# Cross-linguistic Influence in Third Language Acquisition: Factors Influencing Interlanguage Transfer

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## INTRODUCTION

In the field of Second Language Acquisition (SLA), the role of transfer has been theorized and studied to account for the influence of the native language on an interlanguage. However, stemming from behaviorist mentality, the concept of *transfer* has become widely associated with the direct transfer of habits and fails to take into consideration other cross-linguistic influences (CLI) that shape or are shaped by the interlanguage, such as avoidance, 'reverse transfer' from a learner's second language (L2) to native language (L1), *perception* of linguistic distance, and interlanguage transfer. Thus, the reductionist analysis of direct L1 to L2 transfer is no longer sufficient to account for the parallel activation of languages in multilinguals.

With this in mind, although SLA has expanded to include other factors involved in cross-linguistic influences and has provided invaluable insights into the cognitive dimensions of language learners, the study of language learning exclusively through first and second language acquisition does not offer an understanding of the *full* capacity of humans to acquire language(s). As multilingualism is becoming more of a norm than an exception, SLA researchers now consider the ways in which *all* linguistic systems in a learner's mind—L1, L2, L3, or so on— may be simultaneously interacting and competing in production. To acknowledge the unique and complex cognitive development of multilinguals, a wave of research has been conducted to extend our theoretical perspective of CLI to include interlanguage transfer, the carryover of a linguistic feature from one *interlanguage* system to another. This research in third language acquisition (TLA), an offshoot of SLA that concentrates specifically on the acquisition of a subsequent language *beyond the second*, may enhance our understanding of cross-linguistic influences in particular and acquisition processes in general.

According to Sanz (2000), "The need to examine L3 acquisition in bilingual contexts from multiple perspectives is determined by the number of variables involved and their multiple interactions, making L3 acquisition a highly complex phenomenon" (p. 37). As stated above, due to the extensive number of additional variables available to learners at the onset of L3 acquisition and all potential interactions that can occur between them, current research in this area has demonstrated the distinct and contentious nature of this domain of study. Nevertheless, an investigation of some of the research on L3 cross-linguistic influences can potentially reveal the role of transfer[2] in general and the factors that contribute to the transferability of language items between interlanguages (e.g., psychotypology, L2 status, etc.) in L3 acquisition.

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[2] For the purposes of this paper, *transfer* will be not be used in the behaviorist sense of the word but instead be used interchangeably with CLI.

A general theoretical overview will be presented in the first section of this paper in order to provide background knowledge of the current theories on the psycholinguistic factors involved in L3 acquisition. After establishing these theoretical foundations, the paper will then delve into a more in-depth analysis of some prominent studies on the topic of interlanguage transfer. In order to ensure a comprehensive view, the studies range and are organized according to the linguistic domains they assess beginning with a focus on the development of L3 phonology, followed by the development of L3 lexicon and morphology, and finally the development of L3 syntax. The findings from the studies discussed will then be coalesced in the final sections to develop an understanding of interlanguage transfer overall and its role in the broader field of SLA.

## THEORETICAL BACKGROUND ON CLI IN L3 ACQUISITION

Responding to the behaviorist approaches in analyzing the concept of "transfer," Kellerman (1983) questioned the validity of contrastive analysis in predicting what passes on from one language to another, claiming that "not everything that *looks* transferable *is* transferable" (p. 113). Instead, he posited that a learner's unique *perception* of linguistic distance—what he coined *psychotypology*—is a critical factor in determining the transferability of items across languages. This concept humanized language learners, making particularized and contextualized case studies more valuable in examining the complexity of individual language development. With regard to third language acquisition specifically, *psychotypology* is a variable that can potentially determine the source of cross-linguistic influence in multilinguals.

Ringbom's (1987) study of English learners in Finland has played a significant role in demonstrating the influence of psychotypology in third language acquisition. Upon analyzing the results of native Swedish speakers (L2 Finnish) and native Finnish speakers (L2 Swedish) in written English compositions, Ringbom found considerable Swedish and little Finnish influence in the production of both groups of learners. From these findings, he concluded that a learner's perception of similarities—in this case, a typological closeness between English and Swedish—would primarily determine the answer to the "question of 'transfer' vs. lack of transfer" (Ringbom, 1987, p. 109).

On the other hand, Williams and Hammarberg (1998) postulated that "L1 and L2 may play essentially different roles in L3 acquisition" (p. 303). In particular, third-language learners unconsciously assign two roles—the *instrumental* role and the *default supplier* role—to their previously learned languages. The instrumental role is appointed to the language (L1 or L2) with which the speaker identifies and with which the interlocutor associates the speaker, both linguistically and culturally. In contrast, the default supplier role is allocated to the language (L1 or L2) "scoring the highest on all counts" based on four factors: *(psycho)typology*, *L2 status*, *proficiency*, and *recency* (Williams & Hammarberg, 1998, p. 322). This language then becomes the main source of cross-linguistic influence. Based on this study, which will be described in more detail at a later point in this paper, Hammarberg (2001) found that the single subject in the study (Sarah Williams) utilized her L1 mostly for pragmatically functional language shifts and asides (instrumental role) and her L2 for lexical construction attempts in the L3 (default supplier role). In other words, supplementary, metalinguistic comments were expressed in the instrumental language, whereas attempts at formulating the new L3 system were influenced by the default supplier language. Ultimately, Hammarberg (2001) suggested that the L2 was favored

over the L1 as the default supplier role because of its status as L2 (also known as "the foreign language effect," as cited in Cenoz, 2001).

