

# The Effect of Raising Learners' Cognition in Explicit L2 Grammar Instruction on Their Grammatical Achievement in English as a Foreign Language

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**Abstract -** The aim of this study was to explore the impact of explicit grammar instruction through raising adult learners' cognitive abilities of attention and noticing, and compare it with implicit grammar instruction in learning the grammar of English as a foreign language for learners who had Arabic as their mother tongue. To achieve this purpose, two classes of five adult L2 learners aging between 18-27 years old in the pre-intermediate proficiency level were given two types of instruction. Different tests were run to analyze the data collected using SPSS software. The results proved that the group whose cognitive abilities were raised during explicit grammar instruction outperformed those who were given implicit grammar instruction. This reveals the importance of the role of raising cognition in enhancing the process of adults learning the grammar of English as a foreign language.

**Keywords—** *explicit instruction, implicit instruction, cognition, attention, noticing*

## I. INTRODUCTION

Much debate in the past few decades have questioned the role that grammar has in the process of second language acquisition (SLA) (Burgess & Etherington, 2002; Nassaji & Fotos, 2004; Wang & Wang, 2014). Some viewpoints perceive that grammar instruction is not conducive to language learning (Krashen, 1981) and, more seriously, it might be even detrimental to the progress of learning. On the other hand, many research findings have revealed the importance of grammar instruction in enhancing the accuracy level of second language (L2) learners (Ellis, 2006). However, even within the class of supporters of grammar instruction, there remain some points of controversy as of how best to introduce grammatical instruction to L2 learners. For many years and until now, the issue of whether to teach grammar explicitly or implicitly is under extensive investigation and research. More recently and with the advent of cognitive linguistics, researchers have tried to study the interrelationship between second language acquisition (SLA) in general and cognitive processes (Block, 1990; Mitchell & Myles, 2004). The role of the cognitive processes of attention and noticing in SLA has been widely worked on by many researchers like Muschiol (2010), Godfroid (2010), and Doughty and Varela (1998). The current study investigates the effect of raising learners' cognition during explicit L2 English grammar instruction on their grammatical attainment.

## II. LITERATURE REVIEW

Teaching of grammar depends largely on the way the importance of grammar is viewed within the framework of learning a second language. Krashen (1981) has downplayed the role that grammar has in mastering a foreign language arguing that grammar instruction will not result in the intuitive use of the grammatical form. According to him, formal grammar lessons will develop only declarative knowledge that will not give learners the procedural ability to use the forms correctly in communicative situations (as cited in Nassaji & Fotos, 2004, p. 127). If comprehensible input is provided to the learners and there is enough of it, the necessary structures will be automatically provided (as cited in González Tamayo, 2012, p. 2) as learners will fall back on their built-in systems for learning grammar (Corder, 1967, as cited in Ellis, 2006, p. 85). According to Krashen (1993), the effects of grammar instruction are just “peripheral and fragile” (p. 725), and the results of studies on grammar instruction represent only a modest increase in conscious knowledge (Krashen, 1999) that will not promote genuine knowledge of language (Truscott, 1996). Similarly, Truscott (1996) described the effects of grammar instruction as “short-lived and superficial” (as cited in Nassaji & Fotos, 2004, p. 129). As such, formal instruction is seen as not only unnecessary but also counter-productive. Here, the role of the language teacher is not to provide information about the structures of the new language but to simplify the input to make it comprehensible, that is, a little bit beyond the learners’ current level of grammatical proficiency.

