

## **Persian Learners' Acquisition of Empty Categories in English Null Operator Structures**

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### **Abstract**

The study investigated the acquisition of empty categories in the English complex infinitival structures. A quasi-experimental design was used in which four groups of Persian learners of English (elementary, lower intermediate, upper intermediate and advanced) via convenient sampling were selected and assigned into different proficiency levels using Oxford Quick Placement Test. Then, the groups were given three tasks, a translation task, a picture-cued sentence completion task, and an error-correction task to see whether they learn the feature of nonfiniteness which is absent in Persian and if so, at what level Persian speakers learn English null categories. The study specifically tries to find whether optionality in the use of clitics in null operator structures appear in developing English interlanguage of Persian second language learners. As the findings of the study revealed, it seems that, after a short period of L1 transfer, Persian learners of English learn nonfiniteness quite rapidly while clitic optionality in null operator structures is observed in their performance, however, as their level increases, the this optionality in the use of pronominal clitics fades away.

**Keywords:** Nonfiniteness, Null Operator Structures, Empty Category, Optionality, Persian L2 Learners

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### **1. Introduction**

Features of the functional categories and only those features are subject to a critical period as Smith and Tsimpli (1995) proposed. Beyond the critical

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period, the functional categories become inaccessible. At the same time, principles of Universal Grammar remain operative to constrain grammar construction. These proposals have given an account of the view that Universal Grammar is accessible to second language learners in some attenuated form. This suggests that where parameter settings differ between first language and second language, there would be subtle restrictions on the extent to which an L2 learner can build a mental grammar like that of a native speaker (Hawkins & Chan, 1997). Here two possibilities exist: either learners will behave as if the L2 were like the L1, or, once they have sufficient exposure to recognize that the L2 is different on the surface, they will adopt solutions which are different from those of their L1. (Hawkins & Chan, 1997)

As Parodi and Tsimpli (2005) state the feature which has not been acquired in L1 would not be acquired in L2 as well. In their study, they studied the acquisition of null operator structures by Greek and Spanish learners of English and came to this conclusion that due to the lack of correlation between the feature finiteness and the use of gap, the English null operator structures have been acquired.

Accordingly, this study is an attempt to investigate the acquisition of empty categories of English null operator structures by Persian learners due to the fact that Persian language is a + finite  $\pm$  PRN language and this PRN can be a clitic or pro. It is predicted that if the Persian learners of English use gaps in English nonfinite sentences, there will be a correlation between the feature  $\pm$  finiteness and the use of gap, and consequently they have acquired this feature. Otherwise, the feature would have not been acquired by Persian learners of English. We will attempt to show: (a) that Persian learners of L2 English acquire the feature of nonfiniteness. (b) They, following an initial period of transfer, move towards the surface patterns of English null operator

structures in their mental representations and there exists a sort of optionality in the Persian learners' interlanguage; (c) and this native-like mental representation of the structures in questions happens late in the course of L2 acquisition process.

## **2. Theoretical Background**

### **2.1 On Optionality**

Models of generative grammar such as minimalism (Chomsky, 1995) and Optimality Theory (Grimshaw, 1997) are categorical. That is, there is a set of options but they allow just one option (Parodi & Tsimpli, 2005). There are some cases in which more than one form of a construction present in a grammar. This can be observed in steady-state and in developing grammars of both first language and second language acquisition (Hyman, 1996; Sorace, 2000, Prevost & White, 2000). Consequently, this can present a challenge for the categorical nature of the models of generative grammar. As Parodi and Tsimpli (2005) state, there are some examples of optionality in both L1 and L2 grammars such as the use of finite and nonfinite forms in matrix clause or the use of clitic or empty category in null operator structures.

There are some studies in which optionality has been taken as a property of developing L2 grammars (Parodi & Tsimpli, 2005; Sorace, 2000; White, 1992). It is believed that the potential source of optionality in L2 grammar is underspecification of feature values on functional categories thanks to inaccessibility, either temporary or permanent, of the target options (Parodi & Tsimpli, 2005). According to Eubank's (1994, 1996) valueless features approach, at the initial developmental stages all functional categories are transferred from the L1 but without their specified value. Therefore, functional features are valueless until the L2 learner acquires their particular value in the L2 grammar. Eubank (1996) claims more than one option is possible in the same context during the early L2 grammar development. As

opposed to Eubank's approach, some believe that optionality is also present in advanced L2 grammar, and there is optionality in all stages of L2 development (Sorace, 1999, 2000).

