



## **The Acquisition of French (L3) Orthography by Persian (L1) Speakers Learning English (L2)**

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### **Abstract**

Learning the third language is one of the issues that has attracted much attention in recent years. In this research, the influence of Persian language as a mother tongue and English as a second language on the correct orthography of French as a third language is studied. This study investigates three hypotheses of transfer, L1 Transfer Hypothesis, L2 Status Factor, and Cumulative Enhancement Model. We examined the role of voice and text in correct orthography of the third language. This study accounts for the acquisition of coda consonant clusters of French by Persian EFL learners. Twenty-two participants of two levels of pre- and upper-intermediate of English proficiency and beginner level French proficiency were selected. In this study, first we measured the level of learners' English knowledge by the Oxford Quick Placement Test and then we studied the effectiveness of the first and second languages on the third language learning by the Production test, and the Grammatically Judgment Test. The results of the transfer effect provided a major role for the 'CEM'. The overall results of the two groups' performance were not significant, which in turn reflected the fact that L2 proficiency had no effect on the acquisition of French orthography.

**Keywords:** L3 Orthography, Cumulative Enhancement Model, L2 Status Factor Hypothesis, L1 Status Factor Hypothesis, syllable structure

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## Introduction

Every language has its own unique syllable structure, though there may be some differences and similarities between them, e.g. Persian, English, and French's syllable structures are CV (C) (C), (C) (C) (C) V (C) (C) (C) (C) and (C) (C) (C) V (C) (C) (C), respectively. One of the important factors in the correct orthography of the written and spoken language are syllables and words of that language. In a language there may be voices that are pronounced but not written. For example: the word 'bite' which has three voices is written with four letters. Learning the third language is one of the issues that has attracted much attention in recent years. In this research the influence of Persian language as a mother tongue and English as a second language on the correct orthography of French as a third language is studied. The problem in this study is that how the linguistic background of the third language learner plays a role in learning the correct orthography of the French language. The difference among syllable structure of various languages may be huge or slight, and regarding this fact, learning of L2 and L3 syllable structure could be a challenging task for language learners. Similarities and differences between these three languages can also be expressed in details, as follows: by considering coda, these three languages are similar that is they allow one- and two-consonant coda cluster. Considering the differences, we can say that whereas Persian does not allow any vowel initially, English and French's syllable structure can begin with vowel. Moreover, while Persian allows maximum two-consonant coda cluster, English and French allow two- and three-consonant coda cluster. One more difference is that there is no four-consonant coda cluster in Persian and French. Table 1.1 provides a summary of these similarities and differences.

**Table 1.1.** Similarities and differences in Persian, English and French's Coda Cluster

Persian	English	French
CV	V	V
V(C)	V(C)	V(C)
V(CC)	V(CC)	V(CC)
-----	V(CCC)	V(CCC)
-----	V(CCCC)	-----

While many studies have been conducted to assess the relative contribution of L1 in L2, the study of the acquisition of subsequent languages and the relative impact of each language on another is nearly new. Several studies have been done in relation to the three models of L3 acquisition, but the hesitation still exist in relation to whether transfer comes from learners' L1 (L1 Factor Hypothesis), L2 (L2 Status Factor), or combination of L1 and L2 into L3 (Cumulative Enhancement Model). The results of this study can have a significant effect on learning, teaching, and writing of the third language, as well as it could be beneficial for the Iranian learners

of third language (French) who have previously acquired English as a second language.

Familiarity with the three above-mentioned theories helps educators learn more about teaching and improve the speed and process of the writing of the language learners. The results of this research can be useful for second language and third language scholars as well as for writing the new French textbooks for Persian speakers. Based on the findings, teachers will be able to take a critical look at what is happening in the L3 French coda acquisition process, and therefore teach more effectively. It also increases the learners' awareness of the differences that may exist between the languages they want to learn. In addition, readers may get benefits by focusing on the similarities and differences between the three languages, Persian, English, and French specified in this study.

This study was also conducted relying on models of L3 acquisition namely, "L1 Status Factor Hypothesis" (Hakansson, Pienemann, & Sayheli, 2002), "L2 Status Factor Hypothesis" (Bardel & Falk, 2007, 2011), and "Cumulative Enhancement Model" (Flynn et al, 2004). Based on the findings, one is able to find an evidence for or against the above-mentioned models and determine which one has a greater role in the L3 acquisition of learners. In fact, the aim was to examine the critical effect of L1, L2, or the combinations of L1 and L2 into French L3 in the acquisition of orthography under the study. Another important factor considered in this study was the degree in which learners' L2 proficiency contributed to cross-linguistic influence in the acquisition of L3 orthography. In other words, the relationship between the learners' L2 proficiency and L3 acquisition was another factor that was investigated in this study. This study also investigates the role of L2 proficiency in acquiring French orthography and identifies some difficulties the learners are faced with in the process of learning L3.

