

The Effects of Explicit Grammar Instruction on the Learning of Simple and Complex Grammar Rules

Abstract

This study examines the effects of explicit instruction on learning simple and complex rules. While the target simple rule underlies the optional inversion of subject and verb following fronting of adverb of place, the two target complex rules underlie the formation of pseudo-cleft sentences headed by 'where' and 'what'. Difference in the instructional condition depends on the presence or absence of explicit grammatical information. The results indicate that subjects in the explicit grammar condition outperformed the subjects in the implicit condition in both the simple and complex rules. These results support previous findings that explicit instruction leads to gains in learning second / foreign language grammatical items.

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ملخص

تبحث هذه الدراسة نتائج التعليم الواضح من خلال التدرُّب على نوعين من قواعد النحو؛ القواعد البسيطة والقواعد المُركَّبة. في حين أن القاعدة البسيطة المستهدفة تتعلق بالقلب الاختياري لعناصر الجملة الفاعل والفعل الذي يلي ظرف المكان حين يوضع في بداية الجملة، القاعدتان المركبتان المستهدفتان مرتبطتان بتكوين الجمل (شبه- منقسمة) التي يتم إدخالها بـ"أين" و"ما". الاختلاف في نموذج التعليم يتبع وجود أو غياب المعلومات النحوية الواضحة. دلت النتائج على أن المجموعة التجريبية تجاوزت بوضوح بالغ نتائج مشاركي المجموعة الشاهدة في كل من القواعد البسيطة والمركبة. وفإن عليه للتعليم الواضح أثر أكثر إيجابية على المتعلمين في التدرُّب على القواعد النحوية للغة الأجنبية، لا تبلغه الطريقة البيداغوجية الضمنية. تؤكد هذه النتائج نتائج دراسات سابقة أثبتت أن التعليم الواضح يساعد التدرُّب الخاص بالبنى النحوية البسيطة بالقدر ذاته الذي يساعد به التدرُّب في البنى المركبة للغة أجنبية/ ثانية.

Introduction

This study attempts to investigate the effect of explicit instruction on learning some English complex grammar rules. It seeks to provide insights about how grammatical rules should be presented to learners so as to optimize their learning in second /foreign language classroom.

1-Explicit Grammar Instruction and its Effectiveness

One of the most persistent questions in second/foreign language acquisition research and pedagogy concerns the impact that explicit instruction of grammar may have on acquiring a second/foreign language. It is argued that directing the learners' attention and presenting them information about the rules governing the target language

structures (explicit grammar instruction) can be beneficial to second/foreign language learning. In explicit instruction, learning the form is the primary focus of all the tasks and a selected form is taught, either by the presentation of the rules and then the giving of examples (deductive reasoning) or by giving examples and then eliciting the rules (inductive reasoning) from the learners. Learners usually practice the form in language tasks. Some cognitive psychologists have explained the effectiveness of explicit instruction by claiming that conscious awareness of the form of input at the level of noticing is a necessary condition for second/foreign language development to occur. In contrast, Krashen (1979, 1981, 1982, 1985, and 1994) argues that two processes operate in second/foreign language development: a conscious process based on rule application (explicit instruction) which results in a learned system (explicit language knowledge) and an unconscious process which results in an acquired system (implicit language knowledge). The way in which implicit knowledge is built up most effectively is still an issue of considerable disagreement. Theories on the role of explicit grammar instruction in second/foreign language acquisition predict a facilitative effect in the acquisition of a second / foreign language.

Over the last fifty years, grammar teaching in the second / foreign language (SL/FL) classroom has been an important and controversial issue. In the history of language teaching, the role of grammar has been addressed by several linguistic theories and methodologies. The way grammar is regarded has a direct influence on the elaboration of pedagogical grammars, learning processes and many other areas involved in language teaching. Grammar has been attributed different roles in the language classroom, reaching little consensus, not only about the particular forms to be taught, but even about when or how to teach. Some Second Language Acquisition (SLA) researchers found that some linguistic features are acquired without conscious awareness by learners or intervention from teachers (Krashen 1979b, 1982; Reber 1989, 1993). However, many others evidenced that many language features develop very slowly in the absence of guided attention (Norris and Ortheaga 2000, Robinson 1996, 1997; Schmidt 1990, 2001; Spada and Tomita 2010) . It was discovered that some activities of drawing learners' attention to form could increase the possibility that learners will notice and make progress in learning these features. Countless empirical and theoretical studies considered grammar teaching and revealed that explicit grammar instruction is beneficial to second/foreign language acquisition. The main advantage was attributed to the effect of focusing learners' attention on the target language features.

According to Ellis (1994a), grammar instruction is explicit or implicit when learners do or do not receive information concerning rules underlying the input, respectively. For DeKeyser (1995), explicit grammar instruction takes place if rule explanation forms part of the instruction (deductive) or if learners are asked to attend to particular forms and try to find the rules themselves from an array of data illustrating the rule (inductive). In order to gain a better understanding of explicit grammar instruction, it is important to consider how it differs from implicit grammar instruction. While explicit instruction involves the development of metalinguistic awareness of the rule, implicit instruction is directed at helping learners to infer rules without awareness and there is no intention to develop any understanding of what is being learnt. Housen

and Pierrard (2006) claim that the key difference between explicit and implicit instruction lies in whether the instruction directs or attracts attention to form. According to them, explicit instruction directs learners not only to attend to grammatical forms but also to develop conscious mental representations of them. Hence, learners know what they are supposed to be learning. Conversely, implicit instruction aims to attract learners' attention to examples of linguistic forms as they occur in input but does not seek to develop any awareness or understanding of the rules that describe these forms.

A considerable number of experimental studies using a wide range of different research designs have been carried out in order to gain insight into the effect of explicit instruction. The benefits of focusing learners' attention on form have been shown by several studies (e.g., Alanen, 1995; De Graaf, 1997; DeKeyser, 1995, 1998; Doughty, 1991; N. Ellis, 1993; Lightbown, 1991, 1998; Lightbown & Spada, 1990; Robinson, 1996, 1997; Spada & Lightbown, 1993; Swain, 1985; Williams & Evans, 1998). Furthermore, the effectiveness of explicit instruction has been clearly shown in a meta-analysis by Norris & Ortega (2000) which synthesized data from 49 published articles. Norris and Ortega's (2000) secondary analyses of primary investigations in SLA concluded that explicit types of instruction produce more substantial effects than implicit/incidental instruction, and that the effectiveness of explicit instruction is durable over time. However, although, much evidence for the facilitative effect of explicit instruction on SL/FL learning has been found, little is known yet concerning the question of under which specific learning circumstances and for exactly which aspects of grammar explicit instruction can be most facilitative for second/foreign language learning. Many SL/FL researchers have argued that the following variables could possibly influence the effect of explicit instruction: the target structure linguistic domain, its degree of semantic redundancy, its reliability, its scope, the frequency with which it is manifested in the input, the task modality, the type of instruction, individual learner's characteristics, and the complexity of the target language rules.