Most studies have investigated optionality particularly in verb movement and other areas have been left unexplored, with the exception of Robertson's (2000) study on article omission and Parodi and Tsimpli's (2005) study on finiteness and pronouns in null operator structures. In order to test optionality in the interlanguage, pronominal clitics are of particular interest due to the fact that their distribution does not present a one-to-one correspondence between meaning and form (Parodi & Tsimpli, 2005). In terms of acquisition, pronouns in languages like English do not provide us with apparent evidence as to whether it is the form that results in acquisition of meaning or vice versa. But when L1 is different from L2 in terms of available options in the pronominal system, strong pronouns can be morphologically misanalysed as clitics or vice versa (Parodi & Tsimpli, 2005). In addition, languages with and without clitics illustrate differences in the presence or absence of a pronominal element in specific structures. In particular, in a language such as Persian, it is common to find use of a pronominal clitic in contexts where English, a language without clitics, would opt for an empty category instead of a full pronoun (Rasekh Mahamnd, 2009). Accordingly, what is of particular interest in this study is to see whether the L1/L2 difference in the choice of clitic vs. empty category is affected by the saliency of overt morphology as a cue to L2 development.

### **3. Linguistic Assumptions**

#### **3.1 Nonfinite Feature and Null Operator Structures in English and Persian**

Lasnik and Stowell (1991) proposal that nonfinite clauses (referred to as Control Infinitives) are specified for [Tense]. More precisely, these clauses

specify a time frame which is unrealized with respect to the Tense of the matrix clause. To account for this, Stowell argues that complements of control verbs have an independent Tense specification (i.e., they are specified as [+Tense]). He suggests that [+Tense] nonfinite INFL differs from finite INFL in that it has no specification for the feature [+ Past]. Building on the proposals made by Stowell (1982) and Chomsky and Lasnik (1993), Martin argues that a nonfinite INFL is specified for [+Tense] feature, or to be more precise, under the split INFL hypothesis, the functional category T is specified for [+Tense, -Finite] features.

Two types of feature specification presented for INFL/T in English finite and nonfinite clauses is summarized.

A. in CPs: [+Finite], [+Tense], [+ Past]

B. in TPs: [-Finite], [+Tense], [+Null case]

In Persian all Verb complements other than NP and PP are Tensed CPs. Thus we can consider feature specification of INFL in Persian as follows:

A. in CPs: [+Finite], [+Tense], [+ Past]

Among the structures which are nonfinite are the null operator structures which are of interest in this study. Null operator structures (NOS) have been discussed to consist of a range of sentences in which a semantic and syntactic property, the presence of a null operator (NO) in the complementizer phrase (CP), is shared (Browning, 1987; Chomsky, 1977; 1986; Contreras, 1993; Lasnik and Stowell, 1991; Parodi & Tsimpli, 2005). As Parodi and Tsimpli (2005) mentions, the NO binds the complement position, and identification is fulfilled by predication or binding relation with a Determiner Phrase in the matrix clause. Due to the particular analysis, the clustering of sentences subsumed under NOS differs. However, within the set of NOS have been subsumed Degree Clauses (DCs), Adjectival Clauses (ACs), Purposive Clauses (PCs), topicalization structures, and restrictive relatives without an

overt *wh*-phrase. For the purposes of this study, the NOS argued are of the first three types in English, and Persian as foreign and native languages. These structures in two other languages, Spanish and Greek are also discussed. The examples in (1) reveal the relevant structures in English:

- 1) a. *This food is too hot to eat.* *degree clause (DC)*  
 b. *The article is ready to submit to the journal.* *adjectival clause (AC)*  
 c. *I need your color pens to use at class.* *purposive clause (PC)*