Bardel and Falk (2007) also argued for the power of the L2 status factor. From their study, which isolated the typologically close language and the second language so that they were not one and the same, the authors observed that the L2 status factor was notably stronger than the (psycho)typology factor in L3 acquisition. In support of the L2 transfer hypothesis, which assumed that the L2 would supersede the L1 as a source of transfer, they claimed that "the L2 acts like a filter, making the L1 inaccessible" in TLA (Bardel & Falk, 2007, p. 480).

According to Williams and Hammarberg (1998), as stated previously, two other factors help to determine the default supplier role, which in turn contributes to cross-linguistic influence in the L3: *recency* and *proficiency*. Regarding the former, De Angelis (2007) defined *recency of use* to be "how recently a language was last used" (p. 35). Dewaele's (1998) study, which will also be further explicated in later sections, ascribed the most recently used language *before* the learning of the target language to be the main source of lexical transfer.

In terms of *proficiency*, a term broadly used to refer to either L2 or L3 proficiency, Hammarberg (2005) and Wrembel (2010) both found proficiency in the L3 to largely influence the phonological structure of the L3 learner's production. Their studies revealed that learners at the beginning stages of L3 development transferred distinguishable phonological features of the L2 into L3 production. In contrast, phonological features of their native languages were more apparent as learners became more proficient in the third language. The significance of L2 proficiency was elucidated in Tremblay's (2006) study. Focusing on the acquisition and production of L3 vocabulary, Tremblay found that L2 proficiency did in fact affect the degree to which L2 was activated during L3 production. Therefore, she claimed that a certain level of proficiency in the second language must be reached for it to be influential in the third.

Lastly, metalinguistic awareness can also be a cross-linguistic strategy that propels L3 acquisition. Cummins (1978) studied the development of metalinguistic awareness between monolingual and bilingual children and found that the bilingual children of two distinct age groups recognized the "arbitrary nature of word-referent relationships" and "evaluate[d] nonempirical contradictory statements" (p. 148) better than the monolingual children . In other words, the bilingual children were better able to analyze and adapt to linguistic input and understand certain properties of language than the monolingual children. Although this study did not directly address the implications for L3 acquisition, it can be generalized that third language learners are also able to intuitively pick out the idiosyncrasies of language based on their experiences in learning an L1, L2, and others.

However, Alonso (2002) examined the nature of language transfer through an experimental case study and observed that "borrowing is variable" (p. 89) and, for this reason, unpredictable. Therefore, studies that support these aforementioned theories of third language acquisition require further exploration and a deeper level of analysis. Since multilingualism cannot be accounted for as "a sum of its parts," it is also important to take into consideration the differing methodological practices, skills involved and tested, limitations, and other linguistic, sociological, or procedural circumstances that may influence the results of the studies and our general understanding of interlanguage transfer (Aronin & Bawardi, 2012, p. 19). So as to constrain some of the inconsistencies that naturally stem from situational or technical differences, this paper is organized according to the linguistic domain assessed in the studies.

Accordingly, the source and factors involved in the cross-linguistic influences of L3 phonological development will be investigated in the following section.

## CLI in the Development of L3 Phonology

To understand the source of "accent" in second or third language oral production, Llisterri and Poch-Olivé (1987) conducted three acoustic analyses on bilingual (L1 Catalan-L2 Castilian) and monolingual (Castilian) university students of English or French and assessed the influence of L1 and/or L2 in the production of the students' respective languages of study. Through the use of a Brüel & Kjær 2033 narrow band analyzer, the authors were able to visually compare the production of particular L2 or L3 (French or English) vowels or fricative consonants to the production of Castilian and/or Catalan equivalents. From their results, they found that, even in the case of the bilinguals, both groups seemed to rely entirely on their L1s to produce these particular features in their L2 or L3. Since this study yielded little evidence of influence from the L2 in the case of the bilinguals, Llisterri and Poch-Olivé argued in support of the L1 Transfer Hypothesis in L3 acquisition, which defends a predominantly L1-induced transfer of linguistic forms to a third language.

Having similar objectives, that is, to determine the effects that previously learned languages (L1, L2, or so forth) have on the phonological patterns of a newly developing language system, Llama, Cardoso, and Collins (2008) performed their own quantitative study on the acquisition of L3 phonology and analyzed the linguistic feature of aspiration in the production of 18 adult learners of Spanish as an L3. These participants formed two distinct groups: nine were native speakers of Canadian English (CE) with a high command of Canadian French (CF), while the nine others had the reverse orientation—CF native speakers with a high command of CE. As a constant, all participants had an intermediate level of Spanish as an L3.