2- Explicit Grammar Instruction and Complex Rules Learning

As regards the complexity issue, many SL/FL researchers have taken a straightforward position by assuming that complex rules can be acquired only via activating implicit processes. For instance, Krashen(1982) claims that the development of the learned language system is restricted to a relatively small number of simple rules. Claims similar to those of Krashen have been made by Reber (1989, 1993). Like Krashen, Reber argues that what can be learned by unconscious learning process (implicit learning) exceeds what can be learned by explicit conscious processes, and that complex rules can only be learned implicitly: conscious explicit instruction is only effective where the rules are simple and the structural pattern they describe is easy to be noticed by the learner. By complex rules, Robinson (1996) refers to those rules that are not easy to be noticed in the input (low degree of perceptual salience), have a large size of context of application, have a low degree of semantic opacity and require a great amount of attention and processing effort so as to remember and learn them. Therefore, the simple rules are, according to him, those with perceptually salient features, which are applied to small contexts and which involve transparent meaning-

to-form relationships. With regard to the complexity of SL/FL rules, Hulstijn and De Graaff (1994) defined it as being the number of criteria to be applied in order to get the correct form. Following this definition, De Graaff (1997), in a study that investigated the effect of explicit instruction on SL/FL learning, operationalized complexity as the total number of formal and functional grammatical criteria involved in the process of noticing, comprehending, or producing a given form. Basically, according to him, the fewer are the required criteria, the less complex the form is. According to this definition, *wh*-questions used as object of a preposition could be characterized as more complex than the simple past tense because the former require seven transformations while the latter requires only one. Housen et al. (2005) define pedagogical complexity in a similar way, that is, in terms of the number of steps the learner has to follow to arrive at the production of the targeted linguistic structure, and the number of options that are available at each step.

In line with this definition, the researchers suggest that pedagogical rules for the formation of a target structure can be more or less complex depending on the elaboration with which the target structure is formulated. For example, the pedagogical rules for the formulation of the French present conditional can be as simple as: add the appropriate endings of the *imparfait* to the stem of the future simple form of the verb. The pedagogical rules in question can be complex if detailed information such as how to choose appropriate endings of the *imparfait* is provided. Housen et al. (2006) investigated the effects of explicit instruction on SL/FL learning in relation to the issue of complexity. In their study, complexity is defined in terms of 'functional markedness'. For them, a grammar form is considered to be more structurally complex than another if (1) producing the form requires more transformations of its underlying base form, (2) the form is not as frequently available to learners, (3) the use of the form is more strictly constrained by its syntactic and/or semantic context, and/or (4) acquisition of the form involves higher-level cognitive ability. Following these criteria, Housen et al. concluded that the French passive voice is more complex than French sentence negation. DeKeyser (1995), Robinson (1995a, 1996b), Andrews (2007) and Spada and Tomita (2010) examined the differential effects of explicit instruction on the learning of simple and complex rules. The results showed that implicit learners did not outperform other learners on complex rules (as was claimed by Krashen and Reber), but the instructed learners outperformed all other learners in learning simple rules.

However, seeing the scarcity of studies, some SLA researchers cautioned that there has been insufficient research to warrant firm conclusions (Doughty 1991; De Keyser 1995; Hulstijn and De Graaf 1994; Robinson 1996, 1997). They claim that the existing body of research on the effects of explicit grammar instruction suggests but does not provide robust support to the fact that explicit grammar instruction positively affects the acquisition of complex rules. In this respect, it is necessary to conduct further studies in order to make some contributions to a better understanding of the possible effect of explicit instruction on the learning of simple and complex rules.

3- The Experiment

Several important insights, gained through examining previous empirical studies attempting to document the possible effects of explicit instruction on the acquisition of

complex rules, guided the methodology of the study to be reported here. This part is devoted to describe the subjects of the study, the data collection procedures, the pre-test and post –test materials and the instruction phase. Moreover, the results of the study will be analyzed and discussed in the final section. The investigation followed an experimental design that included a pilot study, control and experimental groups and the use of a pre-test and a post-test. In this study, these hypotheses were tested:

Hypothesis 1: Participants receiving explicit instruction will perform better on tests measuring proficiency in the simple and complex rules than those not receiving explicit instruction.

Hypothesis 2: Explicit instruction will be more effective than implicit instruction in the case of learning complex rules.

Hypothesis 3: Explicit instruction will be more effective in the case of the complex rules learning than in the case of simple rules.

3.1 The Sample

The subjects of the study are 59 Algerian university English as a Foreign Language (EFL) learners making up three groups of first-year students majoring in Economics. The introductory section of the pre-test Grammaticality Judgment Test (GJT), aimed at profiling the participants, showed that their average age is around twenty (exactly 20.16). They have all stated to have learnt Arabic, French and English. In addition, all of them claim not having been presented rules on the English language grammar before and that they studied English for at least 6 years, in general. Since the study was conducted during a 90 minute-weekly class over a two-month period, subjects' absences were unavoidable. Subjects were excluded if absent in the treatment sessions or testing sessions. Subjects were randomly assigned to one treatment group but the selection of the subjects to be included in the study was not totally random. I chose to conduct the experiment on first year students so as to ensure that they freshly completed five years, at least, of English grammar being taught implicitly according to the Communicative Language Teaching approach. Furthermore, the investigator chose students from a department other than the English department so as to isolate the effects of the independent variable of this study which is the explicit teaching of simple and complex rules. If not isolated, the final results could be eventually contaminated by the potential effects or interaction with other variables.

3.2 Description of the Experiment

A Grammaticality Judgment Test (GJT) was used to conduct the study because data obtained from GJT are easier to collect than oral production ones, and such type of tests enables researchers to investigate the learners' linguistic competence (Ellis, 1991). The GJT was given to subjects who were asked to circle 'Grammatical' 'Ungrammatical' or 'Not Sure' (Appendix I). Subjects were asked to focus on whether a sentence is correct or incorrect grammatically and not to take into consideration punctuation, spelling or capitalization errors. The majority of the items in that test are rarely covered in EFL textbooks and lessons. Table 1 displays most items of the test with the grammatical feature they exemplify. Note that many items, mostly

ungrammatical, were added as distractors so as to avoid running the risk of alerting the learners to detect the rules. For more accuracy in results, a part of the GJT was selected and considered for particular analysis. This part is composed of the 15 sentences presented in Table 2. Actually, these 15 sentences are examples representing the targeted rules of this study. Of the 15 sentences, 9 are grammatical and 6 are ungrammatical.

Item	The grammatical feature it exemplifies
1. Alice's chess playing amused Peter. 8. John's heating him shocked me. 32. Anna's leaving the party is on Wednesday	Subject gerundivization
6. Where the cheese is is in the bag not in the basket. 10. Where the boy played was in his room. 30. Where Peter stayed was in his shop.	Pseudo-cleft construction headed by 'where'
3. Who did she send letters to? 9. To whom does he tell the story? 18. Who did you suggest I talk to? 22. Who is Anna happy to see?	Question formation with preposition stranding and pied-piping.
4. That there website gives a lot of information. 11. This here dictionary explains many things. 29. That supermarket there offers plenty of discounts.	Pre-and post-subject use of emphatic 'there'
2. In the morning, he eats. 5. Into the house, John ran. 14. In the garden, plays the dog.	Place and time adverbial fronting and subject verb inversion possibility.
12. What Peter does is write letters not invitation. 23. What Peter reads is newspapers not books. 34. What Anna did was read a book.	Pseudo-cleft construction headed by 'what'
13. I saw the dog that barked. 26. I saw the dog that you fed. 31. I saw the dog you fed.	Optionality of relative pronoun within a relative clause.

Table 1: Major Rule Familiarity Sentences and the Grammatical Features They Exemplify.

For fear of alerting the subjects to notice the targeted structures at the start of the experiment, if given many tests in the pre-test, the GJT was used solely but with two-fold objectives that were: the identification of the unfamiliar structures to be used in the study and the evaluation of the subjects' knowledge of the targeted rules at the beginning and the end of the experiment.

