for-nothing, rascal).

2. Blends: form consisting of a TL word that takes a non-target bound morpheme. An example would be *papelerie*, in which a French suffix (-'*erie*') has been added to a

Spanish noun (*papel*, that means paper).

3. Relexifications: non-target words that have been adapted to conform to the phonology of the TL. An example of relexification taken from my data would be the word *visage* (face), a French word in which the last two letters are pronounced following the Spanish phonological rules (i.e., [vi.' za. ʒe]).

4. Word coinage: coining of a compound that does not exist in the TL. There are three subcategories:

4(a) two lexical inventions (*planca de surfo* for surf board, Sp: tabla de surf), or

4(b) a lexical invention and a TL word (*surgerio plastico* for plastic surgery, Sp: cirugia plastica), or

4(c) two TL words (*estilo de pelo* for hairstyle, Sp: peinado). This last subcategory was added to the two subcategories proposed by Tremblay (in 4a and 4b). It partly corresponds to what Ringbom calls loan translation (a semantic unit has been transferred in a combination of lexical items).

Inter-coder Reliability

A sub-set of the data was given to a second coder for the purposes of conducting a reliability check of the analysis. The second coder was also a graduate student carrying out research on CLI in the acquisition of third and other additional languages. A total of 50 inventions, out of the 198 obtained from the participants, were then recoded. There were three main objectives behind this recoding: (i) first, to ensure that all words coded as inventions would be recognized as such by a coder other than the main researcher, (ii) second, to determine how well the inventions fitted into the categories proposed for this

study, and the degree of agreement among the two coders in assigning those labels to the different inventions, and (iii) third, to check the level of agreement between the two coders regarding the subcategories proposed for this study. Out of the three objectives, the second one was considered to be of greater importance. It is worth noting that Ringbom (1987) commented about his categories that the borderlines between them were extremely fuzzy (p. 116). Therefore, it was expected that some differences of interpretation could arise with regards to the classification of the inventions.

A series of meetings between the two coders took place. During the first meeting, the coders discussed the different categories and subcategories, and how appropriate they were for the data. The main concern was that the categories had been taken from studies on Germanic languages and that a different pattern of word formation in Romance languages, and therefore in my data, would require us to omit some of the categories initially proposed or create additional ones. After this meeting, the second coder received the data sample, and a detailed definition (plus examples) of the final categories and subcategories. As previously mentioned, the sample consisted of a list of 50 inventions. They were, in fact, the first 50 inventions coded for Group F. The coders met a third time to discuss their disagreements and find out the reason behind them.

The second coder recognized 96 % of the words as being lexical inventions – that is, she agreed that 48 out of the 50 words were indeed inventions. The two words that were disagreed upon were *natura* (invention for *nature*) and *crusar* (invention for *to cruise*). It should be said that the words were identified and first coded by a native speaker of European Spanish, while the second coding was performed by an English-French bilingual, with a good knowledge of Spanish, among other languages. This may

have led to some differences in the way both coders approached some of the inventions. One example would be the word *natura* that was deemed an invention by the first coder because it is never used by native Spanish speakers. The actual word in Spanish is *naturaleza*. It does however appear as an entry in the official Spanish dictionary, *el diccionario de la Real Academia*, and that is why the second coder felt it was not an invention. Some Spanish teachers in Montreal, who were in fact from different South American countries, were asked as part of an informal conversation if they would correct a student that said the word *natura* or if they considered that it was a correct word. All of them stated that *natura* was not a real word of Spanish, which led me to believe that in most, if not all, Spanish speaking countries *natura* would be perceived as a made-up word, and the first coder's intuition was right.

As for the actual coding-per-category, it was determined that the overall percentage of agreement was 94 %. By overall agreement I mean that the same category, but not necessarily the same subcategory, was assigned to a given invention by both coders. A table containing all 50 inventions and codings by both coders is provided in Appendix L.

Results

Statistical Analyses

Statistical analyses intended to reveal any differential effects of the two variables on the creation of lexical inventions, as well as any potential difference between the two groups of participants, were carried out on a subset of the lexical inventions identified in my data. The two groups were compared using an Independent-Samples *t*-test, given that this is a standard procedure to compare the means of two independently sampled groups.

It has to be noted, however, that participants were not assigned randomly to one of the two groups, but were assigned to group based on L1 background. The effect of the two factors was analyzed using Paired-Samples *t*-tests, for within subject comparison.

A total of six comparisons (three per group) were performed on the data collected, some of which pertain to the word lists and will be reported in the corresponding section. The six comparisons were: the effect of English vs. French in a) lexis, b) phonology, formal style (L3 word list), and c) phonology, informal style (picture description task). The level of significance was established at .05, but needed to be adjusted to $p< 0.008$, using 2-tailed tests, given the number of comparisons that were performed simultaneously. The Bonferroni correction was used to adjust the alpha value.

Out of a total of 196 inventions, only a subset of 144 (68 produced by group A and 76 produced by group F) had a clearly identifiable source, which allowed for statistical testing of the difference between the two variables under investigation: typology and L2 status. For purposes of clarity of illustration, all graphs and tables presented in this chapter will refer to the variables as English or French, the two possible sources of influence according to which the data was coded. The reason for this is that while typology is represented by the same language for both groups (French is the typologically closest language to Spanish regardless of the participants' L1), L2 status is represented by different languages for each of the groups. This means that, for Group A, both factors (typology and L2 status) fall on the same language, French; whereas for Group F, typology is associated to their L1, and the L2 status variable is associated to English.

In order to answer my first research question: Which is a stronger predictor in the selection of a source language for lexical influence in L3 acquisition: L2 status or

typology?, paired samples *t*-tests were run for each group individually, and for both groups combined. Given the fact that the two variables were correlated, paired samples *t*-tests were deemed the best choice to analyze the difference between the use of English and French as sources of influence for my participants.

The analyses revealed a significant difference for the two languages for both groups. Group A resorted to French over 80% of the time, as it can be seen in Figure 2. A paired sample *t*-test run on the mean percentage of English-based versus the mean percentage of French-based lexical inventions obtained for participants in Group A, (M= 61.24, SD = 59.63) t (10) = 3.41, $p<0.007$, confirmed that the reliance on French was significantly higher than their reliance on English. Likewise, group F used French over 90% of the time, also shown in Figure 2. A second paired-samples *t*-test revealed a significant difference regarding the use of French versus English for this group as well, (M= 82.54, SD= 30.25), t (10) = 9.05, $p<0.000$.

An independent samples *t*-test was performed in order to reveal significant differences between the Anglophone and Francophone participants with regards to lexis, but no group effect was found, (M= 10.65, SD= 10.08), t (20) = 1.06.

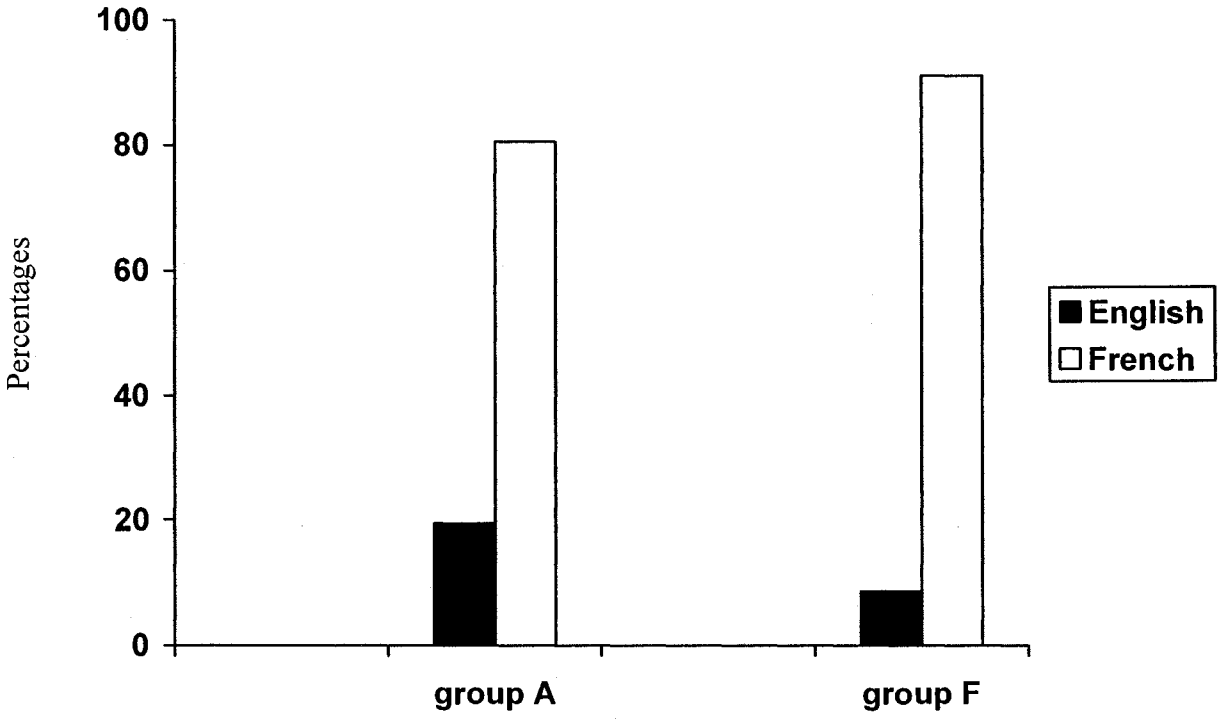


Figure 2
Mean Percentages of English- and French-Influenced Lexical Inventions

Additional Results

Mixed lexical inventions.

As discussed earlier, any invention that could not be clearly traced to one of the two previously known languages was labelled as mixed (a total of 52), and removed from the data that underwent statistical analyses. The motivation to do so was related to the research question. One of the main purposes of the study was to explore how English and French, and in turn the factors they represented for each group, competed in becoming a source of influence for lexical production in Spanish. The possibility of both languages merging, instead of competing, was not contemplated in the research question, which was formulated in rather absolute terms: is it English or is it French, and why (i.e., due to a typological or to a foreign language effect)? However, both groups produced a fair

amount of inventions which source was not clearly identifiable, and the need was felt to account for these inventions as well.

In the following paragraph, I will report the mean percentages obtained for the mixed category of lexical inventions, and compare them to those for the English- and French-influenced categories for both groups. All of these percentages are plotted in Figure 3, and reported in Table 12.

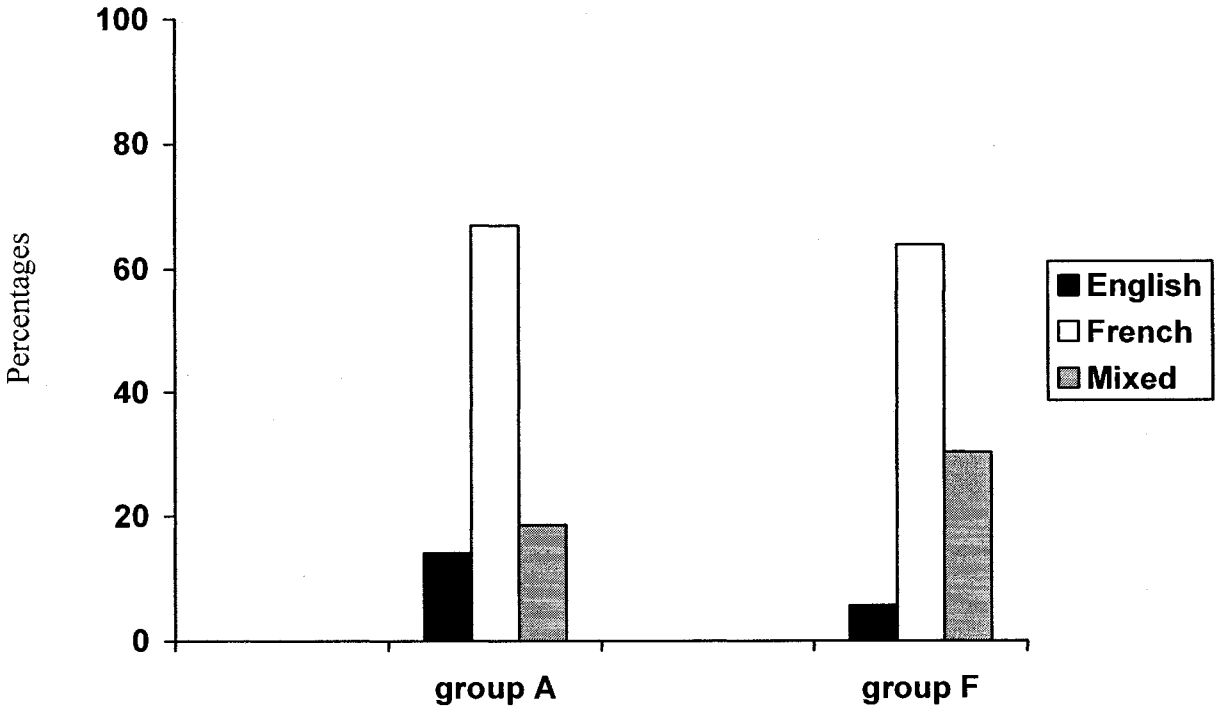


Figure 3
Mean Percentages for English- and French-Influenced, as well as Mixed, Lexical Inventions

Table 12
Summary of Mean Percentages of Lexical Inventions, by Source and Group

Source	Group A	Group F
English	14.08	5.76
French	66.96	63.91
Mixed	18.55	30.33

Inventions in the mixed category (19 % for group A and 30 % for group F) were then reanalysed from an etymological point of view, and reassigned to two subcategories labelled Romance and Germanic, depending on whether the invention root was taken from an originally Romance or Germanic word. An example of a reanalysed invention is *parco*[4]. This invention was initially coded as mixed, since it could have been created from the English word *park* or from the French word *parc*. In a second coding, it was classified as Romance, because *park* is in fact a borrowing into English form Old French *parc*. In Figure 4, I have isolated the mixed category (grey, Figure 3) and divided it into two: (a) the percentage of etymologically Romance inventions (white, Figure 4), and (b) the percentage of etymologically Germanic inventions (black, Figure 4). As evident from Figure 4, in most cases even the mixed inventions can eventually be traced to a Romance source, reinforcing the idea that typology is at play.

