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# Cross-linguistic influence in third language acquisition: Implications for the organization of the multilingual mental lexicon

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This paper aims to examine the influence of two previously known languages on third language oral production. Specifically, it focuses on cross-linguistic influence by comparing the same group of learners at two different times in their acquisition process, in their fourth and sixth year of primary school. Subjects were 20 learners of English as a third language who had received instruction in English from the age of four and were bilingual in Basque and Spanish. All the subjects were asked to tell the frog story in English and all cases of interactional strategies, code-switching and transfer were analysed so as to examine the development of cross-linguistic influence in third language acquisition. This influence is discussed as related to the organization of the multilingual mental lexicon.

In diesem Beitrag wird der Einfluss des Vorwissens aus zwei Sprachen in der mündlichen Drittsprachproduktion untersucht. Dabei wird insbesondere die zwischensprachliche Interaktion in einer Lerngruppe in zwei aufeinanderfolgenden Stadien im Erwerbsprozess, nämlich im zweiten und vierten Grundschuljahr, hervorgehoben. Die 20 bilingualen (Spanisch/Baskisch) Probanden haben seit ihrem vierten Lebensjahr Englischunterricht erhalten. Sie wurden alle gebeten, die "Froschgeschichte" auf Englisch zu erzählen und alle vorkommenden Transferphänomene wurden analysiert, um die Entwicklung des zwischensprachlichen Einflusses im Drittspracherwerb zu untersuchen. Dieser Einfluss wird im Bezug auf die Organisation des mentalen multilingualen Lexikons diskutiert.

## Introduction

The study of cross-linguistic influence in third language acquisition has focused on the identification of the specific conditions that can explain the use of one or more languages when speaking in the L3 and its implications for the organization of the multilingual lexicon (Hammarberg, 2001; Cenoz, 2001; Dewaele, 2001).

Hall and Ecke (2003) have developed the 'parasitic model' for the acquisition of the lexicon. According to this model, there are different stages in the process of vocabulary acquisition and L3 learners use elements from other languages they know until they develop a third language system. This model could also explain the high number of transferred items in the first stages of second and third language acquisition (Poulisse & Bongaerts, 1994; Hammarberg, 2001) and is compatible with the findings reported by Clyne (1997) and Dewaele (1998) on the learners' use of the languages in their linguistic repertoire as a basis for learning the target language.

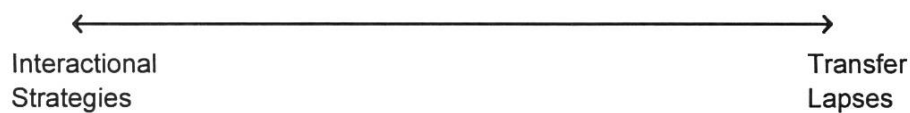
Studies involving L3 speakers of different combinations of languages have consistently reported that learners use a second language which is typologically closer to the L3 as the supplier language rather than a typologically distant first language. For example, learners of French or English who are native speakers of a non-Indoeuropean language tend to transfer vocabulary and structures from other Indoeuropean languages they know rather than from their first language (Ahukanna, Lund & Gentile, 1981; Bartelt, 1989; Stedje, 1977; Ringbom, 1987; Singh & Carroll, 1979; Cenoz, 2001). Studies involving only Indoeuropean languages also confirm these findings (Ecke, 2001; De Angelis & Selinker, 2001; Singleton, 1987; Möhle, 1989).

Some studies have also reported that learners tend to transfer from the second language rather than from the first language in spontaneous oral production in the third (or additional) language. These results have been related to a 'foreign language effect' (Meisel, 1983; De Angelis and Selinker, 2001) or 'L2 status' (Hammarberg, 2001). Even though most studies on third language acquisition production highlight the role of the second/foreign language as the default supplier, there are very few studies which adopt a longitudinal perspective and look at the development in the use of supplier languages. One exception is the study conducted by Williams and Hammarberg (1998) who observed some changes in the use of supplier languages in the learning process.

Cross-linguistic influence has been related to several functions (Williams & Hammarberg, 1997; Hammarberg, 2001), different levels of intentionality and automaticity (Poulisse & Bongaerts, 1994) and different language modes (Grosjean, 1998). According to Hammarberg (2001) switches can be classified into seven categories: edit, meta comment, meta frame, explicit elicit, implicit elicit, non-elicited and wipp. The first six categories have a specific pragmatic purpose (self-repair, comments, questions, language switches, etc) and the speaker does not attempt to use the L3 while 'Wipp' switches occur when the speaker is formulating an utterance in the L3 and some elements occur just as a part of the utterance formulation in L3 without having a particular function. Poulisse & Bongaerts (1994) distinguish intentional from non-intentional or automatic switches. Non-intentional switches are performance switches that take place when another language has erroneously been accessed. They can be identified because they "were not preceded by any signs of hesitation and did not stand out from the rest of the utterance by a marked intonation" (Poulisse & Bongaerts, 1994: 43). Grosjean (1998) considers that cross-linguistic influence is related to the specific context in which communication

takes place including the interlocutors (bilingual or monolingual), the setting and the topic of the conversation. These factors determine the relative position of conversation as close to the bilingual or the monolingual mode so that if the speaker adopts a bilingual mode her/his production is more likely to present more cross-linguistic influence.