Before introducing examples in Persian, it is important to state that Persian is a null-subject, verb-final language whereas English is not. Second, English and Persian differ in terms of their pronominal systems. Specifically, clitic pronouns exist in Persian but not in English. Syntactically, the distribution of clitics differs from the syntactic behavior of strong pronouns, resulting in interesting patterns. Clitic pronouns in Persian are used in contexts in which English would use a strong pronoun or an empty category, depending on the structure. This use of clitics in contexts where an empty category would be the only option in English stems from the fact that pronominal clitics are specified as morphological agreement markers, similar to subject-agreement markers Persian verbs (RasekhMahand, 2009). English, on the other hand, lacks such agreement markers; thus, strong pronouns and empty categories have a different feature specification and function than clitic pronouns (Cardinaletti & Starke, 1999). Given that Persian allows for an option of a finite (CP) or infinitive (IP) subordinate clause in each of the relevant structure, the examples (2) – (4) are presented in pairs.

Consider the following examples in Persian:

3. *'In dāru ānqadr gerān ašt ke ne-miše xārid-(eš).'*

DC, CP (± clitic)

*This medication too expensive is that not-possible-is buy-3sg-(it)*

This medication is too expensive to buy.

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4. 'mæqāl-æm hænuz ämäde nist ke erä-æš bedæm\.

AC, CP ( $\pm$  clitic)*paper-my yet ready not-is that present-(it) give-1sg*

My article is not ready to present.

5. 'mæn polo dæirmiär-æm ke xærj-eš konæm.'

PC, CP ( $\pm$  clitic)*I money-ACC earn-1sg that spend-(it) do-1sg*

I earn money to spend.

Notice that there exists no infinitival subordinate clause in degree clause (DC) in Persian. Furthermore, in the Persian examples above, there are differences in the optionality or obligatory absence of the object clitic. Specifically Persian language shows optionality in case the subordinate clause is finite. On the other hand, in English a NOS is nonfinite and the absence of a clitic in these structures is obligatory. With respect to the differences between the English and the Persian NOS examples above, it is noted that:

- (a) the contrast between the Persian subjunctive and English infinitive in the subordinate clause; and
- (b) the clitic in the embedded object position in the Persian example as opposed to the empty category (gap) in the English case.

With regard to the latter distinction, compare the examples in (1) with the ones in (5) below. Notice that when an overt subject is present in English degree and adjectival NOS, the presence of the pronoun is more acceptable:

6)

- a. This food is too hot to eat (\*it) / for you to eat (?it). (DC)
- b. The article is ready to submit (\*it) to the journal ...for us to submit (?it) to the journal. (A-NOS)
- c. I need your color pens to use (\*them) at class. (PC)

As shown in the above Persian examples, the use of the clitic is optional in the finite clauses and when the clause is infinitival, the presence of null

category is obligatory. These could be related to the following characteristics of Persian:

- a. Persian language has finite clause in which clitics are optional to occur in subjunctive NOS. Persian marks subjunctive on the verb but a subjunctive clause is introduced by the complementizer *ke*.
- b. There is a correlation between finiteness (in particular, subject agreement specification) and the clitic option in Persian. When the clause is finite, the presence of null operator structures is optional.
- c. It is also assumed that there is some type of dependency formed between the antecedent (subject of predication), the null operator and the category in the complement position of the embedded clause. Based on the distinction between quantificational and non-quantificational operators (Lasnik and Stowell, 1991), the null operator in NOS is of the second type, the implication is that the co-indexed trace/pronoun in the object position is not a variable but a null epithet instead (Tsimplici, 1999). Persian NOS involve a finite embedded T and an overt complementizer. This property requires the presence of a clitic pronoun specified for the agreement features matching those of the antecedents.

#### **4. Focus of the Study**

As Persian does not instantiate nonfinite feature on INFL/T, it is expected Persian speakers to have persistent difficulty acquiring infinitival phrases in English. Based on the review and what was discussed above, the study aimed to shed light on the following research questions:

1. How do Persian learners of English acquire the feature of nonfiniteness?
2. To what extent does optionality in the use of resumptive pronoun (clitics) appear in Persian learners English interlanguage?
3. Does optionality persist even in the advanced group of Persian L2 learners' grammar?