[4] Please note that the invention *parco* has been transcribed from an oral interview, therefore the spelling of the word is attributed to the transcriber and not to the participant. It is impossible to determine whether, in a written sample, the participant would have spelled the invention as *parco* or as *parko*.

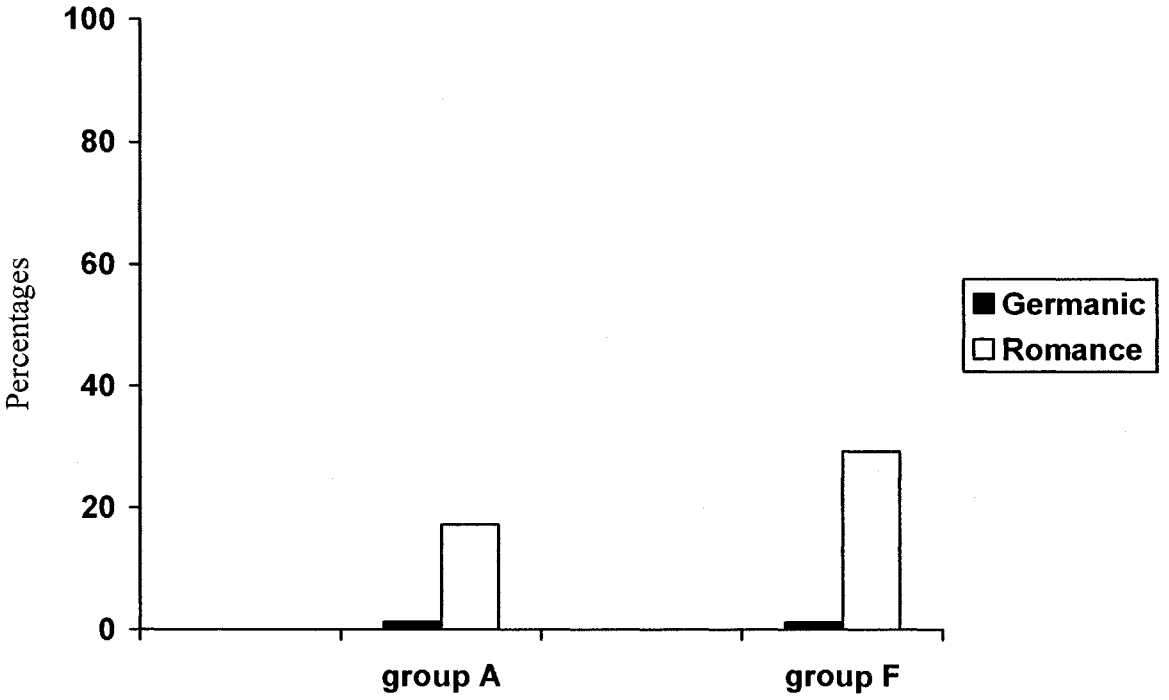


Figure 4
Percentages of Romance- and Germanic-Influenced Inventions in the Mixed Category

Aspiration

The second goal of this study was to explore whether, in the acquisition of an L3, the L1 would exert more influence than the L2 for the production of onset voiceless stops. As a matter of fact, it is a general belief that the L1 affects phonology more than any other area of language. Nonetheless, and partly in an effort to mirror the lexical experiment designed for this study, I chose to investigate whether either a typological or a foreign language effect would be revealed that could privilege English or French as a source language for phonological transfer for my participants, regardless of their L1. It could be considered that the third goal of the study was to compare if the same factor was found to be the most determinant in the selection of a source language for both lexical and phonological influence in L3 acquisition.

Data Analysis Procedure

Sources of Influence

The program PRAAT 4.3.33 (Boersma & Weenink, 2007) was used to obtain acoustic measurements for aspiration, in which the presence or absence of aspiration was determined based on VOT values (in milliseconds). This way, VOT measurements were used to code each token as aspirated or non-aspirated. Cut-off values, based on VOT means reported for monolingual speakers of each language in the literature (see Table 13), were established in order to code each token as aspirated or non-aspirated.

Table 13
Mean VOT (ms) for Voiceless Stops in Monolingual Speakers of Castilian Spanish, Canadian French and Canadian English

Stop	Spanish	French	English
/p/	13.10	18	62
/t/	14	23	70
/k/	26.50	32	90
Reference	Rosner et al. (2000)	Caramazza et al. (1973)	Caramazza et al. (1973)

The cut-off value for /p/- and /t/- initial words was established at 30 ms. (i.e., any token with a VOT of 30 ms. or higher was considered aspirated). Given that the place of articulation can have an influence on VOT length, and since velar stops (e.g, /k/) often display longer values than labial (/p/) and dental (/t/) stops (e.g., Yavaş & Wildermuth, 2006), the cut-off value for /k/ was established at 40 ms. With this in mind, the categories that apply to my data are:

1. Influence from English: any aspirated word-initial stop (as per the cut-offs

established above).

2. Influence from French: any non-aspirated word-initial stop (as per the cut-offs established above).

Excluded Tokens

Some items needed to be excluded (across all tasks) from the final analysis due to two different reasons. In the first place, some /t/- word initial items were removed due to the fact that, in Canadian French, /t/ (represented here by [ts]) affricates when followed by a high front vowel (e.g., [tsi]) and causes the lengthening of VOT. A higher VOT value due to affrication would confound the results. Despite the fact that not all participants affricated the sequence /t+i/, and for purposes of consistency, it was decided to disregard any token starting with that sequence from all the tasks, including the English and Spanish versions of the word lists. In the second place some tokens needed to be excluded, on an individual basis, due to mispronunciation. Mispronounced tokens included: a) words whose stress was shifted by a given participant from the first to the last syllable (therefore such tokens no longer met the word-initial stop in stressed position criterion); and b) words starting with the sequence /t+u/, as this sound was affricated in some cases by two of the participants in Group A, and one participant in Group F.

Results

Statistical Analysis

Aspiration in the picture description task.

The picture description task yielded a total of 315 tokens for group A and 331 for group F, considered as samples of informal speech. These data were analyzed using a

paired *t*-test procedure, as were the lexical inventions. No significant difference was found for any of the groups regarding the source of influence (English or French) for the production of voiceless stops in onset, stressed position in the L3 informal Spanish of my participants (Group A (M= 10.13, SD= 54.07), *t* (10) = .62, Group F (M= 13.39, SD= 38.56), *t* (10) = 1.15). The independent samples *t*-test run to compare both groups did not reveal a significant difference (M= 1.63, SD= 8.06), *t* (20) = .16).

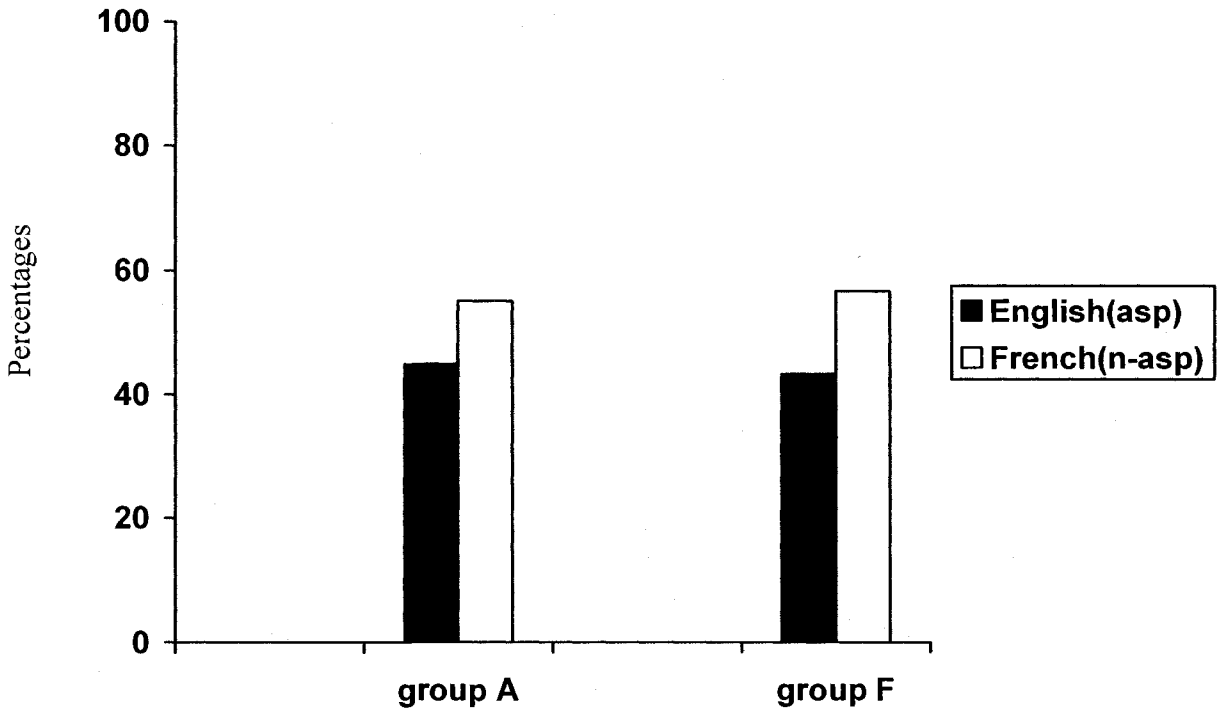


Figure 5
Mean Percentages of English- and French-Influenced Voiceless Stops in L3 Spanish, Picture Description Task, by Group

Aspiration in the L3 list.

The initial L3 word list contained a total of 60 target words and 4 training items, and was expected to yield a total of 1320 tokens for analysis. However, after exclusions, the final number of tokens yielded by the L3 word list was 1217 (605 from Group A, and

612 from Group F).

The instances of aspirated and non-aspirated stops were computed for each participant. Percentages of English- and French-like voiceless stops were then calculated, and a mean per participant was obtained. *T*-test procedures were applied to the individual and group mean percentages. The differences did not prove to be significant for Group A, (M= 28.46, SD= 47.89), t (10) = 1.97, or for Group F, (M= 12.34, SD= 39.82), t (10) = 1.03. Although the mean percentage of aspiration was higher for Group A (64.23%) than it was for Group F (56.17%), the difference was not substantial enough to be significant, thus no group effect was found, (M= 8.06, SD= 9.37), t (20) = .86. A graphical representation of the group mean percentages of aspirated and non-aspirated voiceless stops is provided in Figure 6.