### **Review of Literature**

The aim of this part is to establish a theoretical background and framework for the present study by reviewing properties related to the cross-linguistic influence and transfer hypotheses proposed in the area of third language acquisition.

Murphy (2003) stated that transfer effects divided to two sets of variables: learner-based variables (age, proficiency, language mode, and sociolinguistic context of use) and language based variables (typology, nature of linguistic phenomenon, and its frequency). Generally, although the role and interaction of some variables such as language mode, language proficiency, and typological similarity have proved to be different in third and second language acquisition, the mentioned variables play a prominent role in L3 acquisition (Cenoz, De Angeles & Selinker, 2001; Hammarberg, 2001; Ringbom, 2001)

Moreover, other variables such as "foreign language effect" (Selinker & Baumgarten-Cohen, 1995) and "last language effect" (Shanon, 1991) are related to the third language acquisition and also indicate which of the previous learned languages will be activated and transferred in the process of L3 acquisition.

Williams and Hammarberg (1998) state some of the factors influencing transfer in L3 acquisition in the following section.

### **Typology**

Typology typically means similarity at some structural levels. Croft (1990) mentioned the term typology to denote the similarity between linguistic features, for example the verb-final property that applies to the non-related languages German and Turkish. Williams and Hammerberg (1998) believe that the contrastive analysis of two languages is gradually waning in the field of language acquisition, and they regard typological distance as one of the crucial factors in language transfer.

### **Proficiency**

The proficiency is reported to be a key factor accounting for transfer. De Angelis (2011) classifies proficiency as proficiency in the target language and proficiency in the source language. With respect to proficiency level in the target language, most researchers agree with the idea that cross linguistic influence or language transfer is more likely to happen at the early stages of acquisition. This is defined as the time when the learners' target language knowledge is still weak and in need of more guidance and development (Sikogukira, 1993; Williams & Hammerberg, 1998).

### **Recency**

In a general sense Falk and Bardel (2011, p. 63) define recency as “the degree of recent contact with a certain background language” that can be referred to as both types of recency of use and recency of acquisition. The notion of “recency of use” refers to how recently a language was last used (De Angelis, 2007, p. 35). According to Anglovskaja and Hahn (2012), it is presumed that the most recently used other non-target language will be activated easier for better access to linguistic information stored in the mind.

### **L2 Status**

Another factor which has been assumed that affect L3 acquisition is “Recency of Acquisition” (L2 status). Being initially proposed by Williams and Hammerberg (1998) and later on by Bardel and Falk (2007), the concept of L2 status is very close in meaning to Foreign Language Effect, which means that the L3 learner prefers to use the previous foreign language rather than his or her mother tongue; in other words, he or she does not see his or her mother tongue foreign enough to be transferred into L3. Recency of acquisition is “a desire to suppress L1 as being non-foreign and to rely rather on an orientation towards a prior L2 as a strategy to approach the L3” (Hammerberg, 2001, pp. 36-37 as cited in Falk, 2010). As Jessner (2008) states, the foreign language effect occurs when an L3 learner chooses

(whether consciously or unconsciously) to activate the first foreign language instead of the first language (i.e. the mother tongue).

On the basis of various studies in the field of third language acquisition, three major theories have been proposed as to the source of transfer: The Cumulative Enhancement Model (CEM, Flynn et al., 2004), the L2 Status Factor Hypothesis (Bardel & Falk, 2011), and the L1 Factor Hypothesis (Håkansson, Pienemann & Sayheli, 2002).

### **Cumulative Enhancement Model (CEM)**

Flynn et al. (2004) propose the Cumulative Enhancement Model (CEM) as one of the sources of transfer during L3 acquisition. According to this hypothesis all previously learned languages (i.e. L1 and L2) are potential sources of transfer, meaning that the L3 learner chooses only the positive structures available in both L1 and L2, and transfers them to L3.

Flynn et al. (2004) argued that any previously acquired language either has a scaffolding effect in the sense that any prior language can either enhance subsequent language acquisition or remains neutral. According to CEM, both L1 and L2 may be sources of transfer; however, the L2 takes precedence over L1 only in cases when the TL form is not present in the L1. In other words, all the previously learned languages can be beneficial in the acquisition of the L3.