4. To what extent Persian learners of English learn that in null operator structures there exists a gap but not a pronoun?
5. What is the nature of gap in null operator structures produced by Persian learners of English?

## 5. Methodology

### 5.1 Participants

A total number of 118 participants took part in this study. They were Persian learners of English in a language institute in Shahrekord, Iran. Of this sample, 52 (57.7%) of the subjects were female and 38 (42.3%) were male. Moreover, 47 subjects were in their 10s (52.2%), 34 (37.8%) were in their 20s, and 9 (10%) were in their 30s. Common to all of the subjects was at least 7 years of exposure to EFL instruction and none of the subjects had resided in an English-speaking country before. To determine their level of achievement in English, the subjects were given a placement test. The test which is widely used was Oxford Quick Placement Test, comprising 60 items. Using the results obtained from this test, four groups representing Elementary (ELM, N=25, M=23.45, SD= 2.354), Lower Intermediate (LINT, N=30, M= 36.47, SD=2.933), Upper Intermediate (UINT, N= 30, M=41.54, SD= 2.785), and Advanced (ADV, N=33, M=51.47, SD= 2.458) proficiency level were identified. The division by proficiency levels permitted the researchers to examine the acquisition of nonfiniteness feature and the developmental differences in the course of acquisition of English empty category in null operator structures. All the subjects agreed to participate in this study.

### 5.2 Design of the Study

In this study, the acquisition of the feature of nonfiniteness was of interest, and then the acquisition of three English null operator structures was investigated: adjective clauses (e.g. *John is easy to please*), degree clauses (e.g., *This food is too hot to eat*), purposive clauses (e.g., *I chose this book to read on the plane*). A contrastive analysis between English and Persian was

performed for these structures. Then, all the groups were given the translation task first to see whether the Persian learners of English acquire the feature of nonfiniteness and if so, at what level of language proficiency. Then, in order to examine whether optionality in the use of resumptive pronoun (clitics) in developing Persian learners' L2 grammars in null operator structures exists, two other tasks, a picture-cued sentence completion task, and an error-correction task. Due to the fact that the null operator structures are difficult for the elementary learners, the picture-cued sentence completion task and the error-correction task were administered to the three other groups.

### **5.3 Instruments**

The following instruments were used in this study:

#### **5.3.1 Oxford Quick Placement Test**

Oxford Quick Placement Test (OQPT) is widely used to place English language learners in different proficiency levels. OQPT has been recognized as a standardized flexible English language test which helps teachers to make accurate placement decisions on English learners' level of proficiency. The test has been pretested and validated in about 60 countries and is considered to be both appropriate and fair for EFL learners from different ethnic, cultural and linguistic backgrounds (Geranpayeh, 2006). The cut-off points for proficiency levels set by Allan (2004) have been argued to be reliable indicators of language proficiency (e.g., Jabbari, 2014; Rebarber et al. 2007). The test includes 60 items which tap the learners' knowledge of grammar, vocabulary and sociolinguistics. The test is of two sections. The first part consists of 40 test items which should be completed by all test takers, but the second part, consisting of 20 test items should be completed by the test-takers who answer all the items of the first section correctly. The time allocated to complete the test is 30 minutes.

### 5.3.2 Translation Task

The task was designed in order to provide the data representing whether Persian speakers acquire the feature of nonfiniteness, and if so, at what level. The task was a written translation of Persian sentences into English whose correct translation required infinitival structures in English. The test consisted of 20 sentences. Of these, 10 sentences were fillers and the rest contained the target structures.

### 5.3.3 Picture-cued Sentence Completion Task

This task consisted of a number of incomplete sentences in which the participants completed the sentences using a picture as a prompt. The pictures depicted the structures in question. That is, the infinitival clauses including adjective clauses (*e.g., John is easy to please*), degree clauses (*e.g., This food is too hot to eat*), and purposive clauses (*e.g., I chose this book to read on the plane*). The participants should complete the sentences as the give part of the sentences guides them to produce the intended structures. In this task, the pictures were used as prompt to make the participants produce the target structure under study. Each picture was accompanied by a cue (a verb) in order to guide the participants as well. See the example given below.