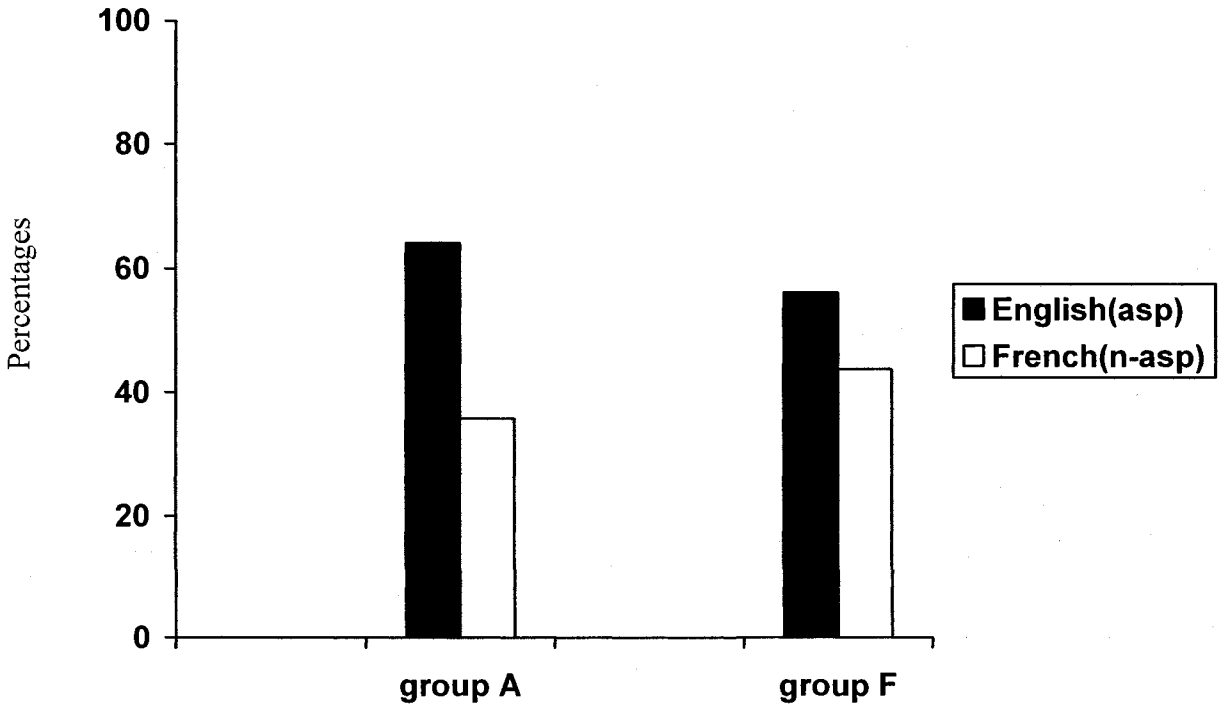


Figure 6
Mean Percentages of Aspirated (English-influenced) and Non-aspirated (French-Influenced) Voiceless Stops, L3 Spanish Word List, by Group

Additional Results

Aspiration in the L2 lists.

Initially, each L2 list consisted of 42 target words plus 4 training items, and was expected to yield 462 tokens per group. However, due to the likelihood of /t/ being affricated, words that started by the sequence /t+i/ were removed from the lists, as explained in the section Excluded tokens. This resulted in a reduction of four words for the French L2 list, and a reduction of three words for the English one. In the second place, a number of tokens needed to be excluded on an individual bases due to mispronunciation. In the end, 416 tokens were collected from Group A (in their L2, French), and 427 were collected from Group F (in their L2, English). No statistical procedures were performed on these data.

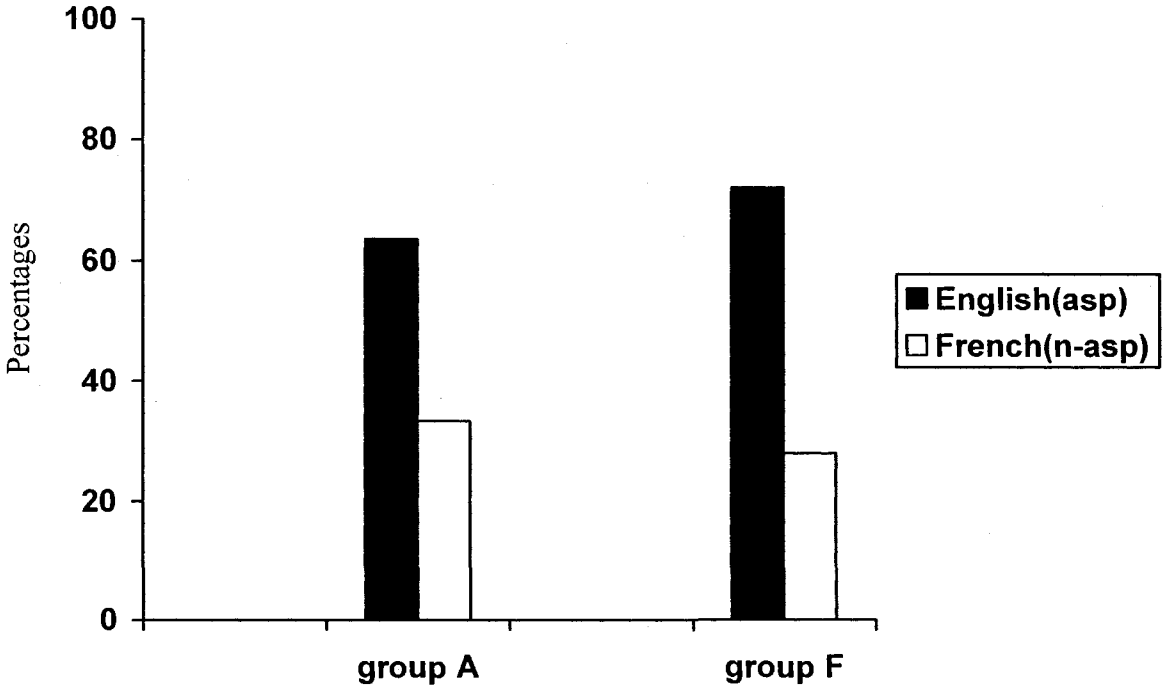


Figure 7
Mean Percentages of Aspirated (English-Influenced) and Non-Aspirated (French-Influenced) Voiceless Stops in the L2's of Both Groups

For illustrative purposes, percentages of aspiration for each group's L2 are presented in Figure 7. The pattern of aspiration that emerges from the illustration above is similar to that obtained in the L3 word lists (refer back to Figure 3). This is particularly true for Group A. The exact percentages of aspirated (English-influenced) versus non-aspirated (French-influenced) voiceless stops for the L2 and L3 lists are summarized in Table 14. It needs to be kept in mind that the L2 lists were included as a means to ensure that my participants had learnt, to a certain degree, to aspirate or suppress aspiration in their L2. This was to be assessed in terms of different behaviour in the L2 than it would be expected from monolinguals of their L1 for the same set of sounds. To prove that this was the case, the expected percentages of aspiration for the L1 have also been included in Table 13. L1 percentages were not obtained from my participants and are instead based on the values that monolingual native speakers of English, French and Spanish produce, in conformity with the phonology of their languages (percentages reported under the heading L1 monolinguals).

Table 14
Percentages of Aspiration Produced or Expected (Shaded Areas) for Each Language, by Language Status

Languages	L1 monolinguals	Group A	Group F
English	100	100 (L1)	72.05 (L2)
French	0	63.63 (L2)	0 (L1)
Spanish	0	64.23 (L3)	56.17 (L3)

As a whole, both groups met the criterion set for pronunciation in order to take part in the study. It has to be acknowledged, however, that inter-participant variation was rather noticeable.

VOT means.

Recall from earlier discussions that the percentages of aspiration were calculated based on VOT measurements. Percentages of aspiration could be considered as a non-gradient way of determining CLI. VOT measurements, on the other hand, could be regarded as a gradient way of determining CLI. As a matter of fact, the common way to report results in the SLA literature is to present VOT means according to each stop investigated. Therefore, it is relevant to report VOT means for my study for two main reasons: (a) it allows for comparison with previous research, and (b) it helps in operationalizing achievement in the acquisition of L2 and L3 VOT (understood as the degree to which participants have approximated native-like values in their non-native languages).

L2 tasks.

Figure 8 is a graphical representation of the mean VOT values produced by my groups of participants for each voiceless stop in their respective L2's. The exact means are reported further below, in Table 15.

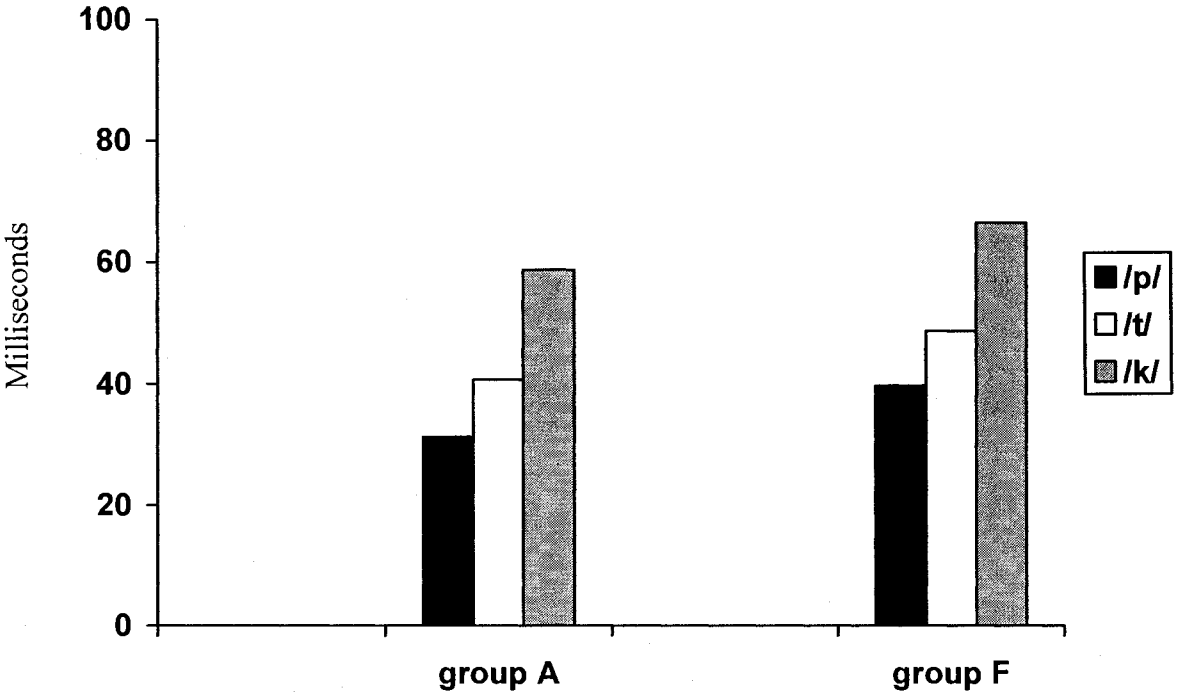


Figure 8
Mean VOT Values (ms) for /p t k/ in the L2 French of Group A and L2 English of Group F

L3 tasks.

L3 VOT means for both tasks (word list and picture description) and both groups are represented graphically in Figure 9. The exact means are reported further below, in Table 15.