Although the three languages of interest in the study (French, English, and Spanish) have a phonological commonality in that they similarly distinguish stop phonemes through voicing, the languages differ in voice onset time (VOT), i.e., the lag time from the release of a stop until voicing for vowel production. English in particular sets itself apart from French and Spanish with regard to VOT values for voiceless stops given that it has a longer lag. Additionally, voiceless stops in stressed, onset position are aspirated in English, which further distinguishes it from both French and Spanish. For this reason, Llama et al. (2008) concluded that French and Spanish are typologically closer to each other than to English in terms of VOT patterns and aspiration.

In order to elicit data, participants were asked to read a list of L3 words and then a list of L2 words. The authors observed that both groups followed the VOT and aspiration patterns of their L2, whether it was English or French. For instance, the native speakers of English aspirated in their L2 (French) 61.4% of the time, which is high considering the fact that French is characterized by unaspirated voiceless stops. In the group's production of their L3 (Spanish), aspiration occurred 63.2% of the time, a statistic comparable to their L2.

Llama et al. (2008) expressed their surprise in the power of the L2 status factor in the selection of a source language, which ultimately influenced the French native speakers to produce VOT and aspiration patterns analogous to English, their L2, when in fact their L1 is typologically closer to the L3 in this phonological category. As a result, in the production of voiceless stops in the L3, both groups resorted to their L2, providing support for L2 status as a strong predictor of the source of cross-linguistic influence in the production of L3.

Potentially shedding light on the contradictory propositions presented in Llisterri and Poch-Olivé's (1987) and Llama et al.'s (2008) studies, Williams and Hammarberg's (1998, 2005) well-known two-year longitudinal case study of adult learner Sarah Williams (SW) provides indispensable information about phonological development in a third language. Before the start of the study, SW's linguistic background was as follows: L1 British English, L2 German (fluent, near-native), L2 French (advanced, non-fluent), and L2 Italian (elementary, non-fluent). In August 1990, SW moved to Sweden and began learning Swedish in a naturalistic context, that is, without formal instruction. Within her first week in Sweden, her narration of a picture story, *Hunden* ('The Dog'), in Swedish was recorded. Since her knowledge of Swedish was minimal at her point of arrival, Hammarberg, who was a native speaker of Swedish, performed the narration first in order to supply some input. SW was recorded thereafter and then recorded again one year later narrating the same picture story.

Perceptual judgments of foreign accent were performed by native Swedes. Overwhelmingly, these Swedes identified two speakers with *different* L1s in the recordings of SW—German in the first recording and English in the second. They provided specific details as to the reasons for their selection, pinpointing sound segments and voice contours in the speakers' production that were phonologically associated with particular languages.

As well as performance data, introspective data were also collected. In recorded one-on-one sessions between SW and Hammarberg, SW was given the opportunity to comment on her general observations concerning her performance. Hammarberg noted SW's consistent remarks regarding her desire not to sound perceptibly English and her preference instead to approach Swedish pronunciation from her knowledge of another foreign sound system—German. In response to a comment about her reluctance to use English in her production of Swedish, SW stated, "Yes, because it would just sound ridiculous." (Williams & Hammarberg, 2005, p. 26).

Based on SW's comments and discernible variance in pronunciation styles through time, Hammarberg (2001) concluded that the initial use of L2 phonology in L3 was SW's conscious effort to "cope with the still too unfamiliar phonetic form of L3" but also "to block L1 influence" (p. 35; Williams & Hammarberg, 2005, p. 27). However, with time, as SW became more proficient in the L3 and less deliberate in her intentions to block her L1, phonological influence from her L1 gradually and unconsciously slipped into her production of Swedish. This phenomenon could potentially explain the contradictory results in the previous two studies, which will be further explicated in the discussion section of this paper.

In support of Williams and Hammarberg's (1998, 2005) findings, Wrembel (2010) maintained that in L3 production, L2 acquisition mechanisms may be reactivated and psychoaffective factors may restrain the L1 as a source of transfer (e.g., Sarah Williams attributing her L1 to be 'non-foreign'). In her own research, Wrembel gathered data from 24 native speakers of Polish who all had good control of German as L2 and had different proficiency levels of English as L3, grouped as either "beginner/elementary" or "pre-intermediate/intermediate" for this study. Their oral production of English was recorded, and perceptual judgments of foreign accent were obtained from 27 language experts.

Wrembel (2010) found that the participants with higher English proficiency were correctly identified more often as Polish native speakers than participants with lower English proficiency (58% for the pre-intermediate/intermediate level and 24% for the beginner/elementary level). On the other hand, the participants with lower proficiency were identified incorrectly as German native speakers in 53% of the cases, which only occurred 17%

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of the time for participants with higher proficiency. Therefore, results in Wrembel's study presented additional support for Williams and Hammarberg's (1998, 2005) findings: L2 seems to be a stronger source of CLI in the initial stages of L3 phonological acquisition and becomes less influential as the L3 develops. However, Wrembel acknowledged that typological similarity between German and English and the recency of use might have also impacted the results.