As a reaction to the then-popular claims of Krashen, many studies were designed to examine the impact of grammar instruction on the development of language learning. In 2000, Norris and Ortega have conducted a meta-analysis of 49 studies, and the results have shown the effectiveness of grammar instruction. Long (1983) has compared the success of learners who were given instruction with those who were not and found that “instructed learners progressed more rapidly and achieved higher levels of proficiency” (as cited in Ellis, 2006, p. 85) than naturalistic learners. As such, he has concluded that grammar instruction contributes significantly to the achievement of accuracy in language learning. Meaning-oriented teaching approaches where grammatical points are not addressed are referred to as inadequate (Nassaji & Fotos, 2004). Based on a French immersion program, Lapkin, Hart, and Swain (1991) found that despite learners’ long exposure to the target language, certain grammatical forms were not accurately used indicating lack of grammatical competence. Likewise, Spada (1997) has pointed out that the use of formal instruction of grammar will enhance learners’ accuracy, and their awareness of these grammatical forms will last for a longer time. On similar grounds, Larsen-Freeman (1985) has claimed that instruction will speed up the rate of learning, and it will improve the quality of L2 attainment. Primarily, grammatical instruction has “facilitative effects on both the rate and the ultimate level of L2 acquisition” (Nassaji & Fotos, 2004, p. 129). Seliger (1979) has described grammar rules as acquisition facilitators. In fact, grammar is considered the nucleus of all the productive and receptive skills of language (Aprizani, Islamiah & Furyanto, 2018), and instruction is viewed as an effort to intervene in inter-language development, and it is a way to achieve the goal of the target language (Ellis, 2008a). Moreover, Robinson (2001) has argued that even if the purpose of learning a second language is communication, grammar must be integrated if learners are expected to use the language communicatively. Thus, if learners are to develop their accuracy level in the target language, language teaching approaches must focus on grammatical forms.

Although much supporting evidence exists for the usefulness of grammar instruction, there is still an area of some controversy about the most effective method of learning and using L2 grammar. The type of grammar instruction to be used in L2 environment has been the subject of research and discussion for almost more than half a century. The question of whether to teach grammar explicitly or implicitly has received much attention. Briefly, explicit grammar instruction refers to highlighting the grammar rules purposefully to enable learners use the target language efficiently and accurately (Ling, 2015). Learners are taught a certain rule, and they are encouraged to develop metalinguistic awareness of it (Dekeyser, 1995, as cited in Nazari, 2013, p. 157). Differently, implicit grammar instruction emphasizes that learners should acquire the grammar of the target language naturally without being

directly instructed. Learners are provided with conditions under which they can induce some patterns about the language without awareness and start using them (Ellis, Loewen, Elder, Erlam, Philp, & Reinders, 2009; Ling, 2015). Many studies have analyzed and compared the effect of explicit and implicit L2 grammar instruction on the proficiency of learners coming from different L1 backgrounds.

Nazari (2013) conducted a study in Iran in which he compared the effect of explicit and implicit L2 grammar instruction on adult learners' achievement in English present perfect tense. He found that learners who were exposed to explicit instruction outperformed those who were taught implicitly, and they were more precise in detecting and correcting ungrammatical sentences. He came to the conclusion that explicit teaching strategy had a better effect on learning the grammar of English as a foreign language. Moreover, the study of Andrews (2007) took into consideration the degree of complexity of the L2 grammatical rule as well as the learners' level of proficiency in comparing explicit and implicit L2 English grammar instruction. His findings showed that the scores of explicitly-instructed group were significantly higher than those of the implicitly-instructed group in case of complex grammatical rules. However, when it came to simple rules of grammar, there was no significant difference between the two approaches. He also noticed that explicit instruction benefited learners the most in the beginner and advanced levels of proficiency.

Tode (2007) has inspected the effect of explicit and implicit grammar instruction on Japanese learners' ability to retain information about the English verb "to be" in the beginner proficiency level. Three groups of learners participated in this study; one received explicit grammar instruction, another received implicit grammar instruction, and a third group, the control group, did not receive any kind of instruction. The results revealed that learners who received explicit instruction achieved significant short-term gains. Learners who received implicit grammar instruction did not receive any gains as well as they did not outperform the control group. The problem with the explicitly-instructed group, however, is that their knowledge was short-termed; in other words, they could not retain this knowledge after being introduced to a different grammatical point. The study concludes that the effectiveness of explicit instruction can be achieved through continuous follow-up instructions. Sakai (2008) has suggested that there are some grammatical features that need extensive explicit instruction while other points can be learned through less explicit instruction.