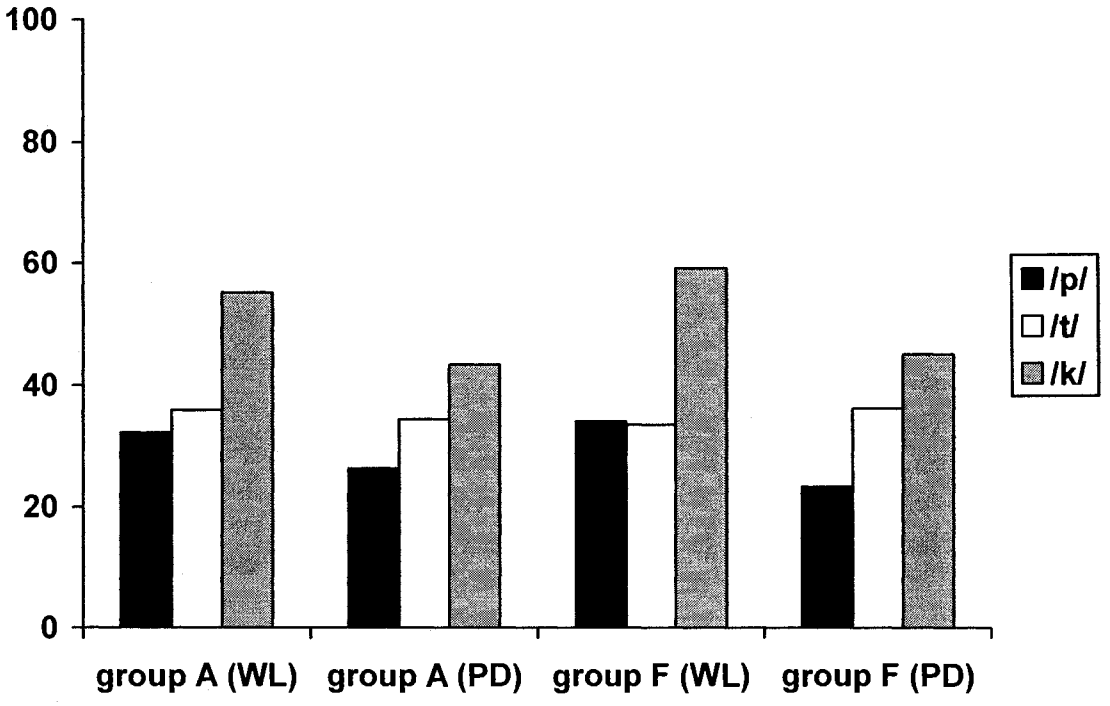


Figure 9
Mean VOT Values (ms) for /p t k/ Across L3 Tasks, by Group

What values in Table 15 mean is that: (a) as a whole, L2 VOT means for my two groups represent intermediate values of VOT means reported in the literature for monolinguals of both languages they speak[5] (as reported by previous studies), (b) VOT means in the Spanish of my participants are longer than they should be in Spanish, longer than they are in French, and shorter than they are in English, (c) it could appear that participants are producing a VOT mean in Spanish that is intermediate to those of English and French, as they did in the L2, and (c) when translated into percentages of aspiration, these intermediate values might be represented by similar percentages of influence from

[5] Let us take, for example, the mean values reported in the literature for the production of /p/ by English monolinguals (62 ms) and by French monolinguals (18 ms). The exact intermediate value is 40. The mean values produced for /p/ in their respective L2's by my participants are 39.75 (Group F in L2 English) and 31.29 (Group A in L2 French).

English and French, which relates to the finding derived from my statistical analysis. Further implications that could be inferred from these values will be elaborated upon in the Discussion Chapter.

Table 15
Mean VOT in (ms) in English and French as L1, L2 and L3, and Spanish as L1 and L3

Languages	Stops	L1 monolinguals	Group A	Group F
English	/p/	62	_	39.75 (L2)
	/t/	70	_	48.68 (L2)
	/k/	90	_	66.40 (L2)
French	/p/	18	31.29 (L2)	_
	/t/	23	40.78 (L2)	_
	/k/	32	58.76 (L2)	_
Spanish (formal)	/p/	13.10	32.29 (L3)	34.12 (L3)
	/t/	14	35.92 (L3)	33.58 (L3)
	/k/	26.50	55.14 (L3)	59.19 (L3)
Spanish (informal)	/p/	_[6]	26.38 (L3)	23.38 (L3)
	/t/	_	34.47 (L3)	36.21 (L3)
	/k/	_	43.41 (L3)	45.12 (L3)

Summary of Findings

The main findings reported until now can be summarized as follows: (a) results regarding proficiency, (b) results regarding lexis, and (c) results regarding phonology. According to the scores I obtained by the means of the Yes/No Vocabulary Tests, the

[6] No monolingual L1 Spanish values were found in the literature for informal contexts.

participants were all advanced speakers of their L2: English (for the Francophone group) or French (for the Anglophone group). Regardless of certain variation across participants, L2 scores still showed some homogeneity in terms of L2 proficiency within and across groups. As for L3 proficiency, there was greater variation both across groups, and within groups (this was especially true for Group A). For all participants, proficiency in the L3 was consistently lower than in the L2. Self-assessment scores were not taken into consideration because they were not always consistent with the results obtained in the proficiency test.

Typology emerged as the most determinant factor for the selection of a supplier language for lexical inventions in an L3 for both groups, regardless of whether the typologically closest language was the participants' L1 or L2. A second, more in-depth look at the data revealed that even when participants were transferring from English, the word chosen as a basis for the lexical invention was in most cases of a Romance origin.

Neither English nor French seemed to be privileged as a source of influence for phonological influence in an L3. Both groups resorted to both languages alike. The percentages obtained from the data analysis do not show clearly whether one factor overrode the other or not. However, a comparison of percentages and VOT means across non-native languages uncovered revealing similarities between L2 and L3 values, which points to an L2 into L3 transfer pattern. It is argued that L2 status played a more determinant role than typology in the selection of a supplier language for the production of /ptk/ in an L3 for both groups. Group F did not seem to take advantage of the typological closeness between the L1 and the L3, which suggests that typology did not play an important role. In fact, the L2 effect can be regarded as negative influence for

group F, given that their percentage of aspiration in Spanish was higher than expected from a group that could have not aspirated at all had they conformed to their L1 norms. The same effect can be interpreted as positive influence for group A, as it resulted in a lower percentage of aspiration than they would have produced had they transferred from their L1 (English).

CHAPTER 5: DISCUSSION

This chapter is devoted to the interpretation of the results. It consists of two main sections that correspond to the research questions stated in Chapter 2. Each main section is in turn subdivided to accommodate the various relevant issues that need to be addressed in order to provide a more comprehensive account of my findings. A summary of the discussion is provided at the end of the chapter.

Research Question # 1

Which is a stronger predictor in the selection of a source language for lexical influence in L3 acquisition: L2 status or typology?

My results offer a very clear answer to this question. When it comes to lexis, typology overrides L2 status since French was the language my participants resorted to most (ranging from 63 to 91 % of the time) for the creation of lexical inventions in their L3. This was true for both groups, and both when the mixed category was disregarded and when it was taken into account.

These findings are consistent with Rossi's (2006), a study that targeted the same two variables, for which similar groups of participants were recruited, and that examined the same combination of languages I did. The major difference between the two studies with regards to lexis is that, while I chose to look at lexical inventions alone, Rossi investigated the relative influences of English and French in a set of phenomena, all collapsed in the same category as lexical inventions. Her justification for doing so was that all phenomena included in that category represented an attempt to communicate in the target language. Despite this difference in the types of data analyzed, which can

render the comparison of my findings to hers rather tricky, my results are consistent with hers.

In fact, Rossi's results together with mine offer additional evidence that typology may be the crucial factor in lexical CLI in TLA, as suggested by other authors (Möhle, 1989; Ringbom, 1986; Singleton, 1987). Yet, other researchers have claimed that it was the L2 that had been mainly used by their participants as a supplier for the creation of new words (Dewaele, 1998; Williams & Hammarberg, 1998) in the L3. It has to be noted, however, that in both studies the L2 may also be considered as the typologically closest language to the L3. In Williams & Hammarberg's, the language combination was the following: L1 English, L2 German, L3 Swedish, with German possibly being closer to Swedish than English. In Dewaele, the language combination was the following: L1 Dutch, L2 English, L3 French. Although it could be argued that Dutch may be typologically closer to English in general terms, one cannot forget the high percentage of cognates shared by English and French. Two approaches can be taken to interpret these claims in favor of the L2: (a) the two factors, L2 status and typology, were not in competition, and these findings do in the end provide further support that typology is the most determinant factor; (b) those results are evidence in favor of L2 status, but they are ambiguous data, at best.

My study, as well as Rossi's, was designed so it could shed light on this issue. Participants in one of my groups, Group A, present a similar language combination as participants in Dewaele's and Williams & Hammarberg's: their L2 is typologically closer to the L3. However, they too resorted to their L2. Therefore, my second group was key to gaining a better understanding of how typology and L2 status affect the choice of a

source language when they do get a chance to compete. Although not by much, Group F relied on French even more than Group A did (91.27 vs. 80.62 % of the time). At least in my study, and in Rossi's, typology was able to outweigh L2 status when the two factors were in direct competition.

Interaction Between Typology and L2 Status

I had mentioned in Chapter 4 that my research question regarding lexis was formulated in rather absolute terms. The underlying assumption to my question was that typology and L2 status acted as opposing forces. I believe that, unconsciously, I expected this opposition of forces to be evident in my results, especially if typology proved to be the most determinant factor. What I actually mean is that I expected a more balanced effect for the two variables in Group F, with English (the L2) accounting for at least 30 or 40 % of the instances of CLI. I only became aware of this thought when I found myself surprised by the results yielded for Group F. By the same token, I suppose I expected typology and L2 status to interact, with French accounting for the overwhelming majority of instances of CLI, if in fact typology was to be found the most determinant factor.

With my results in hand, I can now say that there did not seem to be an intense competition between the two factors, as evidenced by Group F's percentages. Nor there was a very noticeable interaction between typology and L2 status, as suggested by Group A's percentages. If anything, Group F's percentages show a trend according to which typology reinforces influence from the L1; and Group A's percentages show a trend according to which the L1 reduces the effects of typology. A similar trend emerged from Rossi's (2006) results as well. She referred to it as *'L1 effect'* (p. 89). In my study, this potential L1 effect does not lead to significant differences in the use of English as a

resource for lexical transfer. But for one out of Rossi's two tasks, a significant difference in the use of English across groups was indeed found. Such difference would offer evidence against an L2 effect when the L2 is typologically more distant than the L1. It is not sound to generalize this result, as it may not apply to other groups with different language combinations or in different settings. However, this is a finding worth highlighting and deserves to be further investigated in the future.

Further Proof in Favor of Typology?

It is interesting to note that all inventions in my mixed category could eventually be traced to a Romance or Germanic source. The idea for this reanalysis from an etymological point of view came from a remark on one of Singleton's (1987) articles. The author stated that eight out of the nine English-influenced lexical innovations produced by his participant had Romance cognates. Similarly, in my mixed category, lexical inventions were traced to a Romance root in more than 90% of the cases. This means that, even when the invention could have potentially been coined from an English word, in most cases there was a Romance element to it. Although this is not to be strictly interpreted as transfer from a typologically close language, the fact that 96% of mixed inventions from Group F, and 92% of inventions from Group A came from ultimately Roman words may add further evidence that typology was at work.

Another possible way of looking at this finding is to consider cognates as highly transferable words. As a matter of fact, when searching for a word to fill in a lexical gap, any learner could interpret the existence of the same or similar words in the two languages he or she knows as evidence that it could exist in a third. The special status of cognates has been explored in some previous studies, both from CLI (Sikogukira, 1983)

and from language activation perspectives (Dijkstra & Van Hell, 2003; Lemhöfer & Dijkstra, 2004). Specific findings for those studies and the implications they may have for CLI in TLA fall beyond the scope of this paper. However, they raise the point (just as my study did) that cognates, or typologically close related words across languages, may call for special attention and need to be further studied in the field of TLA.

Summary of the Discussion of Lexical Findings

Before moving on to the discussion of findings regarding the phonological part of this study, it would be advisable to recapitulate what has so far been discussed about the findings regarding the lexical part. Four points have been highlighted: two of them emerged clearly from the statistical analysis, and two of them were raised after taking other analysis into consideration as well. The two findings revealed by the statistical tests were: (a) both groups chose French as their main source of influence for the creation of new words in their L3, and (b) they displayed similar patterns of reliance on their two previously known languages, with no significant difference found in this regard across groups. However, a closer look at the results, and once other analyses were considered, the following two remarks were also made: (c) despite its failure to reach a significant difference, a slightly different trend for the use of English was noticed. This trend could be interpreted as the L1 exerting an influence that would counteract or attenuate the typological effect, and (d) this L1 effect could provide evidence against L2 status, at least when a typologically close L2 competes against a typologically more distant L1.

I had previously mentioned that the results would be presented according to language of influence. This helped me paint a clear picture of the relative weight English and French had in serving as a resource for lexical creation in Spanish for my participants.

However, my research questions were stated in terms of factors, and not of languages of influence. I will now restate the results in light of the two factors studied herein.

As revealing as the results for Group A were in terms of language of influence, with French exerting a more pronounced influence on the Spanish of my Anglophones, they did not answer my research question. Participants in Group A could be resorting to French due to a typological effect (French is typologically closer to Spanish), or due to a foreign language or L2 status effect (French is the L2 for all informants in Group A). Since both variables were confounded in the case of Group A, a look at the results from Group F is in order.