To collect data for the study, four steps were followed namely selecting the rules to be presented to learners, pretesting, training the subject during an instruction phase then post-testing. Although some criteria for the identification of complex rules are considered, it was clear that they could not be sufficient for the selection of the rules to be presented to learners in this study because as stated by Robinson (1996), unfamiliarity must be taken into account as well otherwise data would be contaminated by previous knowledge. In other words, if a rule is identified as complex according to the above-cited criteria, like the definite article 'the' which is a well-known complex structure for all intermediate learners, the claims for eventual learning of that structure

due to explicit instruction could be invalidated because the language feature is familiar to the learners. To test rule familiarity, the GJT was given to a group of 9 learners who belonged to a group of students other than the subjects of the study; they participated only in the pilot study. The percentage of 'grammatical' 'ungrammatical' and 'not sure' responses to the sentences of the test is given in Table 3. The sentences 6 and 12 received the highest percentage (88.88%) of incorrect answers. Sentence 8, 10, 11 and 34 received (77.77%) and immediately followed by sentences 14 and 30 with (66.66 %). It was evident from these results that these sentences exemplify rules that are unfamiliar to the learners. The rules are mainly related to pseudo-cleft constructions, subject gerundivization, pre-and post-subject use of emphatic 'There' and rules related to subject-verb inversion with place adverbial fronting. As a result, these rules were selected as the basis of the rules of the present study.

Original Order in the GJT	The Sentence
2.	- In the morning, he eats.
5.	- Into the house, John ran.
6.	- Where the cheese is is in the bag not in the basket.
10.	- Where the boy played was in his room.
12.	- What Peter does is write letters not invitations.
14.	- In the garden, plays the dog.
15.	- * On Wednesday, works Peter.
17.	- * Where the cat was is in the house not in the garden.
19.	- * Where lived Peter is near the Mississippi River.
23.	- What Peter reads is newspaper not books.
25.	- * What eats Susan is chocolate.
27.	- * Stayed Anna in the library.
30.	- Where John stayed was in his shop.
34.	- What Anna did was read a book.
36.	- * What John writes was a text not a telex.

Table 2: Sentences from the GJT Exemplifying the Target Rules.
(*=ungrammatical sentence)

Actually, these rules seem to show not only unfamiliarity but some degrees of complexity as well since they involve some focus constructions and some complex permutations of word order that are in most cases unusual and rarely dealt with by SL/FL teachers/ textbooks. Nevertheless, knowing that these rules display some degrees of complexity, and knowing that there is no consensus over the criteria to apply in distinguishing between simple and complex rules, the expert judgment of experienced EFL teachers was resorted to, as in Robinson (1996), in order to identify the simple and complex rules from the above-cited list of rules. To do so, the researcher wrote the rules, and then presented them to a group of teachers of EFL to be classified for complexity (Appendix II). The rules were randomly ordered. In the last page of the rule classification-sheet given to teachers, the researcher asked the teachers to order the presented rules in terms of complexity; i.e., shifting from the simplest rule to the most complex. The teachers' classification and ordering is displayed in Table 4.

Sentence No.	% of 'Grammatical' Responses	% of 'Ungrammatical' Responses	% of 'Not-Sure' Responses
1.	22.22	55.55	22.22
8.	0	77.77	22.22
32.	22.22	55.55	22.22
6.	0	88.88	11.11
10.	11.11	77.77	11.11
30.	11.11	66.66	22.22
9.	44.44	22.22	33.33
3.	55.55	44.44	0
18.	77.77	22.22	0
22.	77.77	22.22	0
4.	22.22	55.55	22.22
11.	0	77.77	22.22
29.	33.33	11.11	44.44
2.	66.66	33.33	0
5.	33.33	44.44	22.22
14.	22.22	66.66	11.11
12.	11.11	88.88	0
23.	33.33	44.44	22.22
34.	11.11	77.77	11.11
13.	66.66	33.33	0
26.	55.55	22.22	22.22
31.	66.66	22.22	11.11

Table 3: Percentages of 'Grammatical', 'Ungrammatical' and 'Not Sure' Responses to the Sentences of GJT of Rule Familiarity.

This table reveals that the teachers identified rules related to pseudo-cleft constructions headed by 'what' and 'where' to be the most complex rules for SL/FL learners (72.72%), and the rule related to place and time adverbial fronting with possibility of subject verb inversion as being the simplest rule (63.63%). Despite the fact that even the rule related to pre-and post-subject use of the emphatic 'There' was sorted out by the majority of teachers (90.90%) as being simple but it was considered as the simplest by only 2 teachers (18.18%). The rule related to question formation with preposition stranding and pied-piping was already proved to be complex by Bordovi-Harlig (1987), but only two (02) teachers (18.18%) sorted it out to be the most complex. This could be explained by the fact that for the Algerian teachers this rule is much more familiar to them than pseudo-cleft constructions. The rules used in this study were adopted from Robinson's study (1996). The simple rule (Rule1) describes the fact that subject-verb (SV) inversion is allowed in sentences where adverbial of place are fronting, that is 'On the bed John slept/ slept John'. Adverbial conditioning constraints on SV inversion similar to those described in the simple rule of the study have been observed in languages other than English, Robinson (1996). What makes them simple is the possibility to reduce them in rules of thumb: if adverbial of place fronting, SV inversion is possible; if adverbial of time fronting, SV inversion is not possible. The

complex rules of the study (complex rule1 and complex rule2) describe how to form pseudo-clefts headed by ‘what’ and ‘where’, that are ‘Where Anna works is at the hospital not the supermarket’ and ‘What Anna reads is a book not a newspaper’. According to Robinson (1996), pseudo-clefts occur much less commonly in other languages and may be specific to written rather than spoken English, and the extensive additions and deletions necessary to form pseudo-clefts would add to the complexity of explaining and describing them to the SL/FL learners.

Rule	% Simple	% Complex	% the most simple	% the most complex
1. Place & Time adverbial fronting and the possibility of subject-verb inversion	90.90	09.09	63.63	0
2. Subject Gerundivisation	63.63	36.36	09.09	09.09
3. Pseudo-cleft construction headed by ‘when’	36.36	63.63	0	36.36
4.Pseudo-cleft Construction headed by ‘what’	36.35	63.63	0	36.36
5.Question formation with preposition stranding and pied-piping	54.54	45.45	0	18.18
6. Pre-and Post-subject use of Emphatic ‘There’	90.90	09.09	18.18	0

Table 4: EFL Teachers’ Classification of the Unfamiliar Rules of the Study

In the first session of the instruction phase, subjects were presented the GJT composed of 36 sentences: 22 sentences are the ones presented in Table 1, and 13 sentences that contain some distractors and some examples related to the identified rules but mostly ungrammatical. Subjects in both conditions (explicit and implicit) were asked to circle either ‘grammatical’, ‘ungrammatical’ or ‘not sure’ on each sentence presented in the test. The subjects of the two groups were pre-tested each in his due session. Although they have no time constraints, subjects took no more than 60 minutes to complete the test. Subjects’ attendance was recorded in all sessions.

After the pre-test was administered, classes were randomly assigned to one of two instructional treatments: explicit instruction (experimental group), implicit instruction (the control group). Subjects in both conditions were presented the same ESP material during the instruction phase. Subjects in the explicit instruction treatment received instruction about the targeted rules during their normal class time. For the experimental groups, explicit instruction consisted of two sessions (session N°4 and session N°6) with no homework. During these two sessions, the subjects were presented and explained the selected rules of the study together with a series of exercises about each target rule. The lessons, as described by Ellis (2008), were explicit, proactive and deductive. In other words, the subjects’ attention was directed to the rules to be studied. These rules were first presented in isolation, then with the help of examples they were reproduced step by step. After rule presentation, the teacher handed out a series of typed exercises to be done in class. The exercises consist of guided production tasks or grammaticality judgment exercises designed purposefully to train them on the use of

the type of tests. Subjects in the control group were presented texts, activities and exercises that deal mainly with economic concepts and terminology. For the implicit learning condition in this study, the primary focus of the activities is on understanding the meaning of the texts, not on rules or structure formation. During the instruction phase, many sentences and examples related to the targeted rules are present in the activities. The researcher used the Input Flood technique. It was believed that the abundance of examples in texts and activities would hopefully cause the subjects in the implicit condition to process the underlying form while interacting with the input as proposed by Krashen (1985). Consequently, almost all activities performed during the instruction phase were designed so as to make subjects in both conditions employ the form to accomplish a communicative task, as could be seen in the activities presented to the learners in this study.