Taking into account these different dimensions of cross-linguistic influence we propose a continuum which presents two extreme positions: interactional strategies and transfer lapses:



*Interactional strategies* are intentional switches into languages other than the target language and their presence will depend on language mode so that their frequency is related to the bilingual or monolingual mode adopted by the speaker (see also Grosjean 1995). Following Levelt's model (1989) and De Bot's adaptation (1992) we can say that in the case of interactional strategies the language choice takes place in the conceptualizer. If we consider the 'multilingual processing model' (De Bot, in press) the choice to use a language other than the target takes place at the conceptual/communicative intention level. In the case of interactional strategies, the multilingual speaker makes the decision to use a language other than the target language when s/he is asking help from her/his interlocutor or making comments about her/his own production.

*Transfer lapses* are non-intentional switches which are not preceded by a pause or false start and can be regarded as automatic (see Poulisse & Bongaerts, 1994). They are to a greater degree independent of language mode or at least of those elements related to language mode that exist in the specific context in which the production is taking place. When transfer lapses occur, the other languages the multilingual speaker knows are activated in parallel to the target language and some elements from these languages are accidentally fed into the articulator.

The study of cross-linguistic influence presents special interest because multilinguals could potentially use two or more different languages for interactional strategies and transfer lapses and this choice could be related to factors such as L2 status, typology, recency, proficiency and language mode. For example, Hammarberg (2001) reported that his subject, a native speaker of English, used English as an interactional strategy, that is in word elicitation

units in which the learner asked for help from her interlocutor. On the other hand she used German as the default supplier for transfer lapses with no specific pragmatic function. In a previous study, Cenoz (2003) analysed the supplier languages in the production of English as L3 and found that Basque was the main supplier in the case of interactional strategies and Spanish in the case of transfer lapses.

The aim of this paper is to analyse the supplier languages that learners of English as L3 use taking into account: 1) a longitudinal perspective in order to see if there is a development in the use of the L1 or L2 as supplier 2) a distinction between transfer lapses and interactional strategies. Information in these areas is relevant to know more about the organization of the multilingual lexicon from a developmental perspective.

## **Methodology**

### *Participants*

Participants were 20 primary schoolchildren (55% boys, 45% girls) who were studying English as a third language in the Basque Country. All the participants, attended a Basque-medium school since the age of three. Basque is the school language and the only language of instruction for all the subjects, except for English and Spanish as a subject. The data were collected in the fourth and sixth year of primary school when the children were 9.1 and 11.1. The children had received instruction in English since the age of four (pre-school) and started to study Spanish at school in the third year of primary school (age 8-9). Their proficiency in English is low as compared to Basque and Spanish which are the community languages. Half of the children spoke Basque at home and the other half spoke Spanish or Basque and Spanish at home.

### *Instruments and Procedure*

All the participants were asked to tell the wordless picture story 'Frog, where are you?' (Mayer, 1969) in English. This story consists of 24 pictures and has been used in a large number of contexts with different languages both with children and adults (Berman & Slobin, 1994; Kellerman, 2001; Griessler, 2001).

Participants also completed a background questionnaire which included questions on their knowledge and use of Basque and Spanish. The stories

were told individually to a trilingual speaker and the questionnaires were completed in groups during one of the class sessions. All the stories were audio and videotaped. The stories were also transcribed and all cases of cross-linguistic influence at the lexical level were identified. For the present research paper two types of cross-linguistic influence were considered:

- i. Interactional strategies. This category refers to direct or indirect appeals to the interlocutor in order to get help to produce a specific term in English. It includes four of the categories included in the seven types of switches identified by Hammarberg (2001): 'metaframe' 'insert: explicit elicit', 'insert: implicit elicit' and 'insert: non elicit'. Interactional strategies are considered intentional and present a marked interrogative intonation pattern. Some examples of interactional strategies from Basque are the following:

\*CHI: eh nola da oreina? (How do you say 'deer'?)

\*CHI: eeeh is one eeh zuloa? (...eeh hole?)

