THE INVESTIGATION OF SUBJACENY PRINCIPLE IN IRANIAN EFL LEARNERS' INTERLANGUAGE

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Abstract

The present study aimed to investigate the availability of universal grammar (UG) to Iranian EFL learners of English. Specifically, the research explored the perception of subjacency sentences by the Iranian EFL learners. To achieve this goal, 36 Persian-speaking learners of English in Meraj Language Institute in Sabzevar were classified as high and low groups in terms of their level of proficiency. This grouping was done by administrating a General Proficiency Test (GPT). The participants were then tested on the perception of the subjacency principle in English. Based on the results of this study, Persian learners had the knowledge of the subjacency principle in their interlanguage. The performance of the high group in giving answer to the questions of the subjacency test was much better than the low group. This study also found that gender had no effect on the participants' perception of the subjacency principle.

Keywords: UG, bounding theory, EFL, interlanguage, subjacency principle

1. INTRODUCTION

In response to behaviorists' views on language, Chomsky (1959) claimed that certain features of language are too abstract, subtle and complex that cannot be acquired in the absence of an innate language acquisition system. He argued that a linguistically specific system of principles and parameters is required in order to explain the language acquisition. According to him, every healthy child genetically possesses this system which is known as Language Acquisition Device (abbreviated as LAD). In 1980, Chomsky developed a radically different way of looking at grammar which has become popular in recent years; a grammar representing what human languages have in common because of the nature of the human mind. He called this kind of grammar 'Universal Grammar', or UG for short. Universal grammar is claimed to be a part of LAD

(Chomsky, 1965; Pinker, 1994). Chomsky further maintains that the knowledge of a grammar in the mind is the combination of two components: 'principles' that all languages have in common and 'parameters' on which they vary.

Although, UG theory was primarily developed for first language (L1) studies, it is not exclusively restricted to L1. The question of whether UG helps L2 acquisition, and to what extent, has been much regarded since the early 1980s. In recent years, many UG-based second language acquisition (SLA) studies have been conducted (see Schachter, 1990). The first decade of study on the role of UG in L2 acquisition focused on its accessibility. The purpose was to investigate whether UG is available in non-primary acquisition. To show the presence of UG in L2 developmental grammars is to present evidence showing that universal principles of UG are operating in the target language. White (2003) states that "if you can show that a particular UG principle operates/does not operate then this generalizes to other principles, hence to UG availability/ non availability in general" (cited in Doughty & Long , 2003: 23).

One of the principles of UG is the subjacency principle. It is closely related to the bounding theory – a general condition that movements are short. What is the relationship between the subjacency principle and the bounding theory? Bounding theory is about the locality of movement. It forbids too far movement; therefore, it requires a principle to limit the movement in the required way. The way of handling this, is the theory of subjacency. Subjacency is a constraint on movement according to which movement of a wh-element is cyclical in the sense that the element cannot pass over more than one clausal or bounding node at a time. Bounding nodes in English are S, NP and CP. Take the following examples:

(1) Who_i did $[_{AGRP}$ Mary think $[_{CP}$ t_i $[_{AGRP}$ John saw t_i]]]

(2) *Who did $[_{AGRP}$ John ask $[_{CP}$ $when_j$ $[_{AGRP}$ t_i fixed the car t_i]]

In (1), the wh-word 'who' has moved from the object position of the most embedded clause to the highest position in the sentence. The movement has left a trace (t) which is coindexed (marked with subscript 'i') with the moved element. If the movement occurs in one step, it passes over both AGRP hurdles and hence violates the subjacency principle. However, because the specifier of the lower complement Phrase (CP) is empty, the wh-element can use this as a stopping-off point, thus splitting the movement into two parts, both of which jump only one AGRP. Since in (2) another wh-element has taken the place of the intermediate CP-specifier, it cannot be used in the move to the matrix CP. So the movement necessarily crosses two AGRPs and violates subjacency. Thus, sentence (2) is ungrammatical.

The important purpose of this study was to investigate the availability of UG in Persian learners of English in terms of the subjacency principle, specifically in relation to wh-movement in interrogatives.

2. BACKGROUND

Researchers have tried to find out whether L2 learners have access to UG or not. Studies conducted for this purpose fall within the following four models of UG-access:

1. The Direct Access Model
2. The Indirect Access Model
3. The No access Model
4. The Overall Model

Researchers within the first model, such as Otsu & Naoi (1986), and Ritchie (1978), believe that UG is directly accessible for L2 learners. In other words, L2 learners have access to it independently from the L1.

Within the second model, White (1986) and Flyn (1987) believe that UG operates in L2 acquisition, but via the L1. In other words, L2 learners start with the principles and parameters of their L1. Then they try to modify the parameters of the L1, where the parametric value differs from the L2. This modification occurs based on L2 input and with the activity of UG.