Post-testing took place immediately after the last session of the instruction phase. The investigator followed the same procedure as in the pre-test. In other words, subjects were administered the same Grammaticality Judgment test used in the pre-test with the same instructions. It was the same for both conditions.

3.3 The Results and their Analysis

As concerns the data analysis procedures, the researcher scored and analyzed the study data using two types of parametric statistical tests namely paired-samples t-tests and the one-way Analysis Of Variance (ANOVA). In order to obtain quantitative data needed for the analysis, 15 items (presented in Table 2) illustrating the study target rules were selected, making of the rest of sentences a set of distractors. By scoring this part of the GJT out of thirty (30), two points (2) were assigned for each correct judgment: if participants' answers were incorrect, missing or 'not sure', they got 0. Because of the small number of subjects, the statistical results obtained from this study have to be considered as tendencies that need further verification. Their presentation and analysis would be performed so as to consider each hypothesis of this study. All subjects' total scores on both pre-test and post-test measures, together with their scores on the target simple rule and complex rules are displayed in Table 5 and 6. The findings to the research questions mentioned earlier are reported. Finally, tentative explanations are considered in the discussion.

It was believed that before considering and analyzing any data, it was necessary first to check that all subjects in both conditions have equivalent knowledge before the treatments. To do that, a one-way ANOVA was performed on all subjects' total scores on the pre-test. As stated in Tavakoli (2013), a large F ratio indicates that there is variability between groups. But as shown in the detailed summary of the one-way ANOVA conducted on the control group and the experimental group general scores in the pre-test (Table 7), $f^{(58)} = 0.02$ is by far lower than the critical value of $f = 7.10$ which is used as a reference value. Moreover, if we consider the groups' means, we see that there is very little difference (Control group Mean = 9.13, Experimental group Mean = 9.33). This implies that there is almost no variance between the groups in both conditions at the beginning of the experiment.

EXPERIMENTAL GROUP							
Pre-test scores				Post-test scores			
S.R	C.R1	C.R2	T.S	S.R	C.R1	C.R2	T.S
2	6	0	8	8	4	8	20
10	0	0	10	8	10	6	24
4	4	0	8	6	4	8	18
10	4	10	24	6	10	8	24
6	0	4	10	2	8	10	20
4	0	4	8	4	6	2	12
8	4	6	18	10	10	8	28
4	4	0	8	6	8	6	20
4	0	4	8	6	10	6	22
10	0	4	14	10	8	6	24
6	0	4	10	10	10	10	30
6	0	0	6	0	6	4	10
6	4	4	14	0	0	8	8
4	0	4	8	10	10	4	24
4	0	0	4	2	0	6	8
6	0	4	10	8	8	10	26
6	4	4	14	6	10	6	22
4	0	0	4	10	10	10	30
4	4	10	18	4	4	2	10
4	6	6	16	10	8	10	28
6	4	0	10	4	6	4	14
2	4	0	6	10	10	6	26
2	4	0	6	2	2	6	10
2	0	0	2	4	8	8	20
4	0	0	4	6	6	8	20
2	0	0	2	10	8	8	26
2	4	6	12	4	4	4	12
2	0	0	2	8	6	8	22
6	0	0	6	0	6	0	6

CONTROL GROUP							
Pre-test scores				Post-test scores			
S.R	C.R1	C.R2	T.S	S.R	C.R1	C.R2	T.S
2	0	4	6	6	6	4	16
6	0	0	6	6	6	2	14
4	0	6	10	8	8	6	22
4	0	0	4	4	6	8	18
8	0	0	8	10	4	4	18
6	4	4	14	4	6	4	14
0	0	4	4	6	4	6	16
2	4	4	10	8	2	8	18
6	4	4	14	8	8	0	16
0	0	4	4	8	8	6	22
0	6	0	6	8	6	4	18
8	4	4	16	8	4	4	16
8	4	4	16	6	6	6	18
6	0	6	12	4	4	6	14
4	0	0	4	6	0	2	8
2	0	6	8	4	2	4	10
2	0	4	6	6	4	4	14
2	0	4	6	2	4	4	10
6	10	0	16	2	6	2	10
8	6	4	18	6	2	4	12
4	0	0	4	2	2	0	4
2	10	0	12	6	2	4	12
4	0	2	6	6	0	4	10

S.R: Simple Rule, C.R1: Complex Rule1,
C.R2: Complex Rule 2, T.S: Total Score

Table 6: The Control Group Subjects' Scores in the Pre-test and Post-test

6	0	0	6	4	6	4	14
0	0	0	0	4	10	6	20
8	0	4	12	4	6	4	14
8	4	4	16	10	8	8	26
8	4	4	16	8	10	10	28
6	0	4	10	2	10	6	18
6	0	0	6	10	8	10	28

S.R: Simple Rule C.R1: Complex Rule1

C.R2: Complex Rule 2 T.S: Total Score

Table 5: The Experimental Group Subjects' Scores in the Pre-test and the Post-test

Summary of the One-way ANOVA

Groups	No. Subjects	Sum	Mean	Variance
Control group	23	210	9,13043478	21,7549407
Experimental group	36	336	9,33333333	28,3428571

Variations sources	SS	df	MS	F	P value	F critical
Between groups	0,57775	1	0,57774503	0,02239309	0,88157	7,101534687
Within groups	1470,61	57	25,8001526			
Total	1471,19	58				

Table 7: Subjects' Knowledge at the Start of the Experiment

To consider hypothesis 1 that states that subjects receiving explicit instruction about the target rules will perform better than subjects who do not, a one-way ANOVA and two paired samples t-tests were performed. A paired samples t-test was performed to compare the effect of implicit instruction in pre-and post-test measures. The results are given in the paired samples t-test summary (Table 8). There was a difference in the subjects' scores: in pre-test (Mean of Scores = 9.13) and post-test (Mean of Scores = 14.34), $t(22) = 4.01$, $p = 0,0002 < 0.01$. Since p value is very low, we must reject the idea that the difference in scores before and after the instruction phase is due to chance. In addition, the computed t is greater than t critical value (both numbers are bolded in the paired samples t-test summary, $t = 4.016 > 2.508$). In other words, this indicates that learners in the implicit condition benefited from the type of instruction and improved their performance on the study rules. But the question remains: on which rule has such improvement occurred.

To evaluate the effect of explicit instruction on subjects' performance in pre-and post-test measures, a comparison between scores was made using a paired samples t-test. Its results are given in Table 9. These results show that there is a significant difference in subjects' scores: in pre-test (Mean = 9.33) and in post-test (Mean = 19.77); $t(35) = 7.65$, $p=2.77 > 0.01$. The detailed summary of this test shows that the calculated t (T stat.) is more than thrice the t-critical value $t = 7.65 > 2.43$ (both numbers are bolded). This indicates that the difference between performance in pre-and post-test is significantly great. Graph 1 joined to Table 9 shows clearly that the graph-lines are not overlapping all the time and are clearly distinct, which in fact proves visually how different was the learners' performance between pre- and post-test measures.