### **L2 Status Factor Hypothesis**

L2 status factor hypothesis suggests that the knowledge of the L2 has a positive effect on the acquisition of the L3 and the level of L2 proficiency of learners positively correlates with their performance in the L3 (Jedynak & Pytlarz, 2011). Moreover, the acquisition of the L3 is more likely to be influenced by the prior knowledge of L2 rather than that of L1 (Clyne, 1997; Dewaele, 1998; Ringbom 1987; Williams & Hammerberg, 1998). This influence is emerged, firstly, in the transfer of the L2 structures into the L3; secondly, in use of their enriched general knowledge about the language, which is commonly known as metalinguistic awareness (Thomas, 1992).

### **L1 Transfer Hypothesis**

This hypothesis suggests that it is the L1 which is transferred into L3 during the initial states of the L3 acquisition. Although Na Ranong and Leung (2009), in a study on null-object properties, have demonstrated a privileged role for L1 to be transferred into L3, Garcia-Mayo (2012) argues that “although absolute L1 transfer at the L3 initial state is a logical working hypothesis, there is no study that has clearly argued for such a position in the recent literature on the L3 initial state” (162-191). On the other hand, De Angelis (2007) concludes that transfer can occur from L1 as well as non-native language into an L3; hence we cannot give a privileged priority to L1 to be transferred into L3.

But, contrary to the findings of above mentioned studies, Leung (2005) citing the work of Hawkins (1998, 2000), extended the Failed Factor Hypothesis (FFH) to the L3 acquisition in the initial state, and declared that FFH predicts L1 transfer in L3 initial state.

The acquisition of L3 has been focused on within the context of cross-linguistic influence. However, as far as the researcher is concerned, no one has demanded the acquisition of French orthography as L3 with upper and lower intermediate L2 English proficiency group, and also the structures under study. Therefore, the present study seems unique in its background. Although no similar study has been conducted on the same topic, this section provides a brief overview of studies on cross-linguistic influence (CLI) in L3 acquisition.

Shahmoradi (2013) studied the role of the first language (Persian) and the second language (English) in learning the syllable structures of the third language (France). In this study, learners' skills in the second language were higher and lower than the elementary level and in the third language lower than the elementary level. The results showed that learners tend to transfer syllabic structures from first language to third language. The findings confirmed the L1 Status Factor Hypothesis and the similarity theory of structures.

Dadbakhsh and Jabbari (2016) in their study of learning the structure of the last syllable clusters of the French language (L3) by Persian (L1) Speakers Learners of English (L2) based on the optimality theory examined the optimal learning of the last syllable structure of the French language (L3) by Persian (L1) Speakers Learners of English (L2) and the transition of the last syllable clusters in the early stages of learning third language. The result of the optimality theory was consistent with the results of linguistic transmission and confirmed the L2 Status Factor Hypothesis.

In another study Bardel and Falk (2010) investigated the role of object pronouns and emphasized the role of L2 Status Factor. They divided their subjects in two groups, the participants of one group were native speakers of English with French as their L2; German was the third language of both groups. All the learners were at the intermediate level in both L2 and L3 acquisition. The result of their study showed that object pronoun in L2 has a stronger role than L1 to be transferred into L3. The data did not show any transfer from L1 (Falk & Bardel, 2010). Also the transfer from L2 to L3 was found to be either positive or negative, depending on the similarities or differences between L2 and L3. In this regard, Falk and Bardel (2010) claimed that L2 Status Factor has some sociolinguistic and cognitive reasons behind it, which they listed as "age of onset; outcome; learning situation; metalinguistic awareness; learning strategies present in L2 but not in L1; and awareness of language learning process" (185-219).

Jedynak and Pytlarz (2011) focused on the issue of perception of gender in the case of multiple language acquisition and investigated the influence of the knowledge of Polish (L1) and German (L2) gender systems on the perception and acquisition of gender in the English language (L3). The main purpose of their research was to investigate to what extent a native language and a second language

influence perception of the gender system of a third language. 89 students of the Department of German Studies in Nysa participated in this study. The results proved that L1 is the source of the interference in L3 gender perception and acquisition and also revealed that L2 acts as a significant source of interference. Therefore, the knowledge of the L1 and L2 has a positive effect on the acquisition of the L3 and the level of proficiency in the L2 of learners positively correlates with their performance in the L3.