Though the studies in this section are highly representative for contributing to our current understanding of CLI in L3 phonology, an examination of CLI in other linguistic domains may offer various other possibilities, as can be seen in the next section.

## CLI IN THE DEVELOPMENT OF L3 LEXICON AND MORPHOLOGY

In an attempt to capture and understand the interaction and competition between more than two linguistic systems, specifically in terms of lexical transfer, Cenoz (2001) conducted a cross-sectional study on students in a tri-lingual Basque school. In the Basque Country of northern Spain, Basque is typically the preferred language of instruction, Spanish is the majority language at the community level, and English is taught as a third language. The study had five research questions regarding the influence of Basque and Spanish on the learning of English, but for the purposes of this paper, only two of the questions will be considered in this section: 1) the source language of transfer in English oral production, and 2) the relationship between CLI and the subjects' first language.

The participants of the study were 90 students, equally divided within second, sixth, and ninth grades. The first languages of the participants varied: 44% of the students had Basque as their first language; 23% had Spanish; and 32% had both Basque and Spanish as their first languages. The data sets were made up of the students' oral narrations of the 24-picture story 'Frog, where are you?' (Mayer, 1969, as cited in Cenoz, 2001) in English.

According to the findings, students in *all* age groups were found to be more influenced by Spanish, an Indo-European language like English, than by Basque, a non-Indo-European language. More specifically, Spanish was the source language for about 72% of the total number of transferred linguistic terms. The results also showed, interestingly, that subjects who had Spanish as L1 used Basque as a source language more often than subjects who had Basque as L1. Cenoz (2001) argued that there were two forces that came into play in determining the source language of transfer: typological distance and L2 status. Because Spanish had a dual influence, that is, a status of L2 and a typological closeness to English, Basque L1 speakers were very likely to use Spanish as the source language. Spanish L1 speakers, though, experienced two *opposing* forces. In their case, Basque held its status as the L2, but their native language, Spanish, was typologically closer to the target language. This could explain why they seemed to favor using Basque more than Basque L1 speakers. Ultimately, however, Spanish was still their main source of language of transfer, indicating that "the influence of linguistic distance is stronger than that of L2 status" (Cenoz, 2001, p. 18).

Methodologically distinct but designed to answer similar questions about interlanguage transfer, De Angelis and Selinker (2001) performed a longitudinal study on two adult multilinguals. Their objective was to determine the circumstances in which transfer from a particular interlanguage took precedence over the native language or other language systems available to the learner. The participants of the study were Subject 1, a 50-year-old French-Canadian woman with interlanguages of English, Spanish, and Italian (in order of acquisition,

not fluency), and Subject 2, a 45-year-old British man with interlanguages of Spanish and Italian. The oral production of Italian from both subjects was analyzed and presented as data.

De Angelis and Selinker (2001) attributed the presence of lexical and morphological interlanguage transfer in the data to the need to compensate for information deficiencies that arise from incomplete interlanguage systems. Compensatory strategies can be performed consciously, but this study focused on the instances when the subjects were not aware of their own tendencies to transfer and, instead, perceived the words or morphemes in their production to be target-like. The authors posited that when the need for compensation arises, phonologically similar lexemes and morphemes are simultaneously activated to "compete for selection" (De Angelis & Selinker, 2001, p. 51). This competition provides a good explanation as to why linguistic distance is a significant factor in interlanguage transfer: to find the best "compensation" for a gap of information, learners *unconsciously* allow typologically close items in their interlanguages to compete. According to the study, lexical and morphological interlanguage transfer also occurs because of a speaker's instinctive tendency to group "foreign" words, or more generally, "foreign" languages, together. The transfer of items from the interlanguage may be preferred since the speaker inherently perceives that items from his or her native language are not "foreign" enough and, thus, inappropriate to use in the target language. Consequently, De Angelis and Selinker (2001) credited (psycho)typological closeness and L2 status to be particularly dominant in determining the source of cross-linguistic influence in L3 acquisition.

In agreement with De Angelis and Selinker (2001), Wei (2006) also proposed that the transfer of lexemes from a previously learned language to a new developing system is a compensatory strategy for "an incomplete third-language knowledge base" (p. 96). Since the 'lemma' is the unit of language that arbitrates grammatical, phonological, and pragmatic encodings, lemmas are language-specific yet engage parallel processing in the multilingual mind. Wei hypothesized that by reason of "second language experience, assumption and overgeneralisation," L2 lemmas are activated, giving rise to transfer in the L3 (2006, p. 102).

Four adult learners were studied, two with L1 Chinese/L2 English/L3 German and two with L1 Japanese/L2 English/L3 Chinese. Both sets of learners were at advanced level in their second languages and at an intermediate level in their third languages. From the data, Wei (2006) found that when speakers lacked a particular third language lexical item, they resorted to similar lexemes from their knowledge of other languages. An example from each language group, along with the correct sentence (in brackets) and the English gloss, are provided below.

*(Target: German L3, with English L2)*
(1)      *Sie anrufte ihn einen Lügner. (Sie schimpfte ihn einen Lügner.)
         'She called him a liar.'