*I think this house is too ..... because we don't have enough money.*

**(expensive- buy)**

### 5.3.4 Error-correction Task

This task first tried to test the participants' recognition of the target structure through presenting a number of sentences either grammatically well-formed or ill-formed and participants decide which one is correct and which one is incorrect. Having recognized the incorrect sentences, the participants were asked to correct the ill-formed sentences. The participants' production of the structures in question was tapped as the participants tried to correct the ill-formed sentences.

*Some teachers were very kind but others were too tough to tolerate.*

Internal consistency of the items of each test was measured as an index of reliability. Cronbach's alpha values for translation task, picture-cued sentence completion task and the error-correction were 0.66, 0.78, and 0.82, respectively.

#### **5.4 Procedure**

The Oxford Quick Placement Test was first administered to select and assign the Persian learners of English into three levels. Having selected and assigned the participants into three groups of lower intermediate, upper intermediate and advanced, the participants performed on the designed tasks in order to find whether they have learned English complex infinitival clauses or not. The researchers also tried to understand first at what level of language proficiency Persian speakers have learned the feature of nonfiniteness which is absent in Persian language, second, whether optionality in the use of resumptive pronouns in null operator structure exists and if so, up to what level of language proficiency.

#### **6. Results**

The result of the translation task is given in Table 1. As shown, Persian learners of English initially transfer properties of their language and produce finite clauses in the translations. The following examples show the errors made by the Persian learners in the first level.

7. \*Ali tried that he entered the room. (For: Ali tried to open the door.)
8. \*We decided that start work early. (For: We decided to start work early.)
9. \*Mary hopes she arrive at home early. (For: Mary hopes to arrive at home early.)
10. \*I intend I buy a new car. (For: I intend to buy a new car.)

Table 1  
*Performance of the Participants in Translation Task*

level	Infinitival structures	
	CP: incorrect	IP: correct
Elementary	100	.00
lower intermediate	.00	99
upper intermediate	.00	100
advanced	.00	100

However, from the second level on infinitival structures are correctly produced and learners do not seem to have any difficulty as their level increases.

### 6.1 Degree clauses (DC)

The results on degree clauses for learners of English are illustrated in Figure 1a, and 1b in the two tasks. As seen in Figure 1a, in the error-correction task, for the lower intermediate group the percentage for correct and incorrect sentences was 51.7 % and 11.7 % respectively. For the upper intermediate group the percentage for correct and incorrect sentences was 56.7% and 33.3 % respectively. For the advanced group the percentage for correct and incorrect sentences was 93.2 % and 58.3 % respectively. As it seen, the lower intermediate group has the lowest percentage in incorrect sentences in this task and also the higher the language level of learners is, the less the preference of the learners to use of clitics in these structures is.

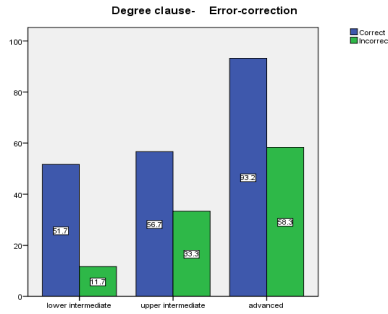


Figure 1a. Degree clause in error-correction task

Figure 1 b illustrates the result of picture-cued sentence completion task. As it seen, the accuracy percentage of the lower and upper intermediate learners of English was 48.3 % and 53.3 % respectively. This indicates that there is no significant difference between these two groups and there is a preference for the Persian learners to use clitics in this type of NOS. The advanced group, on the other hand, has a percentage of 80.3 % and it seems there is a significant difference among the groups.