The Lindquist (2009) study is another study on the role of previously acquired languages in L3 production. The author considers the degree to which L1 Swedish and L2 English influence spoken L3 French. Lindquist examines the cross-linguistic lexemes produced by 30 Swedish learners divided into three proficiency groups according to their exposure to the French. In Lindquist's study, proficiency in the L3 was crucial to determine the number of cross-linguistic lexemes used; the least advanced learners produced the highest number, whereas the most advanced produced the lowest number. Furthermore, the lower the proficiency level of the learners, the more background languages were used and vice versa. Lindquist also found a clear L1 influence.

Chin (2009) investigated the influence of L2 proficiency on the acquisition of L3 Spanish aspectual contrast by two groups of participants: one group included L3 Spanish learners with L1 Chinese and L2 English at high proficiency level. The second group consisted of L3 Spanish learners with L1 Chinese and L2 English at low proficiency level. The results of the study revealed that there was transfer from both the L1 and the L2. Thus, it provided evidence to support the CEM (Flynn et al., 2004). Also, the findings reflected that the L2 proficiency had a limited influence on the acquisition of L3, as the two groups did not perform differently in their recognition of aspectual contrast in English and Spanish. In addition, typological similarities between L2 English and L3 Spanish is claimed to be a reason for the transfer of the semantic contrast from L2 to L3.

### **Research Methodology**

The present study is based on a descriptive-analytic design. In this study, first we measured the level of learners' English knowledge by the Oxford Quick Placement Test and then we studied the effectiveness of the first and second languages on the third language learning by using the designed tests. In the first test, called Production test, we read words to learners in French and they should write correct spelling of words. In the second test, the Grammatically Judgment Test, we read words in French for learners and they should choose the correct word among the options.

The present study was conducted on two groups. The first group consisted of eleven students whose native language was Persian, their level of English proficiency was upper intermediate, and the level of French proficiency was lower intermediate. The second group was the eleven students whose native language was Persian, their level of English proficiency was lower intermediate and the level of

French proficiency was lower intermediate. These students were selected from students of Yazd University. SPSS software was used to analyze the data.

Research Questions:

1. Do French learners transfer spelling structures only from first language to third language?
2. Do French learners transfer spelling structures only from second language to third language?
3. Do learners of the French language transfer the spelling structures from the first and second languages that facilitate the language to the third language?
4. What is the role of the level of second language proficiency in the correct spelling of French as a third language?

### Data Analysis

This section deals with the statistical procedures of organizing and analyzing the obtained data from the administered tests, as well as presenting the outcomes in detail. Tables and figures are also used as the need arises.

### Placement Test

As mentioned in chapter three, OPT was used to serve as a determiner of participants' proficiency in English. The English Oxford Quick Placement Test was given to 22 participants to divide them into two groups of lower intermediate and upper intermediate. The numbers and scores of the selected participants are provided in Table 4.1.

**Table 4.1.** The Participants' Numbers and Scores on the OQPT

Participant	Lower Intermediate	Upper Intermediate
Number	11	11
Scores on OPT	30-39	40-47

### Results of the Grammaticality Judgement Test (GJT)

The participants' total mean performance on the three intended contexts (CEM, L2 status, L1 factor) across two levels (upper and lower intermediate) is depicted in Table 4.2 below.

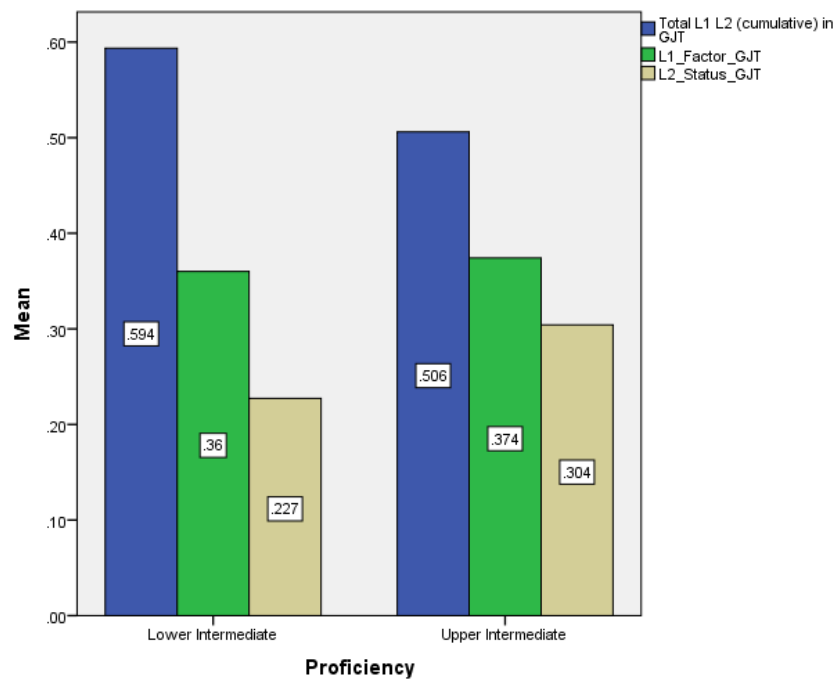
**Table 4.2.** Descriptive Statistics of Participants' Performance in GJT