It was found that for my Francophone participants, French was also the main language of choice as a source of influence for lexical inventions in L3 Spanish. With regards to my research question, this is a more relevant result, given that the two variables of interest were teased apart. They, indeed, competed against each other, since for group F the L1 was typologically (typology) closer to the L3, and the L2 had a foreign language status (L2 status) like the L3. My findings seem to indicate that typology was a stronger predictor for the selection of a source language for the creation of lexical inventions during oral production in the L3 for both groups.

Research Question # 2

Which is a stronger predictor in the selection of a source language for phonetic influence in L3 acquisition: L2 status or typology? If interpreted in terms of source language, my results fail to provide an unambiguous answer as to which language prevails over the other. As a matter of fact, I found quite balanced percentages of English-

and French-influenced stops for both groups. This balance in percentages is also evident in the VOT means obtained for each group, since an intermediate value between the two previously known languages was found. However, considering the results in terms of the two variables under investigation may offer a clearer answer as to how my two groups of participants show influence from their previously learnt languages. Over the next paragraphs, I will argue that this mixed finding points to L2 status as a stronger predictor than typology.

If typology had played a determinant role, as it did for lexis, we would expect the French percentages of aspiration to be significantly higher than the English ones. However, Figure 3 (in Chapter 4) shows a different trend. The reason why this has not happened in the case of Group A might be related to an issue of incomplete acquisition of (or failure to achieve native-like values) in the L2. It was shown (in Table 14) that the percentages of aspiration had dropped from an expected 100% (in the L1) to 64% (in the L2). Although progress had been made, group A's participants were still far from the 0% required in French. In the same way that it was difficult to claim the predominance of one factor by looking at group A's results with regards to lexis, no clear answer emerges from group A with regards to phonology. The 64 % percentage of aspiration produced by group A in the L3 could be due to both an L2 effect (the L2 percentage was transferred to the L3 because they are both non-native languages) and a typological effect (the L2 percentage was transferred to the L3 because French is typologically closer to Spanish). Again, it is necessary to resort to group F's results to answer my research question.

Unlike group A, failure to achieve native-like values in their L1 French does not seem a likely explanation as to why my Francophone participants resorted to English

over 55% of the time for the production of voiceless stops in their L3. Group F was at an advantage (provided by the typological closeness of their L1 to the TL), and by simply transferring their L1 VOT values, they would have produced L3 voiceless stops with 100% accuracy. The results, however, indicate that they did not behave in this predictable manner. Whereas group F's results helped establish typology as the main factor in L3 lexical transfer, for L3 phonological transfer they seem to rule out typology and point to L2 status as the deciding factor.

In brief, the L2 seems to have definitely had an effect for both groups. Such effect can be interpreted as positive influence for Group A, since their percentages of aspiration in Spanish were lower (although not native-like) than they would have been had they transferred from the L1 (English). The same effect can be interpreted as negative influence for Group F, since their percentages of aspiration in Spanish were higher (and surely not native-like) than they would have been had they transferred from the L1 (French). Further evidence for an L2 effect came from the similarities between L3 and L2 percentages of aspiration for both groups.

Balance Between All Phonological Systems

Moreover, a look at VOT means suggests that the influence exerted by the L2 on the L3 of our participants can also indicate influence from the L1. That is, despite the obvious L2 influence, there appears to be an underlying L1 effect since L2 values were affected, in the first place, by the L1. This could be partly due to the nature of the phenomenon. As mentioned earlier, native-like VOT means in an L2 in which VOT norms differ from those of the L1 are hardly ever reached. Previous studies (Flege and Eefting, 1987; Gurski, 2006) have reported an intermediate VOT value for L2 learners,

and even for L3 learners (Tremblay, 2007). By looking at evidence of this sort within SLA research, Major (2002) concluded that the phonological system of L2 users is 'a balance between the first language, the second language, and the universal properties of the human mind that apply to any phonological system' (in Cook, 2002, p. 66). In light of Major's statement, the intermediate values found in my participants' L3 could be interpreted as evidence that the *L3* phonological system consists of a balance between the first language, the second language, the *third* language, and the universal properties that characterize language. Further evidence in favour of this interpretation with regards to TLA comes from Blank (2008), who found influence from both the L1 and the L2 on the L3 vowel production of her participant.

In the case of my study, however, this interpretation could be considered problematic because I did not collect any L1 data. Thus, it becomes difficult for me to make any claims in which the L1 is taken into account. Major's (2002) claim implies that the L2 affects the L1 system, which can be regarded as bidirectional transfer. Tremblay (2007) also argues in favour of such a view. Although I suspect this is true for some of my participants, I cannot offer any acoustical measurement as proof in this respect.

While I cannot back up claims of L2-L1 influence with any acoustic analysis of my data, my results provide robust evidence of L1-L2 influence.

Combined CLI

The balanced percentages of English- and French- influenced stops may just reflect the fact that, despite a marked L2 influence, L2 and L3 learners tend to retain L1 phonetic features when speaking in their target language. This can be an example of what De Angelis (2007) calls combined CLI. According to De Angelis, combined CLI is 'a

type of transfer that occurs when two or more languages interact with one another and concur in influencing the target language, or whenever one language influences another, and the already influenced language in turns influences another language in the process of being acquired" (p. 49).

The very nature of VOT, a feature for which native-like L2 values are hardly ever acquired, leads me to suggest that the second option of combined CLI as defined by De Angelis (2007) applies to my data. My participants' L2 values were influenced by their respective L1's, and then transferred to their L3.

Aspiration Percentages vs. VOT Means

There are three issues that could be of relevance in explaining my results. It could be the case that great individual variation is behind the inconclusive finding. Let us take group A, and use it as an example. Some participants seem to have produced high percentages of aspiration in the L3 (up to 90.9 in the case of A16, for example), which would align them with monolingual English speakers when producing Spanish stops. However, if we look at the mean VOT, we do see a decrease in length (A16's means for Spanish /p/, /t/, and /k/ were 37.7, 50.93, and 61.15 respectively, a little shorter than those reported for the same English stops in the literature, namely 62 for /p/, 70 for /t/, and 90 for /k/). This drop in values indicates that, although they still aspirate in their L3, and some of them to a high degree, the speakers do not exactly align themselves with monolingual speakers of their L1.

This subtle difference that emerges from looking at the results in terms of aspiration versus considering them in terms of VOT means brings us to a second issue to be taken into account in the interpretation of my results. It could be the case that a more

fine grain cut-off value should have been established in order to obtain a clearer answer. I had devised a two-way classification: (a) any measurement under 30 ms. was to be counted as unaspirated, and (b) any measurement over 30 ms. was to be counted as aspirated. Another possibility would have been to separate my tokens into three categories: clearly French-influenced tokens (under 30 ms.), clearly English-influenced tokens (over 60 ms.), and a mixed category (every value in between 30 and 60 ms.). This would have mirrored the three-way distinction established for lexis. Although my impression is that, as a whole, a three-way categorization would have not shown a different influence pattern, on an individual basis it could have singled out those participants who resorted mostly to French, those who resorted mostly to English, and those who did in fact produce intermediate values.

Task Effect in L3 Phonology

Besides comparing the L3 to the L2, which was not one of the initial goals, I was able to compare VOT, and thus aspiration patterns, across two different tasks in the L3. In order to collect samples of lexical inventions, it was decided to present all participants with a picture description task. This task represented a challenge with regards to eliciting tokens of L3 voiceless stops in a controlled fashion, which implied taking the risk of not having enough or proper samples. The L3 word list seemed a more viable option, albeit more formal than the elicitation instrument used for the lexical part of the study. In the end, the picture description task provided me with the opportunity to explore phonological CLI in running (a more informal style) speech as well.

Two thoughts need to be kept in mind with respect to aspiration and the picture description task. The first one relates to style in a general sense. Major (1987) stated that

'many speakers are able to correctly produce sounds and words in isolation, but in running speech they slip back into L1 patterns. This suggests that in formal style the speaker is able to suppress interference processes that will reappear in more casual speech' (p.107). The second one relates to task-related variation in L3 acquisition. After eliciting data via two different tasks, Hammarberg and Hammarberg (1993) reported noticing a more pronounced influence from the L1 in one task (a reading task in which their informant was asked to repeat after a native speaker), and a more pronounced influence from the L2 in the other (a reading task in which their informant was asked to read alone, without a native-speaker model).

My findings suggested that, although an L2 influence seemed evident in both tasks, there were diverging trends in the word list[7] and the picture description task (compare Figures 5 and 6 in previous chapter). These diverging trends may seem to replicate Hammarberg and Hammarberg's (1993) result. However it has to be noticed that this reversal in trend may be explained by how VOT is shorter in running speech than in isolated words, rather than variation traceable to the nature of my tasks. For both groups, it resulted in a drop in values that brought the L3 VOT means produced by my participants closer to native-like Spanish VOT values. This finding contradicts the standard view that in more formal styles, learners produce more faithful forms (Cardoso, 2003; 2007). It must be stated, however, that most likely this finding will not generalize to other phonological features.

[7] The white bars representing English influence were higher for the word list (Figure 6), whereas the black bars representing French influence were higher for the picture description task (Figure 5).

Summary of the Discussion of Phonological Findings

The main finding regarding phonology was a balanced use of English and French for the production of voiceless stops in L3 Spanish. While it looks as a mixed result in terms of languages of influence, this balance helps rule typology out as a prominent factor in the selection of a source language for phonological CLI. It rather suggests that the L2 (regardless of typology) and the L1 (regardless of typology) are both to some extent involved in affecting L3 production. The suggested route of transfer being L1 affects the L2, which in turns affects the L3, as proposed by De Angelis' (2007) definition of combined CLI.

Summary of Discussion

To sum up, the two areas of language appear to have been affected differently by the two factors explored. With regards to lexis, typology played a key role. It has been suggested during the discussion of the results that an L1 effect was also present. This L1 effect would interact with typology to counteract or attenuate the effect of the L2. With regards to phonology, L2 status was a more decisive factor. This became evident when participants in Group F neglected their L1 and transferred their L2 values to the L3 instead. A possible explanation for this behaviour may be that the L1 was already affected by the L2, or simply that the L2 and L3 phonological systems are a mixture of L1, L2, L3 and universal properties.

CHAPTER 6: CONCLUSION

This final chapter outlines the contribution of this investigation to the TLA literature, reports on the main limitations that can be attributed to the study, and makes suggestions for future research.

Contributions

The two-fold goal of this study was to determine which, out of the two most referred to variables in the TLA literature, would be the most decisive factor in the selection of a source language in the acquisition of an L3, and whether it would be the same factor for two different areas of language.

My results have provided further evidence concerning the claim that typology overrides L2 status with regards to lexical transfer in L3 speech production. In this respect, the main contribution of this study has been teasing apart the two factors under investigation, which are often confounded in the literature. Conversely, it has pointed to the possibility of typology being a less decisive factor in the acquisition of a third phonological system than L2 status, thus, offering additional support to claims that the L2 exerts an influence on L3 pronunciation. However, it needs to be highlighted that, despite a marked L2 influence, the balanced percentages of English- and French- influenced stops may simply reflect the fact that L2 and L3 users tend to retain L1 phonetic features when speaking in a non-native target language.

Pedagogical implications

It has been pointed out that learning an L3 clearly differs from learning an L2 due to prior language learning experience (Jessner, 1999). This sets the L3 learner apart from the L2 learner in various ways. On the one hand, the L3 or multilingual learner is an experienced learner that has developed different language learning strategies. Moreover, multilingual learners have been described as possessing a larger repertoire of language awareness (Mehlhorn, 2007) and, obviously, more previous language knowledge that can lead to an increase in resources and in transfer possibilities.

A common trend in language teaching has been to keep previously learnt languages out of the classroom. The aim of this strict separation of languages was to prevent any potential negative influence of the known languages on the one being learnt. However, this separation can also prevent positive influence. Research on multilingualism (including this study) has shown that multilinguals do not keep their languages apart. On the contrary, there seems to be links and interaction between the different languages in the multilingual learners' minds. New trends in teaching methods tend to take these findings into account and foster contact with other languages, in accordance with suggestions by different authors to move towards cooperation between the known languages (e.g., Clyne, 2003).