*(Target: Chinese L3, with English L2)*
(2)      *ni keyi dianhua ta. (ni keyi da dianhua gei ta./ ni keyi gei ta da dianhua.)
         'You can call him.'

In example (1), the speaker directly transferred the lemma for 'call' in English to German. Whereas in English, 'call' can be used in both cases ('to call someone on the phone' or 'to call someone a name,' as in an insult), the use of the English lemma 'call' does not transfer

accurately to German in the latter case. Instead, another verb, such as 'schimpften' ('to scold' in English), should be used to appropriately convey the speaker's intended meaning. In example (2), another speaker also inappropriately used the English lemma 'call' but, this time, in Chinese. In English, 'to communicate with by telephone' can be expressed through the verb 'to call,' but in Chinese, the action of 'making the call' has to be conveyed through the verb phrase 'da ('make') dianhua ('phone')' followed by the preposition 'gei' ('to') and an object.

From this study, Wei (2006) discovered that because learners had an incomplete knowledge of lemma specifications at the *abstract* lexical level in the third language, most of them transferred lemmas from their second languages—in this case, a common second language, English—instead of their first languages. Wei claimed that most lemmas selected for the L3 were based on the second language because of an overgeneralization of lemma specifications, thus substantiating the L2 status as the main source of lemma transfer in third language acquisition.

In contrast to Wei's (2006) study, which produced results supporting the L2 status factor in lemma transfer, a study by Dewaele (1998) would not prove to be as conclusive but could be just as revealing. Dewaele carried out both qualitative and quantitative analyses to find the sources that contribute to non-target-like lexemes ('lexical inventions') in oral French interlanguage. The participants were 39 Dutch L1 speakers, 32 of whom had French as an L2 and English as an L3, the remaining 7 speakers having English as an L2 and French as an L3.[3] Three kinds of experiments were conducted: 1) informal discussion sessions, 2) informal conversational interviews, and 3) formal oral tests and interviews.

Dewaele (1998) divided the sources of transfer into two categories: intralingual strategies (i.e., slips of the tongue or lexical inventions) and interlingual transfer (i.e., transfer from IL English, L1 Dutch, or both). The results of his study presented two sets of findings: 1) overall, the French L2 speakers generally produced many lexical inventions based on intralingual strategies, whereas the French L3 speakers produced a higher number of lexical non-target-like forms centered on interlingual strategies; 2) in considering only the interlingual sources, the French L2 speakers (who had English as an L3) transferred more from Dutch, their L1, while the French L3 speakers transferred more from English, their L2. Dewaele commented that the evidence from these findings only presented a *product* and that we could only "guess" about the possible underlying psycholinguistic processes that were involved (1998, p. 488). Despite the lack of a causal analysis, we will later see that the findings from this study have implications for the conclusions that we can draw about interlanguage transfer in general. Prior to this, however, cross-linguistic influence in L3 syntactical development will be explored in the next section.

## CLI IN THE DEVELOPMENT OF L3 SYNTAX

In order to build upon an understanding of cross-linguistic influences in *second language* acquisition, Flynn, Foley, and Vinnitskaya (2004) conducted an L3 acquisition study that replicated earlier L2 acquisition studies by Flynn (1983, 1987). In these prior studies, Flynn tested two groups of adult L2 English learners (L1 Japanese and L1 Spanish) and a control group of children learning English as an L1 on their developing knowledge of the three types of relative

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[3] Although Dutch and English belong to the Germanic family of languages and French to the Romance family, all three share a good number of cognates, particularly English and French.

clauses in English.[4] In child L1 acquisition, it was discovered that the free relative clause construction was dominant. In addition, Flynn also found that since Japanese was a head-final, left-branching language, unlike English and Spanish, the L1 Japanese participants also tended to utilize the free relative clause construction in English, which resultantly appeared to be a developmental precursor to the lexically headed form. For the Spanish speakers, though, this form did not emerge as a developmental precursor since, like Spanish, English was head-initial and right branching.

Flynn et al. (2004) then carried out a new study, this time on third language acquisition. In this study of L1 Kazakh/L2 Russian/L3 English participants (33 adults and 30 children), the authors wanted to determine if there was a privileged role for the L1 and if typological differences did in fact determine developmental patterns in L3/L*n* acquisition. They posed that if this were the case, Kazakh native speakers would resort to free relative clause construction as the Japanese native speakers had done in the previous study since Kazakh followed a similar head direction. On the other hand, if the L1 had no such role and if the Kazakh native speakers were able to acquire and incorporate the head direction structure of their L2 (Russian, head-initial), the Kazakh native speakers would display the acquisition patterns similar to the Spanish speakers in the first study.