	Proficiency	Mean	Std. Deviation	N
Total L1 L2 (cumulative) in GJT-context 1	Lower Intermediate	.5936	.11418	11
	Upper Intermediate	.5060	.11034	11
	Total	.5498	.11839	22
L1-Factor-GJT-context 2	Lower Intermediate	.3601	.08647	11
	Upper Intermediate	.3741	.08786	11
	Total	.3671	.08537	22



L2-Status-GJT-context 3				
	Lower Intermediate	.2273	.08151	11
	Upper Intermediate	.3042	.06539	11
	Total	.2657	.08216	22

As is evident in the above table, the upper L2 proficiency group obtained higher mean score on L1 factor context ( $M = .37, SD = .08$ ), and L2 status context ( $M = .30, SD = .06$ ), while the mean percentages for the lower proficiency group on CEM context ( $M = .59, SD = .11$ ) was higher than that of the upper intermediates ( $M = .50$ ). This shows that the upper proficiency group provided more correct responses to the items in contexts of L1 factor and L2 status while the lower proficiency group performed better in CEM context. Figure 4.1 summarizes the mean difference of participants in grammaticality judgement test.



**Figure 4.1.** Participants' Performance in GJT

A mixed between-within subjects ANOVA was conducted to find out the effect of proficiency and context. The preliminary analyses showed no violation of homogeneity of variance ( $p > 0.05$ ) and equality of covariance matrices ( $p > 0.001$ ). There was a substantial main effect of context [Wilks Lambda = .203,  $F(2, 19) = 37.305, p = 0.000$ ]. The partial eta squared was .797 indicating a large effect size. However, there was no significant interaction effect between proficiency level and

context [Wilks Lambda = .755,  $F(2, 19) = 3.077$ ,  $p = 0.07$ ]. This indicates that the L2 learners across both proficiency level had a similar performance. Table 4.3 shows the results.

**Table 4.3.** Results of Multivariate Tests for the GJT

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Context	Pillai's Trace	.797	37.305 <sup>b</sup>	2.000	19.000	.000	.797
	Wilks' Lambda	.203	37.305 <sup>b</sup>	2.000	19.000	.000	.797
	Hotelling's Trace	3.927	37.305 <sup>b</sup>	2.000	19.000	.000	.797
	Roy's Largest Root	3.927	37.305 <sup>b</sup>	2.000	19.000	.000	.797
context *	Pillai's Trace	.245	3.077 <sup>b</sup>	2.000	19.000	.070	.245
	Wilks' Lambda	.755	3.077 <sup>b</sup>	2.000	19.000	.070	.245
	Hotelling's Trace	.324	3.077 <sup>b</sup>	2.000	19.000	.070	.245
	Roy's Largest Root	.324	3.077 <sup>b</sup>	2.000	19.000	.070	.245

Regarding the impact of proficiency on the mean scores of the participants, the ANOVA results of between-subjects effects showed that proficiency had no substantial effect on the mean scores of participants in the GJT [ $F(1, 20) = .004$ ,  $p = .950$ ], and the effect size was small (Eta squared = .000). This fact indicates that the overall performance of the participants did not significantly differ in terms of proficiency.