- ii. Transfer lapses. This category refers to the use of one or more terms (but not whole sentences) in Basque or Spanish as part of an utterance produced in English. This category includes borrowings and foreignizings. Borrowings refer to 'the use of an L1 (or Ln) word without any phonological and/or morphological adaptation' (Poulishse 1990, 111). Foreignizing refers to 'the use of an L1 (or Ln) word with phonological and morphological adaptation' (Poulishse 1990, 111). These switches are considered non-intentional and they did not present any special formal characteristic such as marked intonation or hesitations (Poulishse & Bongaerts, 1994). Some examples of transfer lapses from Spanish are the following:

\*CHI: # and # and the dog **salt** /salt/ the window (Sp. saltar= jump)

\*CHI: and if #**perseguin** /persegin/ to the dog (Sp. perseguir=pursue)

Other strategies, such as code switching, understood as the production of whole sentences in Basque or Spanish when the speaker is not appealing to the interlocutor for help, were not used by these children.

## Results

In order to find out the relative weight of cross-linguistic influence in oral production in the third language we examined all cases of cross-linguistic influence taking into account the total number of utterances produced by the subjects (761 in 1999 and 877 in 2001). Table 1 includes the results of the T-



test comparing the mean percentages of utterances containing units from other languages.

Table 1. Percentages of utterances containing units from other languages

	Mean	SD	T-test	Sig
4 <sup>th</sup> YEAR	15.39	17.20		
6 <sup>th</sup> YEAR	48.37	12.48		
			-7.74	.000

The results of the T-test indicate that the differences between the means are significant because there is a significant increase in the number of utterances that contain words from other languages, the mean changes from 15.39 to 48.37%. In fact, all subjects except one produced more sentences including words from other languages in their 6<sup>th</sup> year than in the 4<sup>th</sup> year. Therefore, cross-linguistic influence is more frequent after two more years of instruction. Does this mean that learners make more use of a base language when they advance in their learning process? At first sight, it could seem that these data contradict the parasitic model proposed by Hall & Ecke (2003) and also the findings reported by Poullisse & Bongaerts (1994).

Before reaching this conclusion there are several aspects that need to be taken into account: i) In spite of the important increase, 83.58% of the utterances produced by learners in the 4<sup>th</sup> year have no elements from other languages and almost half of the utterances produced in the 6<sup>th</sup> year (49.83%) do not include elements transferred from the L1 or the L2 either; ii) There are important individual differences in both years. There are four subjects who did not use elements from other languages in the 4<sup>th</sup> year and one of the subjects used 38 utterances in Basque and/or Spanish. In the case of the 6<sup>th</sup> year the differences are also important and go from 9 to 50; iii) It is necessary to distinguish between transfer lapses and interactional strategies because they may have different implications for the organization of the multilingual lexicon. The separate analysis of these two types of strategies that we present in tables 2 and 3 will show the importance of this distinction. In these tables we present the percentages of cross-linguistic influence for the two types of strategies and the supplier language. In the case of transfer lapses, the percentage of utterances containing elements from Basque, Spanish and both languages in the same utterance (Basq./Span.) was calculated for each of the subjects (transfer lapses from each language/total number of transfer lapses) and then the mean percentages corresponding to the two courses were compared. The same procedure was used in the case of interactional

strategies (interactional strategies from each language/total number of interactional strategies).

Table 2. Percentages of transfer lapses and supplier languages in the 4<sup>th</sup> and 6<sup>th</sup> years

	4 <sup>th</sup> YEAR		6 <sup>th</sup> YEAR			
	Mean	SD	Mean	SD	T-test	Sig
BASQUE	14.79	31.42	26.78	44.35	-1.80	.09
SPANISH	67.91	41.29	72.61	37.89	-.386	.71
BASQ./SPAN.	2.50	7.90	5.35	14.47	-1.00	.35

The T-tests indicate that there are no significant differences between the 4<sup>th</sup> and the 6<sup>th</sup> years with respect to the percentage of terms taken from Basque, Spanish or both languages. Most terms are transferred from Spanish and that the percentage of utterances containing terms from both Basque and Spanish in the target language is very low in both years.

In the case of interactional strategies the following results were obtained:

Table 3. Interactional strategies and supplier languages in the 4<sup>th</sup> and 6<sup>th</sup> years

	4 <sup>th</sup> YEAR		6 <sup>th</sup> YEAR			
	Mean	SD	Mean	SD	T-test	Sig
BASQUE	80.53	27.62	83.89	16.48	.065	.94
SPANISH	5.24	10.53	5.53	11.09	-.403	.69
BASQ./SPAN.	14.21	27.44	10.56	15.17	.149	.88

In this case the T-tests also indicate that the differences between the 4<sup>th</sup> and the 6<sup>th</sup> year are not significant, that is, there are no differences in the percentages that reflect the use of Basque, Spanish or both languages as suppliers. When the source language of transfer was examined it was observed that Basque is the most important supplier in the case of interactional strategies while Spanish is not very common.