González Tamayo (2012) has conducted a study on the effect of explicit grammar instruction in L2 learning, and he has asserted that explicit grammar instruction can make learners feel more confident about what they produce. Further, this type of instruction might speed up learners' conscious awareness of the foreign language and increase their formal accuracy. Wang and Wang (2014) have explored the role that explicit grammar instruction has in developing the writing proficiency of Korean learners of English as a foreign language and found that there is a positive effect of explicit grammar instruction on L2 writing. Aprizani, Islamiah, and Furyanto (2018) have investigated the effect of explicit grammar instruction on enhancing the cognitive aspect of Indonesian L2 learners of English in the reading skills. The researchers have found that explicit grammar instruction strengthens learners' understanding of English. Besides, there is a significant impact of explicit grammar instruction on developing the cognitive aspects used in the reading skill.

The interrelationship between learning a foreign language and making use of cognitive processes has been a subject for repeated investigation in recent years. In a detailed article, Doughty (2001) has claimed that progress in adult second language acquisition depends crucially upon many cognitive processes, such as paying attention to the target input and noticing the difference between learners' output and the actual target form. He has also stressed the importance of the form, meaning, and function of the target structure in order to promote processing a foreign language. Seiba (2002) has argued that noticing and understanding of the target language structure promotes learners' ability to both recognize and produce contextually accurate language. Muschiol (2010) has explored the relationship between cognition and grammar teaching, and he came out with the conclusion that the use of cognitive frame of reference will increase learners' awareness of grammatical knowledge and it will

help them identify their initial grammar problems. Schmidt (1990) has highlighted the importance of noticing the new structure as it will help in converting it from input into intake (as cited in Godfroid, 2010, p. 1), and this can be achieved through explicit grammar instruction. Further, Hawkins (1984) has suggested that explicit grammar instruction helps in raising language awareness of second language learners, and it will make learners notice their own errors (Batstone & Ellis, 2009). According to Ellis (2006), drawing learners' attention to the grammatical form is the essence of grammar instruction. Textual enhancement is one way of drawing learners' attention to certain forms in the input that might go unnoticed otherwise (Doughty & Varela, 1998). This can take the form of capitalizing, italicizing, boldfacing, or underlining the features that the teacher wants to highlight, and this will raise learners' awareness of the target forms and help them notice the new structures (Nassaji & Fotos, 2004; Ünlü, 2015). Moreover, presenting learners with the grammatical rule facilitates developing true competence (Ellis, 2006).

### III. RESEARCH HYPOTHESIS

$H_0$ : There is no significant effect of raising adult learners' cognition during explicit grammar instruction in the pre-intermediate level of proficiency on their grammatical attainment in English as a foreign language.

### IV. RESEARCH QUESTIONS:

The following research questions are answered in the current research.

1. Is there a significant difference between the two experimental groups of learners (ExG1 and ExG2) before instruction in both use of cognition and grammatical achievement?
2. Is there a significant difference between the two experimental groups of learners (ExG1 and ExG2) after instruction in both use of cognition and grammatical achievement?
3. Does raising adult learners' cognition during explicit grammar instruction in the pre-intermediate level of proficiency significantly affect their grammatical attainment in English as a foreign language?

### V. METHODOLOGY

The quasi-experimental design is chosen in the current study because the sample size is comparatively small as well as randomization and the availability of the control group is not possible. In this research, there are two experimental groups and no control group. A pre-test-post-test design is followed where the dependent variables, learners' use of cognition and learners' grammatical achievement, are measured before and after the intervention. A post-test is carried out after the intervention to assess the effect of the independent variable, teaching method, on the dependent variables. Extraneous variables likely to influence the dependent variable are controlled as far as possible. Such factors include age, gender, mother tongue, level of education, and level of proficiency in English.