Teachers may help their students profit from their prior language knowledge by incorporating explicit references to similarities between languages, since learners may not always be able to concentrate on these similar features on their own. According to Thomas (1988), students need to be trained to recognize similarities in order to exploit positive transfer and consequently avoid interference. While Thomas was referring

mainly to cognates and grammatically similar structures, this recommendation extends to phonology as well. For example, Mehlhorn (2007) assumes that recognizing and becoming aware of similarities between languages are key elements to facilitate acquisition. She claims that students concentrate on pronunciation when they start learning a second language. Since being exposed to the correct pronunciation of a particular sound does not guarantee that students will be able to imitate it faithfully, teachers need to include perception and production exercises as part of their classroom routines, as well as contrastive information about certain sounds in the students' native and non-native languages. This is probably more important in the case of similar sounds, such as /ptk/, given that the similarities may prevent learners from realizing that they are in fact produced in slightly different ways.

Limitations

Several limitations can be reported with regards to this study. They will be presented in the following order: limitations pertaining to (a) the groups, (b) the testing procedure, (c) lexis, and (d) phonology.

One of the biggest challenges that I had to face to carry out this study was finding participants with the desired profile. This challenge affected the composition of my groups in two very decisive ways. On the one hand, I was not able to reach the number of participants I had initially planned for, namely 15 per group. On the other hand, the search for Anglophone participants was extended to university classes, whereas most Francophone participants had been recruited at the Cegep level. Moreover, a considerable number of informants in Group F was taking the same Spanish class, attended the same

Cegep, and had similar educational backgrounds. The end result was a more homogeneous group of Francophones, at least in terms of Spanish proficiency and acquisition history, which renders the comparability among groups somewhat problematic.

As for the testing procedure, language activation and how it could be affected by the order of task administration became a tricky matter. One of the key concepts taken into account in speech production models is that of activation, the main assumption being that the more activated one language is, the more transfer it can cause. Therefore, from the point of view of language activation, it could be argued that collecting data in different languages within a short period of time can result in a methodological limitation. Much thought was given to the sequencing and administration of the tasks after conducting a pilot study, and before collecting the data for this thesis. Despite all the efforts to minimize the impact of the previously known languages on the target one, and to avoid privileging one previously known language over the other, it is likely that the L1 was more activated while performing the L2 tasks, and that the L2 was more activated while performing the L3 tasks. This said, it needs to be pointed out that the research design ensured that both previously known languages would be used before performing the L3 tasks, and it can be safely assumed that they were both active, at least to a certain degree, in the participants' minds.

As a comment from the audience during the presentation of a part of the project at ICPhS XVI (International Conference of Phonetic Science)[8], it was suggested that L3 data be collected before the L2. In fact, this seems like an appropriate alternative, and it

[8] A preliminary version of the phonological part of this study was presented at the Satellite Workshop of ICPhS XVI, 2007.

can reduce the risk of putting the language used right before administering the L3 tasks at an advantage over the other previously known language. However, since I needed to start the testing session by having my participants fill out the consent form in their L1, it seemed like a good idea to move from there to the L2 tasks, in the hopes that this will activate the L1 and the L2 alike. Moreover, the participants were aware of the fact that the interviewer, in other words their interlocutor, was able to speak English and French as well as Spanish. If we are to consider this fact in light of Grosjean's Language Mode Hypothesis, according to which some variables like the interlocutor can account for the activation of languages in the speaker's mind, it could be assumed that my participants should have been set in a trilingual mode, regardless of the order of the tasks.

Ideally, participants should have met with the interviewer in three different occasions, but this could have raised some practicality issues, the most important one being the risk of losing informants from one testing session to the others.

With regards to lexis, the only feature selected for investigation was lexical inventions. While this feature may be a better candidate to study CLI in L3 lexis, because they do represent an attempt of communication in the target language, language shifts are also used in this type of investigation. It could be interesting to identify and analyze language shifts in my data and see how, and if, this would change my results.

With regards to phonology, it would have been advisable to collect L1 data as well. By failing to do so, I have missed my chance to investigate whether the L2, if at all, had affected the L1.

Future Research

My suggestions for future research are of two kinds: (1) suggestions based on the limitations mentioned above and therefore aimed to improve and strengthen my research design, and (2) ideas for follow-up studies.

The first recommendation is related to language level. Without a doubt, a higher degree of homogeneity in terms of L3 proficiency would be advisable. A second recommendation is related to the sample size. Although one of the contributions of this study is that it has explored implications of previous case study research by examining trends within and between groups, larger number of participants within groups is desirable to better control for the influence of variability on mean score comparisons. And a third and final recommendation is related to L1 data. L1 data collection for the investigation of phonological influence in the L3 should be considered as a must, to assess any impact the L2 may have had on the L1.

A possible follow-up study would be one that explored not only lexis and phonology but syntax as well. Available studies on the acquisition of L3 syntax (Bardel, 2006; Bardel & Falk, 2007; Leung, 2005) point to L2 status as a determinant factor. But more research is needed in order to gain a full understanding of CLI within the new field of multilingual acquisition.

I also suggest setting up another study to explore the acquisition of L3 phonology with a feature other than VOT as the investigation focus. The very nature of VOT may have contributed to the finding of combined CLI in this area of language. It would be interesting to see whether this finding is replicated if the feature changes.

In this study, I set out to investigate which of two factors, L2 status and typology,

would become a stronger predictor in the selection of a source language for the production of lexical inventions and voiceless stops in an L3. While previous research had found a more determinant role for typology in L3 lexical production, some studies that looked at L3 phonology had reported an L2 effect on L3 pronunciation. This study provides further evidence in support of both claims previously reported in the literature.

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APPENDIX A
CONSENT FORM

This is to state that I agree to participate in a program of research being conducted by Raquel Llama, supervised by Dr. Laura Collins and Dr. Walcir Cardoso of the Department of Education (TESL Centre) at Concordia University. Contact information:

E-mail: raquellg@gmail.com **Phone:** (514) 951 0846

A. PURPOSE

I have been informed that the purpose of this research is to study aspects of the acquisition of Spanish as a third language by native English- and French-speakers.

B. PROCEDURES

I have been informed that (1) this study will take place at Concordia University or at my home university/college; (2) that the tasks I will be asked to complete consist of filling out a questionnaire, two written vocabulary tests, a picture description task, and the reading of two word lists; (3) the picture description and the reading tasks will be audio-recorded; and (4) the total session will last approximately one hour.

C. CONDITIONS OF PARTICIPATION

- I understand that I am free to withdraw my consent and discontinue my participation at any time without negative consequences.
- I understand that my participation in this study is confidential (i.e. the researcher will know but will not disclose my identity).
- I understand that the data from this study may be published or presented at a scientific conference; data will be reported in a way that protects each participant's identity.
- I understand that I will receive a monetary compensation of $8.00 for participating in this study.
- I understand that if I request a copy of the final research report, one will be sent to me. I can make this request to Raquel Llama during this interview or later in writing.

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT.
I FREELY CONSENT AND AGREE TO PARTICIPATE IN THIS STUDY.

NAME (please print): _____

SIGNATURE: _____

RESEARCHER/S SIGNATURE: _____

DATE: _____

Would you like to be sent a copy of this consent form? _____Yes _____No

If at any time you have questions about your rights as a research participant, please contact Adela Reid, Research Ethics and Compliance Office, Concordia University, at (514) 848-2424 – ext. 7481, or by e-mail at areid@alcor.concordia.ca.

APPENDIX B

FORMULAIRE DE CONSENTEMENT

Par la présente, je déclare consentir à participer au programme de recherche mené par Raquel Llama, et supervisé par Dr. Laura Collins et Dr. Walcir Cardoso du Département d'Education (TESL Centre) de l'Université Concordia. Coordonnées:

Courriel: raquellg@gmail.com **Téléphone:** (514) 951 0846

A. BUT DE LA RECHERCHE

On m'a informé(e) du but de la recherche, soit l'étude des aspects de l'acqusition de l'espagnol comme troisième langue par des étudiants dont la langue maternelle est le français ou l'anglais.

B. PROCÉDURES

On m'a informé(e) que (1) l'étude aura lieu à l'Université Concordia ou à l'université/au collège ou j'étudie; (2) les tâches qui me seront assignées incluent un questionnaire, deux examens de vocabulaire, une tâche de description de quelques images, et la lecture de deux listes de mots; (3) les tâches de description et de lecture seront enregistrées; et (4) la séance au complet durera environ une heure.

C. CONDITIONS DE PARTICIPATION

- Je comprends que je peux retirer mon consentement et interrompre ma participation à tout moment, sans conséquences négatives.
- Je comprends que ma participation à cette étude est confidentielle (c'est-à-dire que le chercheur connaîtra mon identité mais ne la révélera pas).
- Je comprends que les données de cette étude puissant être publiées ou présentées à un colloque scientifique.
- Je comprends que je recevrai une compensation monétaire de 8.00 $ pour ma participation à cette étude.
- Je comprends que, si je le désire, un exemplaire du rapport final me sera envoyé. Je peux en faire la demande à Raquel Llama au cours de cette séance ou plus tard par écrit.

J'AI LU ATTENTIVEMENT CE QUI PRÉCÈDE ET JE COMPRENDS LA NATURE DE L'ENTENTE. JE CONSENS LIBREMENT ET VOLONTAIREMENT À PARTICIPER À CETTE ÉTUDE.

NOM (caractères d'imprimerie):_____

SIGNATURE: _____

SIGNATURE DU CHERCHEUR: _____

DATE: _____

Aimeriez-vous recevoir une copie de ce formulaire? _____Oui _____Non

Si vous avez des questions concernant vos droits en tant que participants à l'étude, S.V.P. contactez Adela Reid, Agente d'éthique en recherche/conformité, Université Concordia, au (514) 848-2424 – poste 7481, ou par courriel à areid@alcor.concordia.ca.

APPENDIX C

Language Background Questionnaire

(English)

Background information:

First name:

Last name:

Age:

Gender:

University / Cegep:

Email:

What is your mother tongue?

1. English 2. French 3. Other (specify) _____

The 2nd language you have learnt is:

1. English 2. French 3. Other (specify) _____

The 3rd language you have learnt is:

1. Spanish 2. Other (specify) _____

What other language(s) do you know?

1. I do not speak any other languages.
2. My 4th language is _____.
3. My 5th language is _____.

What year are you in school?

Mother tongue use:

Please indicate the approximate percentage of time that you use your mother tongue in

your everyday life:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

In which contexts? Mark all that apply.

1. at home
2. at work
3. at school
4. with friends
5. tv / internet
6. other (specify) _____

Second language use:

Please indicate the approximate percentage of time that you use your second language in your everyday life:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

In which contexts? Mark all that apply.

1. at home
2. at work
3. at school
4. with friends
5. tv / internet
6. other (specify) _____

How long have you studied this second language?
Where did you learn it?

What level are you currently taking or have most recently taken in this second language?

Third language use:

Please indicate the approximate percentage of time that you use your third language in

your everyday life:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

In which contexts? Mark all that apply.

1. at home
2. at work
3. at school
4. with friends
5. tv / internet
6. other (specify) _____

How long have you studied this third language?

Where did you learn it?

What level are you currently taking or have most recently taken in this second language?

Proficiency:

Please rate your level of SPEAKING PROFICIENCY in

	beginner	intermediate	advanced	native-like
English				
French				
Spanish				
Other				

(specify) _____

Please rate your level of LISTENING PROFICIENCY in

	beginner	intermediate	advanced	native-like
English				
French				
Spanish				
Other				

(specify) _____

Please rate your level of WRITING PROFICIENCY in

	beginner	intermediate	advanced	native-like
English				
French				
Spanish				
Other				

(specify) _____

Please rate your level of READING PROFICIENCY in

	beginner	intermediate	advanced	native-like
English				
French				
Spanish				
Other				

(specify) _____

Rate your over all proficiency in Spanish in a scale of 1 to 100 (i.e. 58).

Rate your overall proficiency in your second language in a scale of 1 to 100 (i.e. 70).

APPENDIX D

Language Background Questionnaire

(French)

Informations de base:

Prénom:

Nom:

Age:

Sexe:

Université/ Cégep:

Email:

Quelle est votre langue maternelle?

1. Anglais 2. Français 3. Autres (spécifiez) _____

La 2ème langue que vous avez apprise est:

1. Anglais 2. Français 3. Autres (spécifiez) _____

La 3ème langue que vous avez apprise est:

1. Espagnol 3. Autres (spécifiez) _____

Quelle(s) autre(s) langues connaissez-vous?