Clahsen and Muysken (1986) confirm that UG is not available to L2 learners; hence, their approach falls within the third model above. According to this view, UG is only available to L1 acquirers and L1 parameters cannot be regulated for L2 acquisition. Also there are major differences between L1 and L2 acquisition. Schachter (1988, 1989) believes that L2 learners cannot access to UG because they do not apply the principle specified for structures that they know already. Schachter points out that the principle cannot be accessed in an L2 unless it was activated in L1.

The fourth model refers to the view that L2 learners have partial access to UG. Felix (1985) and Ellis (1994) believe that only children have complete access to UG and therefore they are able to achieve full competence, whereas adults' access to UG is partially blocked by using the problem solving system.

3. RESEARCH QUESTIONS & HYPOTHESES

Although many studies have been done on UG and SLA, nobody can determine the role of UG in SLA with certainty. The main question which researchers are facing in this field is availability and applicability of UG principles to SLA. In order to achieve a good result on the basis of what was mentioned earlier and in keeping up with the objectives of this study, the researcher was in pursuit of finding answers to the following questions:

1. Do Iranian EFL learners have knowledge of the subjacency principle in English?
2. If they do, is there a significant difference in this knowledge across learners with different levels of English proficiency, namely high and low groups, in answering the subjacency test questions?
3. Does the gender of Iranian EFL learners affect the application of the subjacency principle?

In order to find the most reasonable answers to the above questions, the researcher proposed the following null hypotheses:

HO1. Iranian EFL learners do not have the knowledge of the Subjacency principle in English; in other words, the subjacency principle is not innate.

HO2. If they do have the knowledge of the subjacency principle, there is no significant difference in this knowledge across learners with different levels of English ability in answering the subjacency test questions.

HO3. If they do have the knowledge of the subjacency principle in English, there is no significant difference in this knowledge across learners on the basis of their gender.

4. METHODOLOGY

3.1 Participants

The participants in this research were 36 Iranian male and female students, aged 19 to 21, studying English at Meraj Language Institute in Sabzevar, a provincial city of Khorasan Razavi Province. The participants were taking summer English classes at the time of the experiment (i.e., June 2014). They were taking classes at the intermediate and advanced levels. The reason for the choice of this group with different language proficiency levels was to investigate the probable effects of the learners' general English proficiency on the subjacency principle. It should be noticed that all the participants had the same linguistic background. They had Persian as their first language and had studied English for six to seven years in Iranian guidance schools and high schools before entering Meraj Language Institute. They also had never been to an English speaking country.

3.2 Materials

In order to collect data, two tests were used. The tests consisted of a General Proficiency Test (GPT) and a Subjacency Test. The GPT was used in this study in order to specify the English general proficiency levels of the participants and place them into advanced and intermediate learners. Advanced and intermediate participants of the study form two ability groups: high and low, respectively. This proficiency test consisted of 60 multiple choice items which gauged the learners' grammar skill. On the other hand, the Subjacency Test included 60 test items which consisted of 42 ungrammatical structures violating the subjacency principle in wh-movement and 18 grammatical sentences which were in line with the subjacency condition. This test consisted of two parts: (i) 42 True/False items testing the participants' grammaticality judgments, and (ii) 18 declarative sentences which participants were supposed to convert them into interrogative sentences using the wh-words given in the parentheses. On the whole, items in the first and second part of the Subjacency Test were considered respectively as recognition and production types. Thus, the questionnaire included 60 questions altogether as illustrated in the following table:

Table 1

The Number and Types of the Subjacency Test Items

Types of items	Example	Number of items
Recognition (T/F)	Who are you reading a book about?	13
Recognition (T/F)	* Which book did Mary meet the man who wrote?	29
Production (conversion)	He thinks the white dog ate <u>the cookie</u>? (What)	5
Production (conversion)	*That George like <u>you</u> is obvious.(Who)	13

3.3 Procedures

To start the data collection procedure, a request permission letter was received from Hakim Sabzevari University. The permission letter was presented to Meraj Language Institute's principal as a proof of the important goals of this study. At the first stage of the experiment, an Oxford Placement Test (OPT) which is a standard test and is known as General Proficiency Test (GPT) was given to 36 participants in order to screen them on the basis of their current proficiency level. The GPT was used as a pretest to determine intermediate and advanced learners. Then the mean of the participants' scores in this test was calculated and put in a normal distribution curve. The mean score of the GPT was 62.041. Those whose scores were below the mean were placed into the low (intermediate) group and the participants whose scores were above the mean were put into the high (advanced) group. Therefore, participants were equally divided in two groups, 18 students in the low group and 18 in the high group. At the second stage of the experiment, one week after, the participants were tested on the subjacency principle through the second instrument, i.e., the Subjacency Test. At this stage, the participants were asked to judge about the grammaticality of 42 items and the convertibility of the given 18 declarative sentences into wh-questions.