Summary of the Paired samples t-test

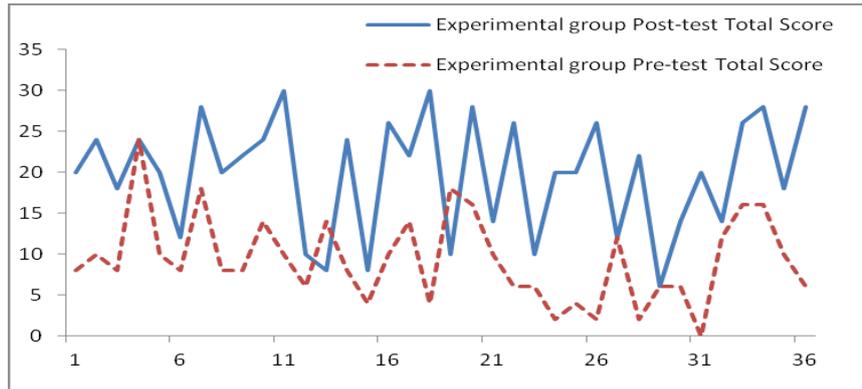
	Post-test Scores	Pre-test Scores
Mean	14,3478261	9,13043478
Variance	19,5098814	21,7549407
Observations	23	23
Pearson correlation	0,05947506	
Df	22	
T Stat.	4,01626023	
P(T<=t) unilatéral	0,00028985	
Critical value	2,50832455	
P(T<=t) bilatéral	0,0005797	
Critical value	2,81875606	

Table 8: Control Group Post-test Scores Vs. Pre-test Scores

Summary of the Paired Samples t-test

	Post-test Scores	Pre-test Scores
Mean	19,7777778	9,333333333
Variance	48,6349206	28,34285714
Observations	36	36
Pearson correlation	0,13441448	
Df	35	
T Stat.	7,65613323	
P(T<=t) unilatéral	2,7747E-09	
Critical value	2,43772255	
P(T<=t) bilatéral	5,5494E-09	
Critical value	2,72380559	

Table 9: Experimental group Post-test Scores Vs. Pre-test Scores



Graph 1: Experimental group Performance in Pre-test Vs. Post-test

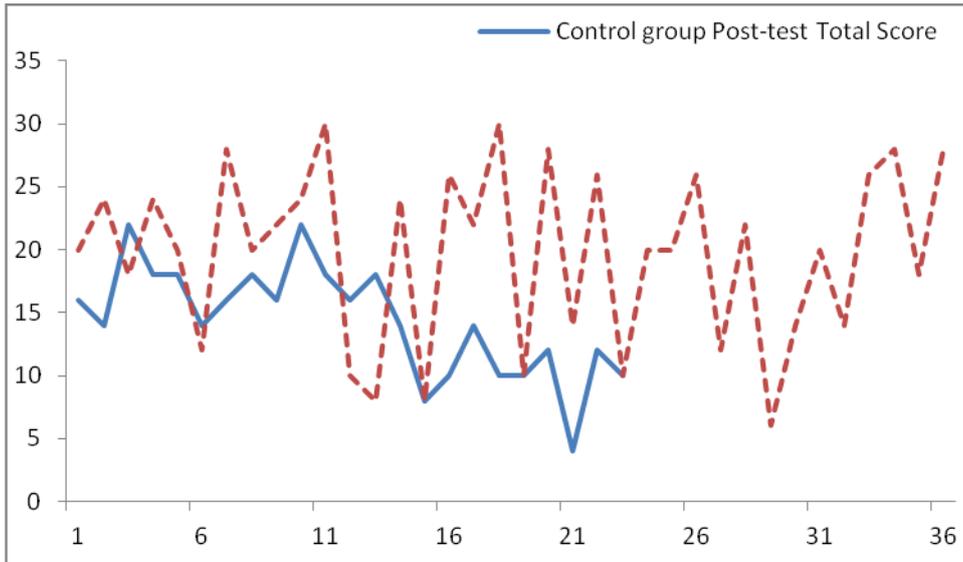
After this comparison, it becomes clear that both groups improved performance after the instruction phase. What remains to be considered is whether the two groups improved similarly. To check that, a further comparison needs to be performed between the control group and the experimental group post-test performance. The results are displayed in Table 10. They indicate that the computed F ratio ($f(58) = 11.066$) is greater to its reference f-critical= 7.10, with $p = 0.002 < 0.01$. The one-way ANOVA indicates that even though both groups improved after treatment (as evidenced by the two previous comparisons), the experimental group performance shows a greater improvement. This is clearly exhibited by Graph 2, joined to the ANOVA Table 10, that indicates that both graph-lines are separate and that control group graph-line remains most of the time below the experimental group graph-line.

Summary of the One-way ANOVA

Groups	No. Subjects	Sum	Mean	Variance
Control group	23	330	14,3478261	19,51
Experimental group	36	712	19,7777778	48,635

Variations sources	SS	df	MS	F	P value	F critical
Between groups	413,780725	1	413,780725	11,066	0,002	7,101534687
Within groups	2131,43961	57	37,3936774			
Total	2545,22034	58				

Table 10: Control group Vs. Experimental group Post-test Scores



Graph 2: Control group Vs. Experimental group Post-test Scores

In brief, the analysis showed significant main effects for instruction. Therefore, the hypothesis that predicted that participants receiving explicit instruction perform better on tests measuring proficiency in the study selected rules than those not receiving instruction is supported by the data: the experimental group subjects improved greatly their ability in identifying grammatical and ungrammatical items representing the study simple and complex rules.

To consider Hypothesis 2 that states that explicit instruction will be more effective than implicit instruction in the case of learning complex rules, two one-way ANOVAs were performed since we compare both conditions subjects' performance on two complex rules. The results of the ANOVAs performed on Complex Rule 1 and Complex Rule 2 are given in Table 11 and Table 12, respectively. Both tables show that the experimental group learners outperform the control group subjects: Their performance reaches a significant level $f(58)= 14.58, p=0.0002 < 0.01$, and $f(58)= 15.57, p= 0.0002 < 0.01$ on complex rule 1 and complex rule 2, respectively. The one-way ANOVAs performed on both complex rules show that the computed F ratio ($f(58)= 14.58, f(58)=15.57$) is twice greater than its reference tabulated value ($f_{critical}= 7.10$) which indicates that the difference between the experimental group and the control group is highly significant. The results show that subjects in the experimental group became more accurate in identifying grammatical and ungrammatical sentences representing Complex rule 1 and Complex Rules 2 than subjects in the implicit condition. Results in the previous section show that even

implicit learners improved their performance on Complex Rules though their improvement was not as significant as the explicit learners’.

Summary of the One-way ANOVA

Groups	No. Subjects	Sum	Mean	Variance
Cont.group	23	100	4,34782609	5,6916996
Exper.group	36	258	7,16666667	8,08571429

Variations sources	SS	Df	MS	F	P value	F critical
Between groups	111,5	1	111,511422	15,5705053	0,00022	7,101535
Within groups	408,2	57	7,16170862			
Total	519,7	58				

Table 11: The Effect of Explicit and Implicit Condition on Learning Complex Rule1

Summary of the One-way ANOVA

Groups	No. Subjects	Sum	Mean	Variance
Cont. Group	23	96	4,1739	4,332
Experim. Group	36	238	6,6111	6,587

Variations sources	SS	Df	MS	F	P value	F critical
Between groups	83,3604	1	83,36	14,58	0,0003	7,102
Within groups	325,86	57	5,7168			
Total	409,22	58				

Table 12: Comparing the Effect of Explicit and Implicit Condition on Complex Rule2 Learning

The hypothesis that explicit instruction would cause learners in the experimental group to outperform control group learners on Complex Rules is supported by the results of this analysis. These latter show significant main effects for explicit instruction on learning Complex Rules. To consider hypothesis 3, that predicts that explicit instruction will be more effective in the case of Complex Rule learning than Simple Rule learning, four paired Samples T-tests were performed on post-test scores of both groups. The results are given in Table 13, Table 14, Table 15 and Table 16.