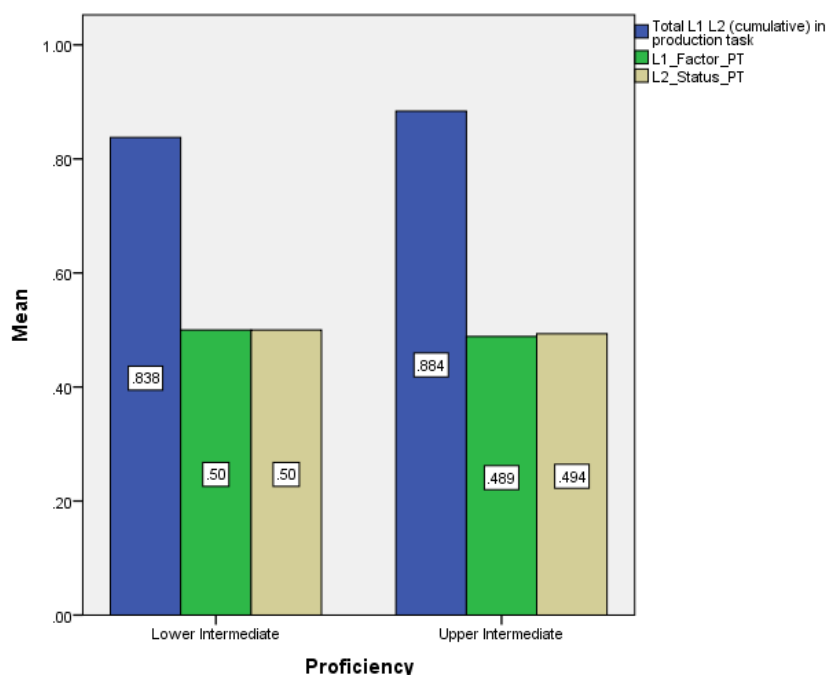
### Results of Production Test

The participants' total mean performance on the three intended contexts (CEM, L2 status, L1 factor) across two levels (upper and lower intermediate) is shown in Table 4.4.

**Table 4.4.** Descriptive Statistics of Participants' Performance in PT

	Proficiency	Mean	Std. Deviation	N
Total L1 L2 (cumulative) in production task-context 1	Lower Intermediate	.8377	.09885	11
	Upper Intermediate	.8839	.09958	11
	Total	.8608	.09968	22
L1_Factor-PT-context 2	Lower Intermediate	.5000	.00000	11
	Upper Intermediate	.4886	.03769	11
	Total	.4943	.02665	22
L2-Status-PT-context 3	Lower Intermediate	.5000	.00000	11
	Upper Intermediate	.4935	.02154	11
	Total	.4968	.01523	22

As is illustrated in the above table, the lower L2 proficiency group obtained higher mean score on L1 factor context ( $M = .50$ ,  $SD = .00$ ), and L2 status context ( $M = .50$ ,  $SD = .00$ ), while the mean percentages for the upper proficiency group on CEM context ( $M = .88$ ,  $SD = .09$ ) was higher than that of the lower intermediates ( $M = .83$ ). This shows that both groups had an equal performance on L1 factor and L2 contexts while the upper proficiency group performed better in CEM context. Figure 4.2 depicts the mean percentages of the two groups of participants in the production test.



**Figure 4.2.** Participants' Performance in Production Test

Similar to the Grammaticality judgement test, a mixed between-within subjects ANOVA was conducted to find out the effect of proficiency and context in production test. The preliminary analyses showed that the assumption of homogeneity of variance was satisfied only for CEM context ( $p = .784$ ) and not for L1 factor context ( $p = .038$ ), and L2 status context 3 ( $p = .038$ ). It is worth noting that the SPSS software did not compute the Box's Test of Equality of Covariance Matrices due to the fact there were fewer than two nonsingular cell covariance matrices. The multivariate tests showed a substantial main effect of context [Wilks' Lambda = .060,  $F(2, 19) = 147.759$ ,  $p = .000$ ]. The partial eta squared was .940 indicating a large effect size. There was no significant interaction effect between proficiency level and context [Wilks' Lambda = .919,  $F(2, 19) = .833$ ,  $p = .450$ ].

This indicates that the proficiency factor did not affect the learners' performance on all the three contexts.

Regarding the impact of proficiency on the mean scores of the participants, the ANOVA results of between-subjects effects showed that proficiency had no substantial effect on the mean scores of participants in the PT [ $F(1, 20) = .385$ ,  $p = .542$ ], and the effect size was small (Eta squared = .019). This fact indicates that the overall performance of the participants did not significantly differ in terms of proficiency.