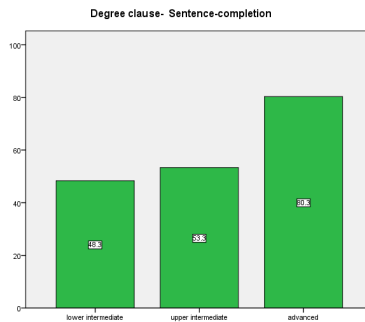
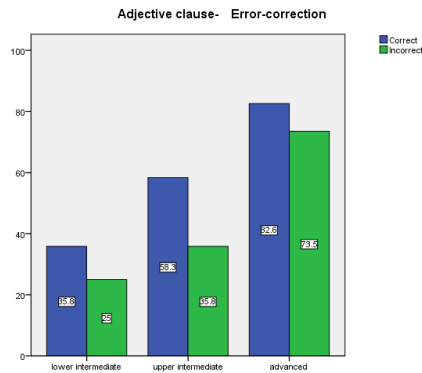


Figure 1b. Degree clause in picture-cued sentence completion task

### 6.2 Adjective Clause

The results on adjective clause for learners of English are illustrated in Figure 2a, and 2 b in different tasks. As illustrated in Figure 2 a, in error-correction

task, for the lower intermediate group the percentage for correct and incorrect sentences was 35.8 % and 25 % respectively. For the upper intermediate group the percentage for correct and incorrect sentences was 58.3 % and 35.8 % respectively. For the advanced group the percentage for correct and incorrect sentences was 82.6 % and 73.5 % respectively. As it seen, as the proficiency level has increases, the performance of learners improves.



*Figure 2.* Adjective clause in error-correction task

Figure 2b shows the result of the picture-cued sentence completion task in adjective clause type 1. As it seen, the accuracy percentage of the lower and upper intermediate learners of English was 27.5 % and 45 % respectively. The advanced group, on the other hand, has a percentage of 87.1 % and there is a significant difference between this group and the other groups of learners. This can reveal that the use of clitics which persists even at the upper intermediate level of English proficiency among Persian learners of English.

### **6.3 Purposive Clauses (PC)**

The results on purposive clauses for learners of English are illustrated in Figure 3a, and 3b in the two tasks. Recall that in NOS, English requires an empty category in the object position of the verb whereas in Persian the clitic is optional.



*Figure 3 a.* Purposive clause in Error-correction Task

The results presented in Figure 3a for the error-correction task indicate that the lower and upper intermediate learners of English prefer the presence of the clitics in this type of NOS and as the proficiency level increases, the accuracy level of the Persian learners increase. As it seen in figure 3a, for these three groups of learners, they have fewer problems with the correct sentences compared to the incorrect ones and this shows the persistence of optionality in the Persian L2 learners of English even at the advanced level of language proficiency.

Figure 3b illustrates the result of the picture-cued sentence completion task. As it depicted, the accuracy percentage of the lower and upper intermediate learners of English was 28 % and 52 % respectively. This indicates that there is a preference for the Persian learners to use clitics in this type of NOS. The advanced group, on the other hand, has a percentage of



87.9 % and this is significant difference between the groups.

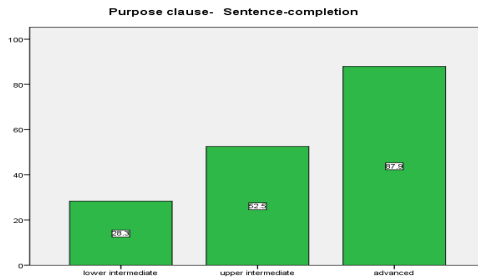


Figure 3 b. Purposive clause in picture-cued sentence completion task

#### 6.4 Summary of the Results

The results from the different tasks reveal the following similarities and differences in the three NOS tested. As depicted in Table 2, compared to correct sentences, all the subject had lower score in incorrect sentences in all the clauses in the error-correction task with the lowest score was 11.7 %, that of lower intermediate learners in the degree clause. Interestingly, the advanced learners had the lowest score in the incorrect sentences of degree clause as well. Lower intermediate learners had the lowest score in the correct sentences of adjective clause compared to other correct sentences in the clauses while upper intermediate and advanced learners had the lowest score in correct sentences of the degree clause and purpose clause, respectively.