Summary of the Paired Samples t-test

	Simple R. Scores	Complex R.1 Scores
Mean	5,82608696	4,34782609
Variance	4,69565217	5,6916996
Observations	23	23
Pearson correlation	0,18808131	
Df	22	
T stat.	2,43991465	
P(T<=t) unilatéral	0,01160458	
T critical value	2,50832455	
P(T<=t) bilatéral	0,02320917	
Valeur critique de t (bilatéral)	2,81875606	

Table 13: Control group Performance on Simple Rule Vs. Complex Rule1

In each paired samples t-test, we could not notice a significant difference between the computed t-value and its reference value, the t-critical value. This implies that in both conditions, learners' performance on Simple Rule was not that different to their performance on Complex Rules. Previous analyses have proved that implicit learners' performance on rules has not changed significantly before and after treatment. Conversely, these analyses evidenced significant effects of instruction on explicit condition learners as shown in Table 9 and Table 10. Results in the paired samples t-tests conducted in this sub-section indicate that each group's performance on simple rule is not significantly higher than their performance on Complex Rules.

Summary of the Paired Samples t-test

	Simple R. Scores	Complex R.2 Scores
Mean	5,82608696	4,17391304
Variance	4,69565217	4,33201581
Observations	23	23
Pearson correlation	0,20857558	
Df	22	
T stat.	2,96401725	
P(T<=t) unilatéral	0,00358356	
T critical value	2,50832455	
P(T<=t) bilatéral	0,00716713	
Valeur critique de t (bilatéral)	2,81875606	

Table 14: Control group Performance on Simple Rule Vs. Complex Rule2

Summary of the Paired Samples t-test

	C.R 1 scores	S.R scores
Mean	7,16666667	6
Variance	8,08571429	10,9714286
Observations	36	36
Pearson correlation	0,55816036	
Df	35	
T stat.	2,39495009	
P(T<=t) unilatéral	0,01105447	
T critical value	2,43772255	
P(T<=t) bilatéral	0,02210895	
Valeur critique de t (bilatéral)	2,72380559	

Table 15: Experimental group Performance on Simple Rule Vs. Complex Rule1

So, within groups there was no significant difference in performance on Simple or Complex Rules in post-test measure. However, it is worth noting that learners in both conditions performed better on the simple rule than on the complex rules in the pre-test measure. This implies that after treatment, their performance on the complex rules reached the level of performance on the simple rule. To see whether that similarity in performance holds true if comparisons were carried out between groups, an additional one-way ANOVA was performed. The results are given in Table 17. As concerns the simple rule, the ANOVA result is $F(58)=0.049$, $p=0.82>0.01$. If compared to the critical F value ($F_{critical}=7.10$), we see that the computed F is very small. This indicates that though there is difference in Groups' mean scores (5.82 and 6), this difference is not significant, i.e., subjects in both conditions perform similarly on the target simple rule at the post-test. Concerning the complex rules, learners' performance varies in accordance to condition. In other words, learners in the explicit condition highly outperform learners in the implicit condition on complex rules. The ANOVAs results, which have previously been considered in Table 11 and Table 12, show clearly that significance. As far as the complex rule1 is concerned, the test result $F(58)=15.57$, $p=0.0002 < 0.01$ is twice higher than the tabulated $F=7.10$. Moreover, the same significant difference is observed concerning performance on complex rule2: $F(58)=14.58$, $p=0.0003 < 0.01$ is again twice greater than the F critical value ($F_{critical}=7.10$).

Summary of the Paired Samples t-test

	C.R scores	2 S.R scores
Mean	6,61111111	6
Variance	6,58730159	10,9714286
Observations	36	36
Pearson correlation	0,51084622	
Df	35	
T stat.	1,23093693	
P(T<=t) unilatéral	0,11327728	
T critical value	2,43772255	
P(T<=t) bilatéral	0,22655457	
Valeur critique de t (bilatéral)	2,72380559	

Table 16: Experimental group Performance on Simple Rule Vs. Complex Rule2

Summary of the One-way ANOVA

Groups	No.subjects	Sum	Mean	Variance
Control group	23	134	5,82609	4,6956522
Experimental group	36	216	6	10,971429

Variations sources	SS	df	MS	F	P value	F critical
Between groups	0,4245	1	0,42447	0,0496498	0,8245	7,101535
Within groups	487,3	57	8,5492			
Total	487,73	58				

Table 17: Comparing the Effect of Explicit and Implicit Instruction on Learning the Target Simple Rule

The third hypothesis predicting the effect of explicit instruction to be greater on learning complex rules than on learning simple rules is supported by the results. Learners in the explicit condition greatly outscored learners in the implicit condition as far as the complex rules are concerned, but scored nearly similarly on the target simple

rule. This proves that the effect of explicit instruction on complex as opposed to simple rules was confirmed.

3.4 Discussion

Results of the present study make evident three major findings. First, a strong positive effect of explicit instruction was demonstrated for the experimental group subjects who have undergone exposure to sentences as well as explanations of the rules they illustrate plus practice. The explicit condition learners showed a significant improvement in performance. Actually, these results are in line with the findings reported by many SLA researchers like Alanen (1995), Doughty (1991), DeKeyser (1995, 1997), De Graaff (1997), N. Ellis (1993), R. Ellis (2010), Robinson (1995a, 1995b, 1996a, 1996b, 1997), Gass and Selinker (2008), Norris and Ortega (2000), and Spada and Tomita (2010). One possible explanation for the positive effect of explicit instruction, as stated by the above-cited researchers, is that explicit information about the rules could have focused learners' attention to the formal properties of the target language structures hence leading them to notice any eventual sentence illustrating the rules in input. Many cognitivists claim that focal attention and noticing are greatly effective for learning (Carr and Curran 1994; Anderson 1992; Schmidt 1990, 2001). They held that focused attention and noticing is required for structural learning to occur. Baars (1997) even went further by holding an extreme position in psychology, claiming that there is little, if any learning, without attention. According to him, unattended stimuli stand in short-term memory for only a few seconds at best, and attention is the necessary and sufficient condition for long-term memory storage to occur. In SLA as well, the claim has often been made that attention and noticing are necessary for input to become available for further mental processing (Schmidt, 1990). Schmidt holds that preparatory attention and directing attention greatly improve encoding. In other words, if teachers focus learners' attention on the formal features of the language, it would largely improve their understanding, noticing in input and even eventual use. For Schmidt SL/FL learning is largely a side-effect of attended processing of explicit information about language structures. Proponents of the Interface Position claim that explicit instruction provides learners with explicit information about the structures of the language. Those rules are not seen as having only a monitoring function as claimed by Krashen (1993), but as having a facilitating effect of internalizing the grammatical system of the language. This corresponds with Green and Hecht (1992: 178) who state that: '... Classroom learners with learned rules under their belt and confronted by a grammar test – a classic Krashen Monitor situation - operated to a large extent by feel'. That is to say, they corrected largely by implicit rules, which very possibly had been facilitated by explicit rules. In short, the positive effect observed for explicit instruction could be due to the fact that explicit instruction facilitates language processing and consequently fosters conversion of the explicit knowledge to implicit automatic knowledge.