5. DATA ANALYSIS

In order to test the first and second hypotheses, two independent sample *t* tests were used, one for examining the mean score of questions in the first part of the test between the low and the high group and the other for investigating the mean score of questions in the second part of the test between these two groups.

Table 2
Descriptive Statistics for the Mean Scores of Questions in the First Part of the Subjacency Test

Index / **Variable**	**Frequency**	**Mean**	**Std. deviation**
High group	18	16.39	1.44
Low group	18	13.14	1.88

Table 3
Descriptive Statistics for the Mean Scores of Questions in the Second Part of the Subjacency Test

Index / Variable	Frequency	Mean	Standard deviation
High group	18	14.49	1.99
Low Group	18	12.82	2.35

Table 4
T-test for Comparing the Mean Scores of Responses to the First Part of the Subjacency Test

Index / Variable	t-test for comparing the means			
	t	Df	Sig.	Result
Questions inthe First Part of the Subjacency Test	5.814	34	0.001	Significant

Table 5
T-test for Comparing the Mean Scores of Questions in the Second Part of the Subjacency Test

Index / Variable	t-test for comparing the means			
	t	Df	Sig.	Result
Questions in the Second Part of the Subjacency Test	2.289	34	0.028	Significant

Since the amount of *p* (Sig.) value in the case of questions in the first and second part of the test for the two groups (high and low) was less than 0.05, the first hypothesis concerning the non-innateness of the subjacency principle was rejected. Given the amounts of the absolute magnitude of the calculated *t* and the *p* value, which were respectively more than 1.96 and less than 0.05, it can be concluded that the performance of the students in the high group was better than that of the low group in answering questions in the first and second part of the Subjacency test, and therefore learners' level of proficiency had affected the application of the subjacency principle. Consequently, the second hypothesis was rejected too.

For testing the last hypothesis concerning the lack of difference between learners in applying the knowledge of the subjacency principle with respect to gender, an independent sample *t* test was calculated and the obtained results were analyzed.

Table 6
Descriptive Statistics for the Mean Scores of the Subjacency Test Questions Based on the Gender of the Subjects

Index / Variable	Frequency	Mean	Std. deviation
Male	18	14.76	1.81
Female	18	15.2	1.95

Table 7
The Results of the T-Test for Comparing the Mean Scores of the Subjacency Test Questions Based on the Gender of the Subjects

Index / Variable	t-test for comparing the means			
	t	**Df**	**Sig.**	**Result**
Subjacency	1.85	34	0.083	Non-significant

According to the results of the above table, since the absolute magnitude of the calculated *t* (1.85) was less than *t* (1.96) and the amount of the *p* value (0.083) was more than 0.05, it can be concluded that there was no significant difference between male and female subjects in applying the knowledge of the subjacency principle. In other words, sex had no impact on the application of this UG principle. So the third hypothesis was accepted.

6. DISCUSSION AND CONCLUSION

This study investigated the UG availability in SLA using 36 Iranian male and female students, aged 19 to 21, studying English at Meraj Language Institute in Sabzevar. The subjacency principle was chosen as one of the UG principles. All the participants were divided in two groups, high and low. The two experimental groups took the GPT and the Subjacency Test. The GPT measured the participants' general grammar knowledge, and the Subjacency Test measured their knowledge of wh-movement constraints in English. The first null hypothesis was that Iranian EFL Learners do not have the knowledge of the subjacency principle in their interlanguage. Since the performance of both high and low groups in giving answers to the subjacency questions was acceptable, the first

null hypothesis was rejected. In other words, this study rejected the non-innateness of the subjacency principle. Furthermore, the difference across the two groups was statistically significant. The subjects in the high group were more proficient than the students in the low group in answering the questions in the first and second part of the Subjacency Test. Therefore, the hypothesis of lack of difference between the low and the high group in applying the knowledge of the subjacency principle was also rejected. In this study, the performance of the low group and the better performance of the high group in answering the subjacency questions can be attributed to the partial existence of UG in L2. Therefore, the obtained results are in line with the overall model that has been discussed in section 2. Also this study showed that gender of the subjects did not affect the knowledge of the subjacency principle.

The results of this study is in line with Hashemian and Iravani's (2011) study in that there are significant differences between the low and the high group in answering the grammatical and non-grammatical questions of the subjacency questionnaire. Hashemian and Iravani (2011) found out that the performance of the high group was much better than the performance of the low group. However, compared with the performance of the native speakers of English, they also found out that the high group was ranked lower.

Concluding, this study has some important pedagogical implications for teachers. It is necessary for L2 teachers, particularly those teaching English, to be aware of the fact that we cannot have explicit instruction in the case of UG principles such as the subjacency principle. This stands in contrast to the parameters which are teachable and L2 learners reset the values of these parameters after receiving adequate level of instruction (input) in the L2. The present study encourages such consciousnesses-raising on the part of L2 teachers. This study can also make course and syllabus designers more sensitive to the design of English language materials in a way which are useful in providing adequate input for triggering UG principles.

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