1. Je ne parle aucune autre langue.
2. ma 4ème langue est _____.
3. ma 5ème langue est _____.

En quelle année scolaire êtes-vous actuellement?

Utilisation de la langue maternelle:

Veuillez indiquer le pourcentage approximatif du temps que vous consacrez

quotidiennement à l'utilisation de votre langue maternelle:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Dans quels contextes? Marquez tout ce qui vous concerne.

3. à la maison
4. au travail
3. à l'école
4. avec des amis
5. télévision/ internet
6. autres (spécifiez) _____

Utilisation de la deuxième langue:

Veuillez indiquer le pourcentage approximatif du temps que vous consacrez quotidiennement à l'utilisation de votre deuxième langue:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Dans quels contextes? Marquer tout ce qui vous concerne.

5. à la maison
6. au travail
3. à l'école
4. avec des amis
5. télévision/ internet
6. autres (spécifiez) _____

Avez-vous déjà étudie cette deuxième langue?
Où l'avez-vous apprise?

À quel niveau êtes-vous inscrit actuellement ou avez-vous atteint plus récemment dans cette deuxième langue?

Utilisation de la troisième langue :

Veuillez indiquer le pourcentage approximatif du temps que vous consacrez quotidiennement à l'utilisation de votre troisième langue:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Dans quels contextes? Marquez tout ce qui vous concerne.

7. à la maison
8. au travail
3. à l'école
4. avec des amis
5. télévision/ internet
6. autres (spécifiez) _____

Pendant combien de temps avez-vous étudié cette troisième langue?
Où l'avez-vous apprise?

À quel niveau êtes-vous inscrit actuellement ou avez-vous atteint plus récemment dans cette troisième langue?

Niveau de compétence:

Veuillez évaluer votre niveau de PARLER en

	débutant	intermédiaire	avancé	presque natif
anglais				
français				
espagnol				
autres				

(spécifiez) _____

Veuillez évaluer votre niveau d'ÉCOUTE en

	débutant	intermédiaire	avancé	presque natif
anglais				
français				
espagnol				
autres				

(spécifiez)_____

Veuillez évaluer votre niveau d'ÉCRITURE en

	débutant	intermédiaire	avancé	presque natif
anglais				
Francais				
espagnol				
autres				

(spécifiez) _____

Veuillez évaluer votre niveau de LECTURE en

	débutant	intermédiaire	avancé	presque natif
anglais				
français				
espagnol				
autres				

(spécifiez)_____

Évaluez votre niveau général en espagnol, selon une échelle de 1 à 100 (i.e. 58).

Évaluez votre niveau général dans votre deuxième langue, selon une échelle de1 à 100 (i.e. 70).

APPENDIX E

English Vocabulary Test

Name: _____ Date: _____

University / Cegep: _____

Read through the lists of words carefully.

For each word:

- if you know what it means, place a check mark (√) beside the word.
- if you don't know what it means, or if you are not sure, leave the box blank.

Do not guess. Put a check mark beside the word **only** if you are sure you know the word in English. **Some of these words are not real English words.**

Here are some examples:

1. (√) cat 2. (√) school 3. ( ) effectory

You know what **cat** means. You know what **school** means. You do not know what **effectory** means. **Effectory** looks like an English word, but it is not a real English word.

ENGLISH A

1.	( )	both	21.	( )	everywhere	41.	( )	cliff
2.	( )	amuse	22.	( )	darrock	42.	( )	useful
3.	( )	estrogeny	23.	( )	quick	43.	( )	kennard
4.	( )	warm	24.	( )	martlew	44.	( )	cordonise
5.	( )	deny	25.	( )	cage	45.	( )	dust
6.	( )	westfold	26.	( )	responsible	46.	( )	glad
7.	( )	park	27.	( )	rain	47.	( )	feeling
8.	( )	reward	28.	( )	skemp	48.	( )	plenty
9.	( )	loring	29.	( )	shadbolt	49.	( )	bamber
10.	( )	army	30.	( )	oppose	50.	( )	fishlock
11.	( )	tower	31.	( )	fairly	51.	( )	cough
12.	( )	crop	32.	( )	causticate	52.	( )	thick
13.	( )	astell	33.	( )	hobrow	53.	( )	surman
14.	( )	niece	34.	( )	beat	54.	( )	vain
15.	( )	collar	35.	( )	likely	55.	( )	inertible
16.	( )	mud	36.	( )	pattern	56.	( )	nurse
17.	( )	claypole	37.	( )	antile	57.	( )	gillen
18.	( )	pump	38.	( )	collect	58.	( )	solve
19.	( )	measurement	39.	( )	goat	59.	( )	boil
20.	( )	drum	40.	( )	frequid	60.	( )	remind

ENGLISH B

1.	( )	sandy	21.	( )	dull	41.	( )	tube
2.	( )	display	22.	( )	volume	42.	( )	gow
3.	( )	darch	23.	( )	squeeze	43.	( )	pat
4.	( )	conduct	24.	( )	heap	44.	( )	interval
5.	( )	overcome	25.	( )	treadaway	45.	( )	crole
6.	( )	landing	26.	( )	odd	46.	( )	staircase
7.	( )	widgery	27.	( )	apologise	47.	( )	moreover
8.	( )	snowy	28.	( )	liner	48.	( )	dozen
9.	( )	hammond	29.	( )	quorant	49.	( )	spill
10.	( )	qualify	30.	( )	grip	50.	( )	mealing
11.	( )	urge	31.	( )	sack	51.	( )	snell
12.	( )	alden	32.	( )	smack	52.	( )	entire
13.	( )	varney	33.	( )	shellard	53.	( )	sore
14.	( )	boundary	34.	( )	keeper	54.	( )	associate
15.	( )	obsolation	35.	( )	upward	55.	( )	miligrate
16.	( )	remedy	36.	( )	eckett	56.	( )	border
17.	( )	nickling	37.	( )	emphasise	57.	( )	tend
18.	( )	muscle	38.	( )	distinguish	58.	( )	margery
19.	( )	leisure	39.	( )	yardle	59.	( )	glue
20.	( )	vosper	40.	( )	troake	60.	( )	vital

ENGLISH C

1.	( )	plunge	21.	( )	sumption	41.	( )	creep
2.	( )	idle	22.	( )	ashment	42.	( )	sample
3.	( )	lessen	23.	( )	shady	43.	( )	pegler
4.	( )	spalding	24.	( )	fertile	44.	( )	sorrow
5.	( )	gazard	25.	( )	ornament	45.	( )	arbus
6.	( )	buttonhole	26.	( )	gorman	46.	( )	plaster
7.	( )	mileage	27.	( )	sake	47.	( )	astell
8.	( )	oak	28.	( )	mercy	48.	( )	roast
9.	( )	rod	29.	( )	outskirts	49.	( )	murrow
10.	( )	restore	30.	( )	diversal	50.	( )	wedge
11.	( )	awkward	31.	( )	scorn	51.	( )	tindle
12.	( )	trudgeon	32.	( )	junction	52.	( )	mabey
13.	( )	troublesom	33.	( )	banderage	53.	( )	fade
14.	( )	bow	34.	( )	dam	54.	( )	curl
15.	( )	captivise	35.	( )	solemn	55.	( )	rake
16.	( )	forecast	36.	( )	feeble	56.	( )	outlet
17.	( )	allaway	37.	( )	vickery	57.	( )	limp
18.	( )	compose	38.	( )	waggett	58.	( )	flautism
19.	( )	gammonary	39.	( )	rot	59.	( )	overtake
20.	( )	apparatus	40.	( )	react	60.	( )	chart

APPENDIX F

French Vocabulary Test

Nom: _____ Date: _____

Université / Cégep: _____

Lisez attentivement les listes de mots suivants.

Pour chaque mot:

- si vous connaissez ce que signifie, mettez un marque (√) devant le mot
- si vous ne connaissez pas ce que signifie, ou si vous n'êtes pas sûr/e, laissez la case vide.

Il ne faut pas deviner. Mettez une marque seulement si vous êtes sur que vous **connaissez** le sens du mot en français. **Certains de ces mots ne sont pas de vrais mots français.**

Voici quelques examples:

1. (√) chat 2. (√) école 3. ( ) couquir

Vous connaissez ce que le mot **chat** signifie. Vous connaissez ce que le mot **école** signifie. Mais vous ne connaissez pas ce que le mot **couquir** signifie. Le mot **couquir** ressemble à un mot français, mais ce n'est pas un vrai mot français.

FRANÇAIS A

1.	( )	abattre	21.	( )	inconnu	41.	( )	sportif
2.	( )	huile	22.	( )	manchir	42.	( )	infini
3.	( )	crétale	23.	( )	prévieaux	43.	( )	poids
4.	( )	percevoir	24.	( )	pareil	44.	( )	vernique
5.	( )	fontre	25.	( )	prétemance	45.	( )	combattre
6.	( )	sien	26.	( )	débarrasser	46.	( )	boînase
7.	( )	quantité	27.	( )	mériter	47.	( )	dessus
8.	( )	roman	28.	( )	intellectuel	48.	( )	délegué
9.	( )	aige	29.	( )	mélange	49.	( )	dépriver
10.	( )	territoire	30.	( )	abjecter	50.	( )	vauche
11.	( )	transformer	31.	( )	gillais	51.	( )	vusier
12.	( )	pentrier	32.	( )	chaleur	52.	( )	entourer
13.	( )	contrainte	33.	( )	centaine	53.	( )	défaut
14.	( )	promener	34.	( )	incapable	54.	( )	frein
15.	( )	ouest	35.	( )	bouche	55.	( )	tentre
16.	( )	taille	36.	( )	reportation	56.	( )	métracte
17.	( )	tromper	37.	( )	palitaire	57.	( )	élu
18.	( )	sureux	38.	( )	oreille	58.	( )	acier
19.	( )	percer	39.	( )	négliger	59.	( )	roile
20.	( )	partisan	40.	( )	coutume	60.	( )	fleuve

FRANÇAIS B

1.	( )	tapis	21.	( )	séduire	41.	( )	outrir
2.	( )	juré	22.	( )	applaudir	42.	( )	défaite
3.	( )	humide	23.	( )	contribuable	43.	( )	imbant
4.	( )	tante	24.	( )	ultimation	44.	( )	nettoyer
5.	( )	juquette	25.	( )	vaisseau	45.	( )	survivre
6.	( )	grasper	26.	( )	mentir	46.	( )	déchirer
7.	( )	véritablement	27.	( )	entamer	47.	( )	giste
8.	( )	nuage	28.	( )	montage	48.	( )	fondre
9.	( )	porvent	29.	( )	brouillard	49.	( )	filer
10.	( )	bâtir	30.	( )	inquiet	50.	( )	retreint
11.	( )	soulager	31.	( )	aberrer	51.	( )	metteur
12.	( )	trifler	32.	( )	détenir	52.	( )	étiquette
13.	( )	optile	33.	( )	détrame	53.	( )	piédeur
14.	( )	récolter	34.	( )	méchant	54.	( )	nier
15.	( )	signard	35.	( )	écourt	55.	( )	debulant
16.	( )	clarté	36.	( )	absurde	56.	( )	requête
17.	( )	formirique	37.	( )	disparition	57.	( )	malin
18.	( )	vol	38.	( )	fureur	58.	( )	poulard
19.	( )	ronçois	39.	( )	éphrasir	59.	( )	rapoise
20.	( )	guèrir	40.	( )	gant	60.	( )	fixation

FRANÇAIS C

1.	( )	lucide	21.	( )	pincer	41.	( )	sonde
2.	( )	joyance	22.	( )	précont	42.	( )	melindre
3.	( )	concurrent	23.	( )	équivaloir	43.	( )	nadoir
4.	( )	crisper	24.	( )	allongé	44.	( )	demure
5.	( )	ostral	25.	( )	fiancer	45.	( )	régir
6.	( )	réflexe	26.	( )	farouche	46.	( )	buffle
7.	( )	émaner	27.	( )	comtese	47.	( )	épée
8.	( )	clôture	28.	( )	achevé	48.	( )	opportun
9.	( )	hautement	29.	( )	soupaire	49.	( )	retroubir
10.	( )	tenture	30.	( )	sauvagarder	50.	( )	épanouir
11.	( )	tirôt	31.	( )	aperne	51.	( )	pneu
12.	( )	intrigue	32.	( )	mention	52.	( )	priet
13.	( )	julir	33.	( )	rubir	53.	( )	valiant
14.	( )	soupçon	34.	( )	succession	54.	( )	raser
15.	( )	plumbard	35.	( )	sième	55.	( )	persister
16.	( )	préventif	36.	( )	armantisse	56.	( )	modéré
17.	( )	innovation	37.	( )	pelouse	57.	( )	champile
18.	( )	amical	38.	( )	lassitude	58.	( )	mouiller
19.	( )	minier	39.	( )	luvois	59.	( )	billiare
20.	( )	introis	40.	( )	ruelle	60.	( )	remise

APPENDIX G

Spanish Vocabulary Test

Nombre: _____ Fecha: _____

Universidad / Cégep: _____

Lee la lista de palabras con atención.