#### 5.1. Participants

Two experimental groups of five learners each—(ExG1) and (ExG2), studying English as a foreign language in the pre-intermediate level in CPC center in Aleppo, Syria were selected to participate in this study. Participants were controlled for their age, level of education, mother tongue, and level of proficiency in English. They were between 18-27 years old. They were undergraduate students studying at University of Aleppo. Their mother tongue is Arabic, and English is their foreign language. Each group contained three males and two females. The first experimental group (ExG1) received explicit grammar instruction with concentration on raising learners' cognitive processes of attention and noticing, and the second experimental group (ExG2) received implicit grammar instruction.

### 5.2. Instruments

- Background Questionnaire: it collected information about participants' name, age, gender, level of education, and mother tongue.
- Test of Syntactic Abilities (TSA): it consists of 120 multiple-choice items covering nine major English syntactic structures which are negation, conjunction, determiners, question formation, verb processes, pronominalization, relativization, complementation, and nominalization (Quigley, Steinkamp, Power, & Jones, 1978).
- The cognitive part of Strategy Inventory for Language Learning (SILL), version 7.0: it is a five-point Likert scale self-report questionnaire consisting of 14 items (Oxford, 1989).
- *English File* course book: it was designed for learners of English as a foreign language covering areas of grammar, vocabulary, pronunciation along with the skills of listening, speaking, reading, and writing (Latham-Koenig, Oxenden, & Seligson, 2013).
- *English File* test: it is a test designed to measure the achievement of learners by the end of the course. It covers areas of grammar, vocabulary, reading, writing, listening, and speaking.

### 5.3. Procedure

At the very beginning, two classes containing five students (three males and two females) each were assigned as ExG1 and ExG2 using the random sampling technique. Participants of both groups were asked to answer the Background Questionnaire. Then a pre-test of (TSA) and the cognitive part of (SILL) were conducted on the participants of both groups (ExG1 and ExG2) in order to ensure that they all have a similar baseline in grammatical knowledge and use of cognition. The first group (ExG1) received explicit grammar instruction where the teacher's concentration was on raising learners' cognition by drawing their attention to grammatical forms and rules, and making them notice the gap between their production and the target language. The other group (ExG2) received implicit grammar instruction where learners were expected to induce grammatical rules by themselves without explicitly highlighting any forms of the target language. Both groups were taught using *English File* course for per-intermediate students. The course covered a period of seven weeks, three days per week, and three hours per day. The course itself has a test designed especially to measure the achievement of the learners by the end of the course covering areas of grammar, vocabulary, reading, writing, listening, and speaking. Participants did that test followed by a post-test of the cognition part of (SILL) and (TSA).

### 3.4. Scoring

TSA has 120 multiple-choice items. For each item, there are four choices, and only one of them is correct. Learners are given one point for each correct answer, and a zero point for a wrong choice or a missing one. In case a participant ticks two choices, his/her answer is considered wrong. Five question formats are followed in this test. Items from 1 to 54 have four sentences; three of them contain a syntactic error, and one is correct. Items from 55 to 77 have a sentence with a missing syntactic word along with four choices. Only one choice fits the blank to make a correct sentence. Items from 78 to 89 contain a sentence or two sentences to be said in different way. Four choices are given; three of them are wrong, and only one is correct. Items from 90 to 94 are sentences in the interrogative form for which four answers are given. Only one answer is correct. Finally, items from 95 to 120 contain a sentence or two sentences from which participants have to infer a semantically and syntactically correct sentence. Four inferences are given, and only one of them is correct.

The cognitive part of SILL contains 14 items to be replied to in a form of five-point Likert scale. Participants had to write a number between 1 and 5 next to each item. Number 1 refers to "Never or almost never true of me", number "2" refers to "Usually not true of me", number "3" refers to "Somewhat true of me", number "4" refers to "Usually true of me", and number "5" refers to "Always or almost always true of me". The sum of the total numbers for the 14 items is calculated for each

participant. The score indicates the extent to which participants use their cognitive abilities. The higher the score is the higher the use of cognition.