The relative proportion of transfer lapses is 22.4% of the total of cross-linguistic influence in the 4<sup>th</sup> year (77.6% are interactional strategies) but this relative proportion of transfer lapses is much lower in the 6<sup>th</sup> year (8.86%) while most of the cross-linguistic influence are interactional strategies (91.14%).

## DISCUSSION

The results obtained in this study indicate that the total percentage of utterances including elements from other languages increases by the 6<sup>th</sup> year.



They also indicate that Basque is the default supplier when learners use interactional strategies but Spanish is the default supplier in the case of transfer lapses. The results also show that the two languages have the same functions in the 4<sup>th</sup> and 6<sup>th</sup> years. What do these data tell us about the organization of the multilingual lexicon?

It is necessary to distinguish between transfer lapses and interactional strategies because they reflect different levels of awareness that can be relevant for the organization of the multilingual lexicon. Learners use Basque as the supplier language when they face problems retrieving the English words and they try to get information from their interlocutor. Their utterances included silent and filled pauses before switching languages and this seems to indicate that their level of awareness about the choice of the language was high and they allowed some time to decide the language to be used. The use of Basque seems to be influenced by the characteristics of the context and could be influenced by the use of Basque as the school language, the knowledge of Basque by the interlocutor or the relatively informal context in which the conversation took place. English could be the most appropriate language in the context but learners decide to use Basque because it is easier to ask a question either in Basque (or Spanish) than in English and because Basque is more appropriate than Spanish in the school context. It seems that as far as interactional strategies are concerned the conversation takes place in a bilingual mode in which most of the time two of the three languages are activated.

Learners use Spanish as the supplier language in the case of transfer lapses when their level of awareness is lower and they allow less time to monitor their productions. The use of Spanish has been discussed elsewhere as related to typological distance and the general use of Spanish as the default language in society and its possible effect on the multilingual lexicon (see Cenoz 2001, 2003). It seems that the immediate context which defines language mode does not affect the supplier language in the same way when the speaker has fewer possibilities to control his/her production. In the case of transfer lapses, learners get the elements that are more easily available for them rather than making a more conscious decision to ask the interlocutor for help. Because of the time constraints associated with oral production and the lower level of awareness they don't use the second most appropriate language in the context but the language that is more readily available. It is interesting to observe that, as Dijkstra reports (2003), the language mode hypothesis is not confirmed in the case of laboratory experiments with trilinguals because the

three languages are activated in a 'monolingual' context. Our results also indicate that the immediate context in which the conversation takes place (bilingual Basque-English in this study) does not avoid the activation of Spanish, that is, the three languages are activated in a context in which we could expect only two languages to be activated. Our results indicate that factors such as linguistic typology (Spanish is typologically closer to English than Basque), general sociolinguistic context (Spanish is the majority language) or individual differences can be more important than the immediate context when cross-linguistic influence is analysed.

The results of this study also indicate that the association of transfer lapses and interactional strategies with different languages is quite fixed. These results confirm previous findings with different age groups in the case of transfer lapses (Cenoz, 2001). The main difference between the 4<sup>th</sup> and the 6<sup>th</sup> year is the number of interactional strategies and it seems to indicate that learners in the 6<sup>th</sup> year are more confident to ask for help from their interlocutor. It could be expected that elements from the specific context in which the production takes place could affect the use of interactional strategies, for example if the interlocutor does not speak Basque, learners could ask for help in Spanish. Transfer lapses are less likely to be affected by the language mode if we take into account that Spanish is not the 'expected' contextual language in the setting in which the data were collected and that Spanish was the supplier language in both the 4<sup>th</sup> and 6<sup>th</sup> year. It has also been consistently found in other studies that Spanish is the main supplier for different age groups both when Basque and Spanish are the first languages (Cenoz, 2001, 2003).

This study also shows that it is necessary to distinguish the different types of strategies in speech production as related to the activation of these base languages. It also indicates that the three languages are activated at the same time in oral production. The findings reported here are based on a specific combination of languages in a specific sociolinguistic context using a specific research methodology and therefore cannot be generalized to all cases of L3 production. The organization of the multilingual lexicon is complex and both laboratory studies and oral production data on different languages are necessary in order to see whether the theoretical proposals are born out and to increase our knowledge of the structure of the multilingual lexicon.

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