The results of their study presented evidence of the latter supposition—the adult participants were equally productive in all three relative clause types. The children participants, conversely, relied more on the free relative type, thus following the same developmental pattern as the children and Japanese speakers in the first study. Using evidence from the current study, the authors proposed their *Cumulative-Enhancement Model* (CEM), which affirmed that each language in a learner's repertoire is "perhaps equally available for playing some role in subsequent language learning" (Flynn et al., 2004, p. 5). The cumulative "enhancement," or facilitation, that prior languages impart on the acquisition of a subsequent language should, as the CEM maintains, only *aid* the process or not affect it at all (positive or neutral effect). In consequence, this model neglects the possibility of negative transfer.

Taking Flynn et al.'s (2004) CEM model into consideration and integrating it into their own study, Bardel and Falk (2007) posed four conflicting hypotheses in a study regarding the placement of negation in the initial state of L3 Swedish and Dutch. Both target languages (Swedish and Dutch) follow the verb second (or V2) rule, a syntactic principle of word order in which sentence negation is post-verbal and the verb is raised to the second position in the main clause. The design of their data collection consisted of two groups: the first group of participants had a V2 language as L1 and non-V2 language as L2, while the second had a non-V2 language as L1 and a V2 language as L2. This particular model allowed the authors to isolate the variables and determine the precise source of CLI in the acquisition of negation placement, in turn providing support to one of the four hypotheses:

1) *Non-transfer hypothesis*—all learners follow a similar pattern of development;
2) *L1 transfer hypothesis*—features of the L1 are transferred (learners with a V2 language as L1 will perform better);

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[4] The three types are as follows: 1) lexically headed, head with semantic content (e.g., "Big Bird pushes the balloon [which bumps Ernie]"); 2) lexically headed, head with no semantic content (e.g., "Ernie pushes the thing [which touches Big Bird]"); 3) free relative (e.g., "Cookie Monster hits [what pushes Big Bird]"). (Flynn *et al.*, 2004, p. 6).

3) *L2 transfer hypothesis*—features of the L2 are transferred (learners with a V2 language as L2 will perform better);

4) *Transfer based on the Cumulative Enhancement Model* (Flynn et al., 2004)—both groups will do equally well since participants in each group have already acquired a V2 language, whether as L1 or L2.

The results of the study presented evidence that the group with a V2 L2 (hence a non-V2 L1) performed significantly better than the other group (V2 L1 and non-V2 L2). From this information, we can assume that most transfer occurred from L2 to L3 regardless of language background. Bardel and Falk concluded, therefore, that only hypothesis 3 was substantiated by the data, which demonstrates the force of L2 status against the typological proximity of L1 and L3. This study cast doubt on the impossibility of negative transfer and the *equal* accessibility of both the L1 and L2 in assisting the acquisition of a third, both of which contribute to the stance upheld in the CEM (Flynn et al., 2004).

In support of Bardel and Falk's (2007) study, Rothman and Cabrelli Amaro (2010) based their own study on three of the same hypotheses—the L1 transfer hypothesis, the L2 transfer hypothesis, and the CEM—with regard to the acquisition of null-subject properties in two groups of L3 learners (L1 English/L2 Spanish/L3 French and L1 English/L2 Spanish/L3 Italian) and two groups of L2 learners (L1 English/L2 French and L1 English/L2 Italian). In terms of null-subject or pro-drop[5] characteristics and discourse-pragmatic restrictions on overt pronoun use, the typologically similar languages are Italian and Spanish, while English and French are more typologically distant. The participants were given a grammaticality judgment/correction task and a sentence-context matching task at the onset of language learning.

For both tasks, the L3 groups followed a consistent pattern of incorporating a null-subject grammar, ultimately in line with Italian but not French. Rothman and Cabrelli Amaro (2010) noted that although the L3 French and L3 Italian groups performed "quite similarly," the L2 French and the L3 French groups performed "remarkably different," (p. 208) namely in that the L2 group performed accurately in accord with a non-null-subject grammar, which validates the influence of the L2 status factor of Spanish in this study. However, according to the authors, 'psychotypology' can also be a possible explanation since on the whole Spanish is typologically closer to Italian and French than English. Rothman and Cabrelli Amaro (2010) could not determine *a posteriori* which of the two had a stronger effect, but they were able to definitively say that their study provided no evidence in support of the L1 transfer hypothesis or the CEM.

Rast (2010) also saw the importance of collecting data at the true beginning of the TL acquisition process since CLI decreases as knowledge of the TL increases. Rast's study analyzed CLI on French native speakers, who had knowledge of at least one other language, in their first exposure of Polish. The participants consisted of two distinct groups: one group (henceforth *learners*) attended a specially designed Polish course, and the other group (henceforth *first exposure*) made up of participants whose first exposure to Polish was the language task in the study. All participants were native speakers of French, had intermediate to advanced levels of English (L2), and in most cases, knew at least one other language.

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[5] A language is considered "null-subject" or "pro-drop" language if certain pronouns can or should be omitted based on pragmatically defined conditions.

After 1h30 of Polish instruction, which excluded any explicit teaching of negation, the learners were tested on their placement of Polish clausal negators relative to verbs. The study found that *all* those with knowledge of Russian, a typologically similar language to Polish, placed the negator in pre-verbal position, and those without knowledge of Russian replied in a number of ways. For instance, the participants who knew German were inclined to place the negator after the verb, while those who knew Spanish, Portuguese, or Italian leaned toward placing the negator before the verb. These findings demonstrated that learners would search for information from previous linguistic knowledge and activate the structure in their TL, which in the end, may benefit or hinder their efforts in producing an accurate form.