The second finding was that neither explicit nor implicit instructional treatment was effective with respect to gains on learning the simple rule: Experimental group Gain Mean= 0.95 and Control group Gain Mean= 1.74. The results, which are summed up in Table 18 and Table 19, showed that both groups have almost equal mean scores on the simple rule since the computed f ratio ($F(58)= 0.049$, $p=0.82>0.01$) was greatly

smaller than tabulated $F=7.10$. Considering these data, we could conclude that these results do not support Krashen's (1992) and Reber's (1993) claims that only simple rules are consciously learnable. Believing that if providing learners with enough comprehensible input as claimed by Krashen (1982), mastery of language features is guaranteed; all ESP texts and reading comprehension activities were abundantly supplied with sentences exemplifying the target rules. These sentences were most of the time employed to answer the exercises questions. Such redundancy was believed to be a potential source of benefit to both groups of learners. According to Fotos (2002), the success of implicit instruction depends on abundant communicative activities. In fact, the researcher used the extreme implicit instructional technique of focusing learners' attention to the formal features of the language known as 'the Input Flood'. However, as concerns the simple rule, such abundance of sentences illustrating the target rules was not beneficial though it was expected that simple grammatical rules regulating language structures may be clear enough in the input to be noticed and processed spontaneously without explicit instruction. Had this implicit instructional technique been effective, we should have observed implicit learners' performance improve after the instruction phase. It appears, then, that the implicit condition did not make a difference probably because the learners did not notice the sentences illustrating the target rules that were embedded in ESP texts and exercises. It is undeniable that the implicit learners' Mean Gain score on the target simple rule (Post-test Mean score - Pre-test Mean score = Mean Gain score: $5.82 - 4.08 = 1.74$) is greater than the explicit learners' ($6 - 5.05 = 0.95$), but it was not as significant as expected and evidenced by the statistical tests. Moreover, the slight difference observed between the control and experimental group learners' Mean scores (5.82 and 6, respectively), as could be seen in Table 18 and 19, could be explained by the fact that all sentences that were presented to the implicit learners in the ESP texts and exercises were all grammatical. Therefore, these learners were provided with examples of learning from positive evidence without the benefit of negative evidence that would have been beneficial in identifying ungrammatical sentences illustrating the target rules. It was surprising to find that the explicit learners did not improve their performance on the target simple rule after instruction. Knowing that these learners were provided with examples of learning from positive and negative evidence (unlike the instructed group in Robinson, 1996), plus explanations and information about the rules constraints; it was expected that their performance on the simple rules, which are known to be salient and easily processed, would be largely significant. In fact, this totally contradicts Krashen's and Reber's claims that predict simple rules to be the only candidates for explicit instruction. One possible explanation could be that knowing the constraints on the simple and complex rules, explicit learners were more concerned by scanning sentences illustrating complex rules which are believed more challenging than focusing on sentences representing the target simple rule in which the scan is not demanding or effortful. Indeed, after the post-test, the researcher asked personally a learner whose performance on the simple rule sentences was poorer than on the complex rules. The student said that she concentrated on the complex sentences since difficult to identify as correct or incorrect, and that she answered automatically on the simple sentences thinking they do not need much attention.

	Experimental Group		Control Group	
Type of Rule	Pre-test	Post-test	Pre-test	Post-test
Simple Rule	5.05	6	4.08	5.82
Complex Rule1	1.77	7.16	2.26	4.34
Complex Rule2	2.5	6.61	2.78	4.17

Table 18: Summary of Subjects' Mean Scores on Simple and Complex Rules

Comparison	Simple Rule	Complex Rule1	Complex Rule2
Post-test Experimental Group Vs. Control Group Scores	F(58)=0.049, F critical=7.10	F(58)=15.57, F critical=7.10	F(58)=14.58, F critical=7.10
Pre-test Control Group Scores Vs. Post-test Control Group Scores	T(22)= -2.45, T critical= 2.50	T(22)= -2.51, T critical= 2.50	T(22)= -2.72, T critical= 2.50
Pre-test Experimental Group Scores Vs. Post-test Experimental Group Scores	T(35)= -1.43, T critical= 2.43	T(35)= -8.27, T critical= 2.43	T(35)= -6.35, T critical= 2.43

Table 19: Summary of Comparisons of Subjects' Performance on Rules

The third finding is that as regards the differential effect of explicit instruction on the learning of complex rules as opposed to complex rules, strong evidence could be reported. The evidence of performance on complex rules does not support Krashen's and Reber's claims that implicit learning will be superior to explicit learning when the stimulus domain is complex. Yet, these results are in line with similar findings reported in Hulstijn and De Graaff (1994), DeKeyser (1995), Doughty (1991), Robinson (1996a, 1996b), Andrews (2007), Gass and Selinker (2008), Spada and Tomita (2010) and Reed and Johnson (1998). For instance in Reed and Johnson's study (1998), findings show that rules of different complexity exhibit different learning rates under explicit but not implicit condition. In the present study, subjects in the explicit condition performed more accurately and outscored implicit learners on the complex rules. Such a considerably satisfying performance could be explained as such: providing learners with explicit knowledge about language rules would eventually enable them make correct grammatical judgments. According to Robinson (1996a), to judge a sentence as grammatical or ungrammatical, the learner must scan the sentence so as to find evidence confirming or disconfirming sentences grammaticality. For instance, as concerns the simple rule, the learner can easily get evidence confirming ungrammaticality by two checks: If subject-verb inversion occurs, check whether the adverbial of place fronts the sentence then if there is no adverb of place fronting the sentence, the sentence is ungrammatical. As regards the complex rule, however, the task is harder for the learner: s/he has to check all possible violations to the rule constraints so as to reach correct judgment of sentence grammaticality. According to Robinson, the search for evidence is more effortful in the complex rule sentences as opposed to simple rules. These checks could be performed by explicit learners who

were presented examples of both simple and complex rules in profusion, in addition to explicit information, positive and negative evidence of the grammatical sentences in lessons and exercises. Scanning complex sentences would be effortful but possible for explicit learners. Yet, such a scan for evidence confirming or disconfirming sentence grammaticality could not be effective for implicit learners owing to the absence of information about the rule constraints whose violation makes the sentence ungrammatical. According to the Computational Model of second/foreign language acquisition, this information would have enriched the data-base of the learners' rule-based knowledge, and hence could be retrieved at need. In this case, access to the rule-based knowledge is ineffective for the implicit learners. Moreover, by considering implicit learners' results at the post-test, we notice that their performance improved as concerns the complex rules, but not as significantly as the explicit learners'. A possible explanation is that the implicit learners may have somehow learned the complex rules merely by interacting with the structures provided in ESP texts and activities and by such they have unconsciously analyzed the material while processing it for meaning. According to the Interaction Hypothesis (Long, 1996), if learners are provided with sufficient opportunities to interact with the language, they can somehow assimilate and correctly form the structures without explicit instruction of the rules. This finding is in line with N. Ellis (1993) results who concluded that there can be implicit learning even with random exposure. It is worth noting that although explicit learners' performance on the target simple rule did not improve significantly after the instruction phase, their performance on the target complex rules improved and reached their simple rule performance level. This performance could possibly be explained as such: After treatment, instructed learners performed on complex rules as if these rules have become simple. As a result, one could deduce that explicit instruction causes easiness, that is to say, it simplifies complex structures. In brief, these findings contradict researchers' claims that explicit instruction is not effective and that only simple rules are learnable, but are in line with findings reported by many SLA researchers like Hulstijn and De Graaff (1994: 103) who concluded that: 'Explicit instruction has more effect in the case of complex rules than in the case of simple rules.'

Conclusion

The findings of the present study, as well as those of several other studies cited earlier, again confirm claims about the effectiveness of explicit instruction on learning complex rules. The experimental group learners' performance on complex rules improved greatly on the post-test measure. The importance of drawing learners' attention to the target rules was demonstrated. The explicit learners outperformed the implicit learners. This advantage is attributed to the explicit instruction treatment that brought the rules underlying the presented sentences into prominence, and thus eased their noticing. It was concluded that explaining rules, practicing them and providing positive and negative evidence of what is possible in language is effective because it fosters language processing. Implicit and explicit instruction were shown to have little effect on learning simple rules. Groups in both conditions performed almost similarly on the target simple rule. Results on the post-test measure demonstrate that. This finding disconfirmed the researcher's expectation that sentences illustrating simple rules may be clear enough in input and could eventually be spontaneously processed

without explicit instruction. These findings reject as well some researchers' claims that only simple rules are learnable through explicit instruction and that only implicit condition could lead to mastery of complex rules. However, findings of the present study evidence that explicit instruction has a strong effect on learning complex rules, and by this contradict researchers' claims that implicit instruction is superior to explicit instruction where the stimulus domain is complex. As illustrated by the results, explicit learners greatly outscored implicit learners in identifying grammatical and ungrammatical sentences representing the complex rules. This advantage was attributed to explicit information about the language forms that avoided learners ineffective hypothesis testing and thus made their grammaticality judgment less effortful and effective.