The *English File* test consists of 20 questions for grammar (one point each), 20 questions for vocabulary (one point each), 15 reading questions (for the first part, one point is given for each question, and for the second part, two points are given for each question), 2 writing questions (ten points each), and 10 listening questions (two points each). They are given a total of 100 points altogether. The speaking test is given separately, and its score is out of 100 points. It consists of five parts as the following: conversation between two learners, making sentences, talking about a topic, answering a given question, and talking about a topic with reference to a grammatical point. Each part is given 20 points.

## VI. DATA ANALYSIS

The data collected were quantitatively analyzed by running different tests using the SPSS software. First of all, to test the baseline of ExG1 and ExG2 in both of the use of cognition and grammatical proficiency, a pre-test was conducted on both groups before the treatment was introduced as shown in Table 1.

Table 1. Pre-intervention test results for ExG1 and ExG2 groups in cognition and grammar

	ExG1				ExG2			
	N	Mean	Std. Deviation	Median	N	Mean	Std. Deviation	Median
Cognitive Strategies (SILL) Pre-test	5	46.00	6.856	47.00	5	42.20	5.167	44.00
Test of Syntactic Abilities Pre-test	5	82.60	3.647	81.00	5	82.40	3.362	83.00

Table 1 shows that the median scores of the syntactic abilities of the two groups are similar because the institute conducts an English proficiency placement test for students and divides them accordingly into proficiency levels. However, participants in both groups have similar cognitive abilities with ExG1 of a little higher median. In order to decide whether the difference in the syntactic abilities and the use of cognition between the two groups is significant or not before the treatment, Mann-Whitney Test is used.

Table 2. Mann-Whitney Test to compare ExG1 and ExG2 before treatment

	Test Statistics	
	Z	Asymp. Sig. (2-tailed)
Cognitive Strategies (SILL) Pre-test	-1.156	.248
Test of Syntactic Abilities Pre-test	.000	1.000

Table 2 displays that the difference between the two experimental groups prior to treatment in the use of cognition is  $p=.248>.05$  and in the syntactic abilities is  $p=1.000>.05$ . This means that there is no statistically significant difference between the two groups, and both groups are considered equal.

Post-tests of the use of cognition and syntactic abilities were conducted in order to measure the effect of the two types of instruction on learners' use of cognitive strategies and their achievement in grammar. The pre-tests and post-tests of cognition and grammar of both groups were compared using Wilcoxon signed ranks test in order to decide the significance of instruction.

Table 3. Wilcoxon signed ranks test for ExG1

	Cognitive Strategies (SILL) Post - Cognitive Strategies (SILL) Pre	Test of Syntactic Abilities (post-test) - Test of Syntactic Abilities (pre-test)
Z	-2.023 <sup>c</sup>	-2.032 <sup>c</sup>
Asymp. Sig. (2-tailed)	.043	.042

Table 3 indicates that ExG1 has significantly improved in both cognition and syntactic abilities because the  $p$  value is  $p=.043<.05$  in cognition and it is  $p=.042<.05$  in the syntactic abilities. This means that the type of instruction given to ExG1 was effective in both raising learners' use of cognition as well as in enhancing their syntactic abilities.

Table 4. Wilcoxon signed ranks test for ExG2

	Cognitive Strategies (SILL) Post - Cognitive Strategies (SILL) Pre	Test of Syntactic Abilities (post-test) - Test of Syntactic Abilities (pre-test)
Z	-1.225 <sup>c</sup>	-2.023 <sup>c</sup>
Asymp. Sig. (2-tailed)	.221	.043

Table 4 reveals that ExG2 use of cognition has not significantly improved between the pre-test and the post-test of cognitive strategies because the  $p$  value is  $p=.221>.05$ . This means that the type of instruction given to ExG2 was not effective in the improvement of cognitive use. However, there is a significant improvement in the grammar of the ExG2 because the  $p$  value is  $p=.043<.05$ .