A few other tests, which assessed learners on verbal morphology and oral sentence translation, were conducted and all confirmed the positive effects of knowing some Russian in learning Polish. The written sentence translation test was administered to first exposure participants and provided similar results. Despite these findings, Rast (2010) suggested that future research needed to be done in order to understand the extent to which learners use specific linguistic information when attempting to understand information in the TL.

## DISCUSSION

To provide a comprehensive understanding of the current knowledge in third language acquisition, the studies investigated in this paper were selected based on the range of linguistic domains they cover—phonology, lexicon/morphology, and syntax—and the range of theoretical viewpoints they substantiate supported by their data and findings. Thus, to ensure a complete but not overgeneralized perspective, the studies will be analyzed in relation to one another but continue to be evaluated within their respective linguistic domains.

In the domain of phonology, Llisterri and Poch-Olivé (1987) and Llama et al.'s (2008) quantitative studies presented contradictory results. The former measured and compared the vowel and fricative consonant production of monolingual (Castilian) and bilingual (Catalan-Castilian) participants in French and English and found that the transfer of acoustic features was predominately affected by the L1; in contrast, the latter study by Llama et al. analyzed the influence of English and French (as either L1 or L2) on VOT and aspiration in L3 Spanish production. This second study, in the end, reported a strong influence from the L2.

However, the findings presented in the studies by Williams and Hammarberg (1998, 2005) and Wrembel (2010) may illuminate a potential reason for the seemingly paradoxical conclusions in the abovementioned two studies. These authors found that at the onset and beginning stages of L3 acquisition, learners transfer the phonological system of their L2 to their L3 as a coping mechanism. As learners develop in proficiency, though, their phonological parameters shift back to L1 requirements, which was seen both in Hammarberg's study of Sarah Williams and Wrembel's study of L1 Polish/L2 German/L3 English speakers. Upon closer investigation, it was discovered that most of the participants in Llisterri and Poch-Olivé's (1987) study were university students *of* the L3s (French and English)—that is, they were French and English majors—and, therefore, were highly proficient in the target language. The participants in Llama et al.'s (2008) study, on the other hand, had an intermediate level of their L3 (Spanish). From this information, *both* sets of results were, in fact, consistent with the L2 to L1 shift in L3 phonological development, posed by Williams and Hammarberg (1998, 2005) and Wrembel (2010).

By no means is it suggested that this theoretical perspective on L3 phonological development is the *only* viable perspective. Further research ought to be conducted to confirm its robustness in this linguistic domain of third language acquisition. Additional questions regarding the intricacies of this phenomenon (e.g., the point at which the learner shifts from L2 to L1 phonological transfer) should also be posed and examined.

In the domains of lexicon and morphology, the studies by Cenoz (2001) and De Angelis and Selinker (2001) both ascribe the presence of interlanguage transfer to two consistent factors: (1) Kellerman's *psychotypology*, and (2) the "foreign language effect" (Cenoz, 2001) or "foreign language mode" (De Angelis & Selinker, 1998). The studies showed how both factors were directly related to each learner's individualized *perception* of the relationship between the interlanguage and the target language. If a learner perceived that a certain interlanguage (with L2 status) was typologically closer to the target language, he or she would tend to transfer forms and functions from this interlanguage to the target language (e.g., Spanish to English in Cenoz's study; and Spanish to Italian in De Angelis and Selinker's study). However, if there was a conflict between these two factors (i.e., if the *native language* was typologically closer to the target language than the L2), then the results for transfer would vary more, but the studies generally agreed that psychotypology still reigns as the main factor in transfer. Ultimately, psychotypology and the foreign language effect may influence the speaker's decision, whether conscious or unconscious, to transfer from either a certain interlanguage or the native language.

Nevertheless, the findings in Wei's (2006) study on the topic of lemma transfer accredit the L2 status factor as having more influence on CLI in third language acquisition. In contrast to De Angelis and Selinker (2001), who focused on the perceivable lexical and morphological similarities between languages, Wei analyzed a more abstract level of lemma transfer. He concluded that at this level, learners activated lemmas from the L2 rather than the L1 because of the association of the second language learning experience and the overgeneralization of lemmas in the multilingual mental lexicon.