Al lado de cada palabra:

- si sabes lo que significa, coloca un visto (√)
- si no sabes lo que significa, o si no estás seguro/a, deja el paréntesis en blanco.

No se trata de acertar. Coloca un visto al lado de la palabra **solamente** si estás seguro/a de que sabes la palabra en español. **Algunas palabras son inventadas.**

Aquí tienes algunos ejemplos:

1. (√) gato 2. (√) colegio 3. ( ) acarestar

Sabes lo que significa **gato**. Y sabes lo que significa **colegio**. Pero no sabes lo que significa **acarestar**. **Acarestar** parece una palabra en español, pero no lo es

ESPAÑOL A

1.	( )	agua	21.	( )	fin	41.	( )	pan
2.	( )	chisco	22.	( )	vaso	42.	( )	meter
3.	( )	radio	23.	( )	conejo	43.	( )	abasejo
4.	( )	claro	24.	( )	además	44.	( )	escarlar
5.	( )	multioroso	25.	( )	imparcender	45.	( )	piedra
6.	( )	momento	26.	( )	cuando	46.	( )	gobierno
7.	( )	emplícito	27.	( )	nube	47.	( )	cerca
8.	( )	sueño	28.	( )	reír	48.	( )	rey
9.	( )	conocer	29.	( )	luz	49.	( )	lápiz
10.	( )	fuego	30.	( )	clase	50.	( )	pensar
11.	( )	correo	31.	( )	ellos	51.	( )	segarno
12.	( )	alma	32.	( )	aclarentar	52.	( )	vino
13.	( )	vacetaria	33.	( )	decepto	53.	( )	pasar
14.	( )	primavera	34.	( )	primero	54.	( )	oviparar
15.	( )	lejos	35.	( )	permanaje	55.	( )	trabajo
16.	( )	colmiero	36.	( )	azul	56.	( )	ejeste
17.	( )	buzable	37.	( )	vez	57.	( )	cidralar
18.	( )	querer	38.	( )	verdad	58.	( )	jugar
19.	( )	abandejarse	39.	( )	extricante	59.	( )	eflagón
20.	( )	contestar	40.	( )	enlizado	60.	( )	programa

ESPAÑOL B

1.	( )	invierno	21.	( )	roca	41.	( )	cuello
2.	( )	suponer	22.	( )	huerto	42.	( )	salto
3.	( )	ahogar	23.	( )	despedir	43.	( )	anterior
4.	( )	ardal	24.	( )	procedero	44.	( )	heromar
5.	( )	suficiente	25.	( )	contener	45.	( )	pieza
6.	( )	lucha	26.	( )	brillar	46.	( )	lágrima
7.	( )	gusano	27.	( )	besar	47.	( )	premio
8.	( )	redondo	28.	( )	espada	48.	( )	polito
9.	( )	alutido	29.	( )	hierro	49.	( )	mentira
10.	( )	tamaño	30.	( )	cantidio	50.	( )	mangual
11.	( )	golpe	31.	( )	uva	51.	( )	fácil
12.	( )	mostrar	32.	( )	altro	52.	( )	postismo
13.	( )	almuerzo	33.	( )	atrever	53.	( )	gilotar
14.	( )	algodón	34.	( )	engantera	54.	( )	falda
15.	( )	alcorrer	35.	( )	asustar	55.	( )	porque
16.	( )	amanecer	36.	( )	barrer	56.	( )	firagar
17.	( )	esfuertura	37.	( )	paracena	57.	( )	ampato
18.	( )	triunfo	38.	( )	avanzar	58.	( )	llave
19.	( )	munetela	39.	( )	invitar	59.	( )	muga
20.	( )	ampallar	40.	( )	incantoso	60.	( )	desierto

ESPAÑOL C

1.	( )	colchón	21.	( )	expigido	41.	( )	agenio
2.	( )	pachuela	22.	( )	destacar	42.	( )	infeliz
3.	( )	individuo	23.	( )	revolver	43.	( )	curva
4.	( )	sazonilla	24.	( )	piracido	44.	( )	caroper
5.	( )	preocupar	25.	( )	labiezo	45.	( )	faena
6.	( )	suspiro	26.	( )	prójimo	46.	( )	enajuar
7.	( )	planchete	27.	( )	sabor	47.	( )	hervir
8.	( )	mezclar	28.	( )	descanso	48.	( )	miga
9.	( )	rodilla	29.	( )	almapié	49.	( )	pesca
10.	( )	décima	30.	( )	reflejar	50.	( )	sudecir
11.	( )	presupuesto	31.	( )	cuadreta	51.	( )	agudo
12.	( )	conmoler	32.	( )	cobrar	52.	( )	surtir
13.	( )	jorceta	33.	( )	alcadernal	53.	( )	avispa
14.	( )	aborrecer	34.	( )	testigo	54.	( )	modesto
15.	( )	cascuro	35.	( )	balanza	55.	( )	manchar
16.	( )	anhelar	36.	( )	tropezar	56.	( )	humo
17.	( )	homotorio	37.	( )	encender	57.	( )	holocar
18.	( )	adecuado	38.	( )	melocotón	58.	( )	reja
19.	( )	lombricaz	39.	( )	encontrolar	59.	( )	silbar
20.	( )	muchedumbre	40.	( )	lamentar	60.	( )	alquilar

APPENDIX H

L2 Word List (English)

TRAINING ITEMS

Lovely, waste, dotted, member

EXPERIMENTAL ITEMS

1. killer	15. tourist	29. pebble
2. toxic	16. pastry	30. tonic
3. tinted	17. pushy	31. toddler
4. pending	18. kingdom	32. cuddle
5. kidney	19. topless	33. tacky
6. puppet	20. custom	34. pattern
7. copy	21. pity	35. cookie
8. tipping	22. pointy	36. pencil
9. poison	23. ticket	37. taxes
10. pilgrim	24. cover	38. calling
11. testing	25. cunning	39. piglet
12. cooler	26. public	40. telling
13. tummy	27. tender	41. punish
14. chemist	28. captain	42. camping

APPENDIX I

L2 Word List (French)

TRAINING ITEMS

Lourd, beau, donc, mais

EXPERIMENTAL ITEMS

1. quiche	15. tort	29. pêche
2. tour	16. part	30. torte
3. titre	17. pour	31. tourbe
4. peste	18. quitte	32. cap
5. qui	19. table	33. tarte
6. poudre	20. calme	34. perte
7. coût	21. piste	35. court
8. tien	22. pomme	36. pic
9. poste	23. tir	37. terme
10. pile	24. corse	38. colle
11. telle	25. coq	39. poche
12. course	26. pas	40. tigre
13. taxe	27. terre	41. pipe
14. que	28. carte	42. quelle

APPENDIX J

L3 Word List (Spanish)

TRAINING ITEMS

Boca, dado, norte, mano

EXPERIMENTAL ITEMS

1. cuna	21. quico	41. pulga
2. tinte	22. poco	42. tila
3. puma	23. turco	43. queso
4. quince	24. taco	44. cubo
5. pase	25. tipo	45. tenso
6. como	26. cuyo	46. pega
7. tiro	27. poste	47. cosa
8. piña	28. torta	48. toga
9. tengo	29. cama	49. polen
10. taxi	30. puro	50. pelo
11. quema	31. carta	51. copa
12. tuba	32. tuyo	52. pico
13. pena	33. quinto	53. tarde
14. punto	34. tapa	54. quedo
15. kilo	35. peso	55. tope
16. tomo	36. pasta	56. curso
17. queja	37. piso	57. pila
18. popa	38. corto	58. tela
19. casa	39. pato	59. pala
20. tema	40. cada	60. túnel

APPENDIX K

Participants' Profiles

Group F

			L2						L3					
			Self-ratings						Self-ratings					
C.	G.	A.	Sp.	Li.	Wr.	Re.	Ov.	V.S.	Sp.	Li.	Wr.	Re.	Ov.	V.S.
F02	f	17	A	A	A	A	70	70	B	B	B	B	30	43,75
F06	f	18	I	I	I	I	80	83,75	B	I	I	I	20	27,5
F07	f	17	I	A	A	A	75	80	B	A	I	I	60	41,25
F09	f	17	I	A	I	A	75	67,5	I	I	I	I	60	45
F10	m	18	A	A	A	N	85	90	I	I	B	B	50	38,75
F11	f	19	A	A	A	A	85	92,5	I	I	I	I	60	27,5
F16	f	18	A/N	N	N	N	90	78,75	B/I	I	I	B/I	75	35
F18	f	19	N	N	N	N	95	92,5	I	I	I	I	65	40
F21	f	?	A	A	A	A	88	90	I	I	I	A	75	51,25
F22	f	17	I/A	A/N	A	N	80/5	83,75	B	I	I	I	40	33,75
F24	m	48	I	A	I	A	85	93,75	B	B	B	B	55	68,75

Group A

			L2						L3					
			Self-ratings						Self-ratings					
C.	G.	A.	Sp.	Li.	Wr.	Re.	Ov.	V.S.	Sp.	Li.	Wr.	Re.	Ov.	V.S.
A01	f	26	I/A	A	I	A	78	78,75	B	B	B	B	30	26,25
A08	m	18	N	N	N	N	95	85	I	I	I	I	40	21,25
A09	m	27	A	A	A	I	90	71,25	A	I	A	I	85	65
A10	m	24	B	A	B	A	45	67,5	A	I	A	I	65	46,25
A11	f	24	I	A	A	A	70	85	I	I	I	I	--	63,75
A12	m	24	N	N	N	N	85	91,25	I	I	I	I	70	63,75
A13	f	19	N	A	A	A	90	92,5	B	I	I	I	70	53,75
A14	m	24	A	A	A	N	70	86,25	B	B	B	I	25	42,5
A15	f	27	A	A	I	A	85	82,5	I	I	I	A	70	63,75
A16	m	26	A	A	A	A	90	88,75	A	I	I	A	85	56,25
A17	m	25	A	A	I	A	87	78,75	B	I	B	I	20	30

C.= code
G.= gender
A.= age
Sp.= speaking
Li.= listening
Wr. = writing
Re.= reading
Ov. = overall rating
V.s.= vocabulary score

APPENDIX L

Inter-coder Reliability

LEXICAL INVENTION	CODER 1	CODER 2
bato	HA	R
golfo	HC	HC
torra	HA	HA
turra	HA	HA
camera	R	R
pompero	HA	HA
nus	R	HA
nus de coco	WCB	WCB
balones	HB	HC
balones	HB	HC
chirurgia	HA	HA
planca de repasar	WCA	WCA
suriendo	HA	HA
seriosa	HA	HA
monstrar	HA	HA
plancha	HB	HC
camera	R	R
demonstre	HA	HA
plancas	HA	HA
planca	HA	HA
repasar	HB	HC
demonstrar	HA	HA
demuenstra	HA	HA
enfronte	HA	HA
chirúrgica	HA	HA
turra	HA	HA
torra	HA	HA
mayoritad	HA	HA

crema	HB	HB
cuplos	HA	HA
tablas	HB	HB
crusar	HB	HC
manieras	HA	HA
pictura	HA	HA
natura		H
balones	HB	HC
chiruryical	HA	HA
inexistantes	R	HA
tablo	R	R
tur	R	R
balones	HB	HC
balones	HB	HC
balones	HB	HC
sirúrgicas	HA	HA
camera	R	R
torra	HA	HA
turra	HA	HA
campaño	HA	HA
esporte	HA	HA
repasar	HB	HB

HA = hybrid (type a)
HB = hybrid (type b)
HC = hybrid (type c)
R = relexification
WCA = word coinage (type a)
WCB = word coinage (type b)

Shaded rows:

- light grey: on a first coding, the two coders disagreed on the subcategory
- dark grey: on a first coding, the two coders disagreed on the main category