Table 5. Post-tests of use of cognition and grammatical achievement of ExG1 and ExG2

	ExG1				ExG2			
	N	Mean	Std. Deviation	Median	N	Mean	Std. Deviation	Median
Cognitive Strategies (SILL) Post-test	5	53.60	2.881	53.00	5	44.80	5.357	46.00
Test of Syntactic Abilities Post-test	5	96.00	5.000	97.00	5	88.60	2.702	89.00

Results of the cognition post-test shown in Table 5 exhibit the superiority in the use of cognition of ExG1 over ExG2 where the median score of ExG1 is 53.00 while it is 46.00 for ExG2. Moreover, ExG1 outperformed ExG2 in the use of syntactic abilities where ExG1 and ExG2 have median scores of 97.00 and 89.00, respectively. In order to measure the difference between ExG1 and ExG2 in the use of cognition and grammatical abilities after instruction, Mann-Whitney test was used, and the results are shown in Table 6.

Table 6. Mann-Whitney test

	Cognitive Strategies (SILL) Post	Test of Syntactic Abilities (post- test)
Mann-Whitney U	.500	3.000
Wilcoxon W	15.500	18.000
Z	-2.514	-1.984
Asymp. Sig. (2-tailed)	.012	.047

The previous table shows that there is a statistically significant difference in the use of cognition between ExG1 and ExG2 as the  $p$  value is  $p=.012<.05$ . Similarly, the difference between ExG1 and ExG2 in the syntactic abilities is also significant as the  $p$  value is  $p=.047<.05$ . Thus, the null

hypothesis is rejected, and there is a significant effect of raising adult learners' use of cognition during explicit grammar instruction in the pre-intermediate level of proficiency on their grammatical attainment in English as a foreign language.

## VII. DISCUSSION

Results of the pre-tests of cognition and syntactic abilities show that both groups have a similar baseline in cognition and syntactic abilities before introducing the treatment, and there is no significant difference between the two groups. Hence, the first research question is answered. The results of the post tests of ExG1 demonstrate the significant improvement of learners in both of cognition and grammar while the results of ExG2 show significant improvement in grammar only. Here, the second research question is answered.

In order to answer the last research question, the post-tests of ExG1 and ExG2 are compared, and the results show that there is a significant difference between the two groups in both use of cognition and syntactic abilities; thus, the null hypothesis is rejected. This means that raising adult learners' cognition during explicit grammar instruction in the pre-intermediate level of proficiency has a significant effect on enhancing learners' grammatical attainment in English as a foreign language.

## VIII. CONCLUSION

The results of the data analysis indicate the outperformance of learners who have received explicit instruction over those who have received implicit instruction in the grammatical achievement and this confirms the findings of Nazari (2013). Following the explicit method of instruction through raising the learners' cognitive abilities of attention and noticing enhances their performance on the grammar of English as a foreign language, and this is similar to what Andrews (2007) and Robinson (2001) have concluded.

The findings of this study demonstrate that adult learners whose mother tongue is Arabic can perform better when they are given explicit instruction through raising their cognition. This can be explained by the fact that, as Ellis (2008b) has suggested, adult learners require some sort of explicit knowledge of grammar in order to compensate for the changes in their cognitive abilities. This is because cognition declines over time. What children use in order to acquire their mother tongue cannot be accessed by adult learners, so they have to employ different cognitive processes to learn an additional language.

Attention and noticing are two important cognitive faculties that can serve the process of learning a foreign language. It is noteworthy that learners, in the current research, have gained better results when their attention was drawn to the grammatical form and when they noticed their errors than learners who were exposed to natural language without focusing on grammatical forms. This confirms the findings of Doughty and Varela (1998), Ellis (2006), and Nassaji and Fotos (2004).

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