However, despite the widespread acceptance of psychotypology and L2 status as the main sources for interlanguage transfer in the domains of lexicon and morphology, other factors, including recentness of learning/use, proficiency levels of non-primary languages, exposure to the non-native language environment, and order of acquisition, should also be considered. For instance, in looking at De Angelis and Selinker's (2001) study, we see that the two subjects both transferred lexical and morphological items from Spanish to Italian since it was assumed that they perceived these languages to be typologically similar. However, it should be noted that Spanish, for both participants, was also the most recent language they had learned *before* learning Italian. Therefore, the recentness of learning can impact the tendency of the participants to transfer from Spanish as opposed to other interlanguages or their native languages. Dewaele's (1998) study also provided interesting findings on the importance of the recentness factor. In his study, it was learned that L2 French participants mostly produced 'lexical inventions' from either intralingual sources (e.g., overgeneralizing in the target language) or their Dutch L1. Little transfer was done from their English L3. In contrast, the L3 French participants produced more forms that could be traced to their English L2, whether for the reason of 'psychotypology,' L2 status, recentness of use, or a combination of all these factors. As a result, the L2 French participants' lack of transfer from a later learned language (one that is learned *after* the target language) proves how the recentness of use can also be central in determining the choice of language for transfer. However, because there is no conclusive evidence that explains which

factor is the most influential, it can only be assumed that *all* of them have at least a minimal effect in ultimately determining the source of CLI.

In the domain of syntax, Flynn et al. (2004) presented data that corroborated with their *Cumulative-Enhancement Model*. This model posits that all previously learned languages are *equally* available for the acquisition of a subsequent language and, thus, can only be facilitative in terms of transfer. The authors established that the participants in their study were able to successfully utilize previously acquired language-specific knowledge in a new linguistic system.

In response to this study, Bardel and Falk (2007) and Rothman and Cabrelli Amaro (2010) evaluated the validity of the claims implicated by the CEM. Their studies illustrated that negative transfer does in fact occur in third language acquisition. Based on their findings, the authors of both studies substantiated the strength of the status of the L2 as a "foreign" language. By isolating the typological similarity variable from the L2 status variable in the design of their study, which was not done in Flynn et al.'s (2004) study, Bardel and Falk (2007) showed how the status of L2, that is, the unconscious desire to group "foreign languages" together, could influence learners to disassociate languages based on typology and, essentially, transfer "wrong" or inaccurate features from the L2. Rothman and Cabrelli Amaro (2010) claimed that their own study and findings supported the conclusions determined by Bardel and Falk (2007). However, they also determined that because the L2 (Spanish) for the two participant groups was also more typologically similar to the L3s (French and Italian), then (psycho)typology might have also favored it as the source of transfer.

Rast's (2010) findings also backed psychotypology and L2 status as the most influential factors involved in CLI. In spite of this, Rast also recognized that the participants in the study commonly followed the negation structure of their most recently learned language *before* the target language. Although Rast attributed the transfer from Russian to the typological similarity of the two languages, for participants who did not have knowledge of a Slavic language, recency of learning was the next best indicator of transfer. Therefore, the results in this study also illuminate the significance of recency as a factor in syntactic interlanguage transfer.

## CONCLUSION

The studies presented in this paper have provided valuable contributions to a better understanding of the factors that influence interlanguage transfer within various linguistic domains. However, more research needs to be done in order to have a stronger grasp of the weight of interlanguage transfer in the learning of a third (or *n*th) language. As it can be seen from our discussion, the source of cross-linguistic influence varied considerably depending on the languages being tested, the methodology of the study, the linguistic environment of the participants, the domain of language analyzed, and other overlooked factors. Therefore, the goal of this paper was not to determine a single source that contributes to CLI in third language acquisition; rather, the purpose was to develop a better understanding as to how the factor*s* that determine the source of CLI in third language acquisition interact, whether in corroboration or contradiction with one another and what the implications are for successful L3 acquisition.

Other factors outside of psychotypological distance, the L2 status effect, proficiency, or recency may need to be considered and included in future studies regarding CLI in third language acquisition. For instance, one research question in Cenoz's (2001) study, which was not mentioned in this paper, involved the variability of results based on age. According to her

findings, older students were better able to perceive that Spanish and English were typologically closer than younger students. Therefore, age was also a large contributing factor in the results and must be further investigated in subsequent studies. In addition, Flynn et al. (2004) mentioned a need to compare L2-L3 *sequential* acquisition and L2-L3 *simultaneous* acquisition since this may also be a reason for the variability in findings.

A large area of interest that also merits more attention involves the significance of *metalinguistic awareness* in third language acquisition. Some research has already been conducted (Klein, 1995; Rauch, Naumann, & Jude, 2011; Sanz, 2000). These studies contended that the *experience* of learning an additional language beyond the first could constructively contribute to the learning of subsequent languages. Hence, the sheer participatory factor in learning how to acquire language-learning strategies should also be further explored in future research.

Lastly, it may also be essential to consider individual differences in the study of cross-linguistic influences. For instance, in Rast's (2010) study, individual variability was quite evident in the results. Some participants appeared sensitized to verbal morphology after only a few hours of exposure, while some others showed little development. Moreover, in Cenoz's (2001) study, only 50%, 45 students, used interlanguage transfer as a compensatory strategy. What strategies did the other half partake in? What accounts for these differences? According to De Angelis and Selinker (2001), "a multilingual [has] unique linguistic configurations, often depending on individual history" (p. 45). For this reason, further research must be conducted to answer these questions and to widen the scope and understanding of interlanguage transfer and, more broadly, cross-linguistic influences in language learning.

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