Table 2

*The Results of Different Groups in Error-Correction Task (in percentage)*

level	Purpose clause		Degree clause		Adjective clause	
	Correct	Incorrect	Correct	Incorrect	Correct	Incorrect
Lower intermediate	32.5	29.2	51.7	11.7	35.8	25
Upper intermediate	57.5	33.3	56.7	33.3	58.3	35.8
Advanced	87.9	77.3	93.2	58.3	92.6	73.5

Table 3 illustrates the results of different groups in the picture-cued sentence completion task (production task). The difference between the performance of the lower and upper intermediate groups in all contexts is not significant while there is a significant difference between these two groups and the advanced group in different conditions of all the clauses.

Table 3

*The Results of Different Groups in Picture-Cued Sentence Completion Task (in percentage)*

Level	Purpose clause	Degree clause	Adjective clause
Lower intermediate	28.3	48.3	27.5
Upper intermediate	52.5	53.3	45
Advanced	87.9	80.3	87.1

## 7. Discussion

On the background of the results just presented we can now return to the research questions. The first research question was asked to see at what level of language proficiency Persian learners of English acquire the feature of nonfiniteness. As the data showed, they have difficulty acquiring this feature at the lower level of language proficiency. The reason why the Persian learners of English have difficulty acquiring this feature at the lower level could be that Persian does not instantiate nonfiniteness and this can be an imprinting feature for them. That is, this feature has not been imprinted in learners' L1 grammatical knowledge. Therefore, Persian speakers avoid using the imprinted feature present in Persian.

The second research question to be asked is whether there is optionality in the use of resumptive pronoun (clitics) in developing Persian learners' L2 grammars. As discussed above and the results of the study revealed, optionality is observed in the lower and upper intermediate groups. Recall that the optionality observed even in the upper intermediate group of Persian learners of English is due to the difference between English and Persian with respect to the tested structures as discussed above.

The third research question is asked to see whether optionality persists even in the advanced group of Persian L2 learners. The results of the study appear to support the view that optionality persists even in the judgments of the advanced group. It can be argued that this persistent optionality found in the advanced group of Persian learners of English is due to the fact that Persian language does not show a distinction between finite and nonfinite clauses, that is, there is no nonfiniteness feature in Persian language. The absence of this distinction and the optional presence of a clitic/resumptive in Persian NOS prevent Persian learners of English from abandoning the clitic/resumptive pronoun in the English nonfinite clauses.

The fourth question examines whether Persian learners of English acquire the empty category in the null operator structures or not. The results appear to support that Persian learners of English acquire the empty category in null operator structures. Although they have difficulty acquiring this feature, they acquire it at the upper level of language proficiency. Therefore, the result of our study reveal that there is a correlation between the finiteness feature and the use of empty category in the acquisition of null operator structures in English, and this is in contrast with Parody and Tsimpli (2005) claim that any feature which is absent in L1 cannot be acquired in L2. The possible reason why the acquisition of this feature occurs late is L1-based differences. Due to the fact that Persian language allows optionality in the use of clitics in the null operator structures while this is not permitted in English and there may exist a sort of persistent difficulty in the Persian L2ers' interlanguage and this might be resolved up to the very advanced level of language acquisition. As discussed in the introduction section of the study, in the null operator structures of English language the empty category is the result of the movement of an argument to [Spec, CP] and binds a trace in its extraction

site while in these structures in Persian language no movement occurs and they are base-generated.

In the last question, it is asked if Persian learners of English use gaps in the null operator structures, what the nature of this gap is. The question worth posing is whether they have acquired the movement of the argument and used a trace or they have assumed that the operator is based-generated and they do not spell out the pronoun phonetically. In other words, is the gap used a trace of a movement or it is little pro. We do not have any evidence to identify the nature of the gap and this could be an open question for the future research studies.

## 8. Conclusions

The study of pronominal clitics in developing Persian L2 learner's grammar has allowed studying optionality in the use of clitics in null operator structures. It seems that optionality is found in lower groups of learners and as their level of language proficiency increases, the optionality in the use of pronominal clitics fades away. The performance of the learners in all three structures was comparatively the same. The issue worth studying in the future studies is to provide evidence to answer this question whether the lack of optionality in the performance of some advanced Persian learners of English is due to acquisition of the movement of the argument or the clitics is there and only it is not spelled out phonetically.

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