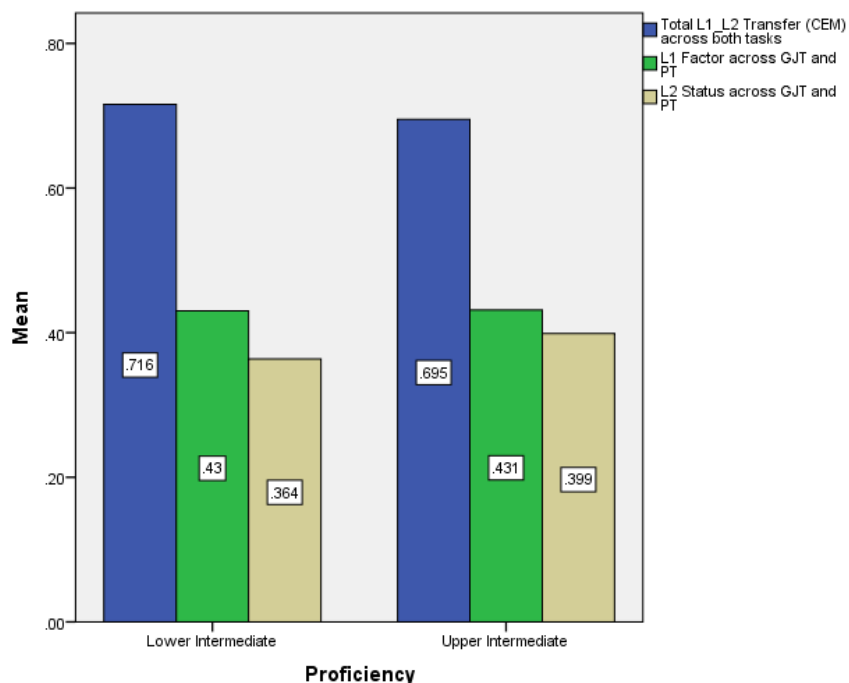
### Results of Merged Tasks

To address research questions posed in chapter one, an attempt was made to merge the results obtained in the production and grammaticality judgement tasks to arrive at more unified results. To this end, the merged data were subjected to data analysis. Table 4.5 displays the descriptive results.

**Table 4.5.** Descriptive Statistics of Participants' Performance Across Merged Tasks

	Proficiency	Mean	Std. Deviation	N
Total L1-L2 Transfer (CEM) across both tasks-Context 1	Lower Intermediate	.7156	.08177	11
	Upper Intermediate	.6949	.09122	11
	Total	.7053	.08520	22
L1 Factor across GJT and PT-Context 2	Lower Intermediate	.4301	.04324	11
	Upper Intermediate	.4314	.04449	11
	Total	.4307	.04281	22
L2 Status across GJT and PT-Context 3	Lower Intermediate	.3636	.04075	11
	Upper Intermediate	.3989	.03619	11
	Total	.3812	.04171	22

The above table indicates that the participants had the highest level of accuracy in CEM context ( $M = .70$ ). The lowest mean performance belonged to L2 status context where the upper intermediates outperformed the lower intermediates with a mean difference of .035. The participants' performance in all the contexts across both tasks is presented in Figure 4.3.



**Figure 4.3.** Participants' Performance in All the Contexts across Both Tasks

The preliminary analyses showed no violation of homogeneity of variance ( $p > 0.05$ ) and equality of covariance matrices ( $p > 0.001$ ). The multivariate test results show that there was a substantial main effect of context [Wilks Lambda = .077,  $F(2, 19) = 113.128$ ,  $p = 0.000$ ]. The partial eta squared was .923 indicating a large effect size. There was no significant interaction effect between proficiency level and context [Wilks Lambda = .909,  $F(2, 19) = .953$ ,  $p = .403$ ] and the partial eta squared was .091 indicating a moderate effect size. This indicates that just context (not proficiency level) had an effect on the participants' performances in merged tasks.

Regarding the impact of proficiency on the mean scores of the participants, the test of between subjects effect showed that proficiency level did not play a significant role in the correct orthography of syllable structure in L3 [ $F(1, 20) = .161$ ,  $p = .692$ ], and the effect size was small (Eta squared = .008). This fact indicates that the overall performance of the participants did not significantly differ in terms of proficiency.

## Discussion

With respect to the first research question that is in line with L1 factor hypothesis, the results showed no evidence in support of this hypothesis. In fact, even in the case of /-sm/ that learners were expected to comprehend and produce it correctly due to the positive transfer from their L1, the results were in contrary and learners were

intended to produce it incorrectly as a result of negative transfer from their L2. As demonstrated in section 5.2, learners portrayed not too much inability in the production of /-sm/, but this should not be regarded as an evidence for L1 factor hypothesis due to having the same amount of negative transfer of /-sm/ from L2 in the GJT and having a small effect of positive transfer of this context in PT. therefore, the results are in contrast to Håkansson et al. (2002), De Angelis (2007), Lindqvist (2009), Hammerberg and Hammerberg (1993), and Shahmoradi (2013) studies in phonology that proposed a main role for L1 influence in L3 acquisition process.