Not sure		plenty of discounts.	
11- This here dictionary explains many things.	Grammatical	Ungrammatical	Not sure
Grammatical	Ungrammatical	30- Where John stayed was in his shop.	
Not sure		Grammatical	Ungrammatical
12- What Peter does is write letters not invitations.	Grammatical	Ungrammatical	Not sure
Grammatical	Ungrammatical	31- I saw the dog you feed.	
Not sure		Grammatical	Ungrammatical
13- I saw the dog that played.	Grammatical	Ungrammatical	Not sure
Grammatical	Ungrammatical	32- Joan's leaving the party is on Wednesday.	
Not sure		Grammatical	Ungrammatical
14- In the garden, plays the dog.	Grammatical	Ungrammatical	Not sure
Grammatical	Ungrammatical	33- I saw the dog who barked.	
Not sure		Grammatical	Ungrammatical
15- On Wednesday, works Peter.	Grammatical	Ungrammatical	Not sure
Grammatical	Ungrammatical	34- What Anna did was read a book.	
Not sure		Grammatical	Ungrammatical
16- I saw the dog barked.	Grammatical	Ungrammatical	Not sure
Grammatical	Ungrammatical	35- There was many spoons near your plate.	
Not sure		Grammatical	Ungrammatical
17- Where the cat was is in the house not in the garden.	Grammatical	Ungrammatical	Not sure
Grammatical	Ungrammatical	36- What John writes was a text not a telex.	
Not sure		Grammatical	Ungrammatical
18- Who did you suggest I talk to?	Grammatical	Ungrammatical	Not sure
Grammatical	Ungrammatical	Grammatical	Ungrammatical
Not sure		Not sure	

Appendix II: Rules Presented to the English Department EFL Teachers for Classification

Could you please give the following information?

Number of years EFL teaching experience:

Degrees and/or qualifications earned:

Please consider the following rules and say whether they are simple or complex.

RULE 1: Rule governing time and place adverbial fronting

Some sentences are composed of a subject, a verb and an adverb of place or adverb of time.

Eg. Peter (subject) walked (verb) over the bridge (adverb of place).

Eg. Susan (subject) arrived (verb) in the afternoon (adverb of time).

We can begin the sentence with the adverb of time or place, as in:

Eg. Over the bridge, Peter walked. Eg. In the afternoon, Susan arrived.

We can put the verb before the subject only when the adverb of place introduces the sentence.

Eg. Over the bridge walked Peter.

This means that the following sentence is ungrammatical.

Eg. In the afternoon, arrived Susan.

- SIMPLE
- COMPLEX

RULE 2: Rule governing the gerundivization of subject

Some sentences express an action, and others express reaction.

Eg. Anna greeted Peter. (action)

Susan was astonished. (reaction)

We can combine such sentences as

Eg. Anna's greeting Peter astonished Susan.

To make such combinations, make the subject of the first sentence (expressing action) possessive and change its verb into present participle, then delete the subject and verb of the second sentence (expressing reaction) and change its adjective into a verb that respects the tense. The subject of the second sentence becomes then the object of the new sentence.

Eg. Anna's (the subject becomes possessive) greeting (the verb becomes present participle) astonished (the adjective becomes verb) Susan (the subject of the second sentence becomes the object of this sentence).

- SIMPLE
- COMPLEX

RULE 3: Rule governing the formation of pseudo-cleft construction headed by ‘Where’

Some sentences contrast two locations.

Eg. Peter lives in France but Anna lives in New York.

It is possible to contrast these locations by making sentences like these:

Eg. Where Anna lives is in New York not in France.

To make sentences like these, first choose the subject whose location you want to emphasize.

Then place ‘where’ in front of it.

Eg. Where Anna

Next, follow the subject with its verb as in the original sentence.

Eg. Where Anna lives

Note that the verb cannot come before its subject:

Eg. Where lives Anna

(this is ungrammatical)
Then, add a singular form of the verb ‘to be’ which agrees in tense, followed by the phrase contrasting the locations:

Eg. Where Anna lives is in New York not in France.

If the verb ‘to be’ does not agree in tense, the sentence is ungrammatical.

Eg. Where Anna lives was in New York not in France. (this sentence is ungrammatical)

- SIMPLE
- COMPLEX

RULE 4: Rule governing the formation of pseudo-cleft construction headed by ‘What’

Some sentences contrast activities.

Eg. Anna reads the novel but Peter watches TV.

It is possible to contrast these activities by making sentences like this:

Eg. What Anna does is read the novel not watch TV.

To make sentences like these, first choose the subject whose activity you want to emphasize, then place ‘what’ in front of it.

Eg. What Anna

Next, follow the subject with a form of the verb ‘to do’ that agrees with the subject:

Eg. What Anna (subject) does (a form of the verb ‘to do’ that agrees with the subject Anna)

Note that the verb ‘to do’ cannot come before the subject.

Eg. What does Anna

(ungrammatical)
Next, add a singular form of the verb ‘to be’ which agrees in tense, followed by the phrase contrasting the activities. Note that the activities will be expressed with bare-infinitive:

Eg. What Anna does is read the novel not watch TV.

Note that if the form of ‘to do’ and ‘to be’ do not agree in tense with the verb of the original sentence, the sentence is ungrammatical.

Eg. What Anna does was read the novel or

What Anna did is read the novel ...

- SIMPLE
- COMPLEX

RULE 5 : Rule governing question formation with preposition stranding and pied-piping.

Some sentences describe transfer of possession from one person to another.

Eg. Peter gave the book to Anna.

It is possible to turn this sentence into a question if the person receiving the object is unknown.

Eg. Who did Peter give the book to? (wh-question involving preposition stranding)

Or To whom did Peter give the book? (wh-question involving preposition pied-piping)

To make questions like these, first formulate the interrogative form of the sentence:

Eg. Did Peter give the book ?

Note that the auxiliary DO takes the tense of the sentence and that the main verb is in the bare-infinitive form and it does not carry tense:

Eg. Did Peter give Eg. Did Peter gave (ungrammatical)

Then, choose a wh-word that agrees with the unknown indirect object you are questioning. For people, the wh-word is 'who' or 'whom' depending on whether the preposition fronts the question or occurs at the end of it.

Eg. Who did Peter give the book to?

To whom did Peter give the book?

- SIMPLE
- COMPLEX

RULE 6: Rule governing the pre- and post-subject use of the emphatic adverbial.

Some sentences are used to indicate a specific subject.

Eg. That cow gives a lot of milk.

We can use an adverb of location to emphasize where the subject is located. This adverb of location can be placed before or after the subject:

Eg. That cow (subject) there (adverb) gives a lot of milk.

Or That there (adverb) cow (subject) gives a lot of milk.

- SIMPLE
- COMPLEX

Please order these rules according to their degree of complexity; i.e. from the simplest to the most complex.

1- The most simple rule is rule number

2-

3-

4-

5-

6-

7- The most complex rule is rule number

- According to you, why is the rule in the first position of your ordering the simplest?

.....

.....

.....

- Why is the rule in the last position of your ordering the most complex?

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