Regarding the second research question, as fully explained in the previous section, the L2 transfer hypothesis developed by Bardel and Falk (2007). Results showed no evidence in support of this hypothesis. In fact, the obtained results do not provide support for L2 status factor hypothesis that is advocated in the following L3 syntax studies: Williams and Hammarberg (1998), Bardel and Falk (2007, 2010, 2011), Leung (2009), and Rothman and Amaro (2010), and Jorge Pinto (2013). All these studies argued in favor of the L2 as the prominent source for transfer into L3, however, each has studied various prospective of L3 acquisition.

The third question under the study investigated the fact that whether CEM developed by Flynn et al. (2004) can fully account for the results or not. In fact, the proponents of CEM believe that all languages known can have either a facilitative role or remain neutral in the subsequent language acquisition and L2 takes precedence over L1 only in cases when the TL form is not present in L1. As fully demonstrated in section 5.2, a positive L2 influence was observed in cases of /-kt/ and /-lp/; however, a negative L2 transfer effect was found in case of /-sm/ context. Results showed that a strong role for CEM influence was apparent in the /-lp/, /-kt/, and /-ts/ contexts of L2 status hypothesis, but also in the case of /-sm/ and /-bl/ that was supposed to validate L1 factor hypothesis. Therefore, the results provided a strong role for CEM as a major source of transfer in the initial states of L3 acquisition process and this is mainly in accordance with the studies done in L3 by Jedynak and Pytlarz (2011). In addition, there are other studies which are in line with the findings of this study and approved the role of CEM such as the study of Kur (2009) in a doctoral dissertation that investigated the role of transfer in third language acquisition, Chin (2009) investigated the influence of L2 proficiency on the acquisition of L3 Spanish, and finally the studies such as Montrul, Dias, Santos (2010), Flynn et al. (2004), and Leung (2005) which proved the role of CEM in L3 acquisition.

Concerning the fourth question, results showed that two groups of participants performed differently on the accurate recognition and production of French coda clusters in both GJT and PT, but it is worth noting that there was no significant difference between the participants in the lower and upper intermediate groups with respect to their accurate comprehension and production and thus the above mentioned difference was not significant. The effect of L2 proficiency on L3 acquisition was rejected in this study. Therefore, the results of the present study are

in line with the Chin (2009) study that the L2 proficiency had a limited influence on the acquisition of L3, as the two proficiency groups did not perform differently. On the other hand, the finding of this study is in contrast with the study of the De Angelis (2011) who provided a piece of evidence in favor of positive correlation between proficiency in the L2 and performance on the L3 writing tasks. It is also in contrast with the findings of Jedynak and Pytlarz (2011), and Bardel (2010) studies that claimed that the L2 proficiency level had an influence on the activation of previously acquired languages.

### **Conclusion**

The present study aimed at investigating the role of Persian L1 and English L2 in the acquisition of French L3 syllable structure. For this aim four questions were examined, namely, “Cumulative Enhancement Model”, “L2 Status Factor”, “L1 Factor Hypothesis”, and the effect of L2 proficiency on L3 learning. The participants of this study were two groups of Persian native speakers who were acquiring L3 French at the lower intermediate level. Based on their level of proficiency in L2 English, they were divided into two groups of upper intermediate proficiency group and lower intermediate proficiency group. Their acquisition of the mentioned properties of French syllable structure were evaluated through two tests: a grammaticality judgement test and production test.

In short, the results of the participants’ performance in the grammaticality judgement test showed that learners used both their L1 and L2 in the acquisition of the structures under study. Also, the results of the production test were in line with the findings of the grammaticality judgement test, and the learners acted exactly like they did in the grammaticality judgement test.

The pairwise comparison of the results across both tasks showed that the participants had the highest accuracy level in CEM context while their performance on L2 Status and L1 Factor exhibited variability indicating a lack of acquisition of the correct orthography of French syllable structure.

Additionally, the lower intermediate group did not outperform the upper intermediate group. This can lend support to CEM hypothesis in the acquisition of L3 as well.

Moreover, the overall results of the two groups’ performance showed no significant difference between them which in turn reflected the fact that L2 proficiency had no effect on the correct orthography of French syllable structure.

On the whole, the results of this study confirmed “Cumulative Enhancement Model” proposed by Flynn et al. (2004). Moreover, this study rejected “L2 status factor hypothesis” proposed by Bardel and Falk (2007, 2011), and the “L1 factor hypothesis” proposed by Håkansson et al. (2002). This study also disconfirmed the effect of L2 proficiency on learning L3 French orthography.

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