

Effect of explicit and implicit FFI on EFL learners' implicit and explicit knowledge of simple and difficult morphosyntactic features

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Abstract

This study investigated the relative effects of explicit and implicit form-focused instruction (FFI) on the acquisition of four simple and difficult morphosyntactic features as assessed by explicit and implicit outcome measures. Four tests were utilized to assess L2 learners' acquisition: elicited oral imitation, timed and untimed grammaticality judgment, and metalinguistic knowledge tests. A pretest and two posttests were administered to 120 low pre-intermediate learners immediately and three weeks after the instructional treatments. Durable effects of FFI were found for simple and difficult language forms on both measures of explicit and implicit L2 knowledge. More specifically, the present study indicated that explicit FFI was significantly more

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beneficial for simple language features chosen according to their degree of difficulty based on the explicit knowledge criteria and implicit FFI was significantly more beneficial for simple language features selected according to their degree of difficulty based on the implicit knowledge criteria. The findings may promise implications for our understanding of the efficacy of explicit and implicit FFI on L2 learners' controlled and spontaneous use of simple and difficult forms at early stages of L2 acquisition.

Keywords: instructed SLA; explicit/implicit FFI; type of language form; explicit/implicit knowledge

1. Introduction

Instructed second language acquisition (SLA) literature indicates that the effectiveness of L2 instruction depends on a wide range of moderating factors (de Graaff & Housen, 2009; Norris & Ortega, 2000), including the type of L2 instruction provided, type of L2 learner chosen (considering their age, proficiency level, etc.), type of language knowledge (explicit/implicit types) tapped, and type of language form targeted (DeKeyser, 1998, 2005; R. Ellis, 2001, 2002; Hulstijn & de Graaff, 1994; Norris & Ortega, 2000). The impact of these factors on instructional effectiveness has not been compellingly probed so far (de Graaff & Housen, 2009), and while some previous studies have shown differential effects of instruction based on these moderating factors, a review of related findings has not provided evidence to indicate the exact factors that cause differentiation. Hence, there is a need for more fine-grained studies to investigate the effectiveness of L2 instruction in relation to these moderating factors. Particularly, as Spada and Tomita (2009) highlighted, the issues which require investigation include what type(s) of L2 knowledge benefit most from which type(s) of L2 instruction and whether the

benefits of different types of L2 instruction vary depending on the nature or type of language forms targeted. Accordingly, three aspects of the research literature relevant to this study will be examined. These are: (i) the effectiveness of different approaches to L2 instruction, (ii) interactions between type of language form and type of instruction and (iii) different types of L2 knowledge.

2. Review of the Literature

2.1 Explicit and Implicit FFI

One of the important factors that can moderate the effectiveness of L2 instruction is the type of instruction provided to L2 learning (de Graaff & Housen, 2009; R. Ellis, 2001; Norris & Ortega, 2000). L2 instruction according to some instruction taxonomies can be divided in terms of the direction of the L2 learner's main focus of attention into meaning-focused instruction (MFI) and form-focused instruction (FFI) (R. Ellis, 1999, 2001; Norris & Ortega, 2000; Spada, 1997). The former involves the use of any tasks or activities that directs the L2 learner's main focus of attention to the communication of pertinent meanings and authentic messages (R. Ellis, 1999, 2001). The latter term refers to "any pedagogical effort used to draw the learner's attention to language form" (Spada, 1997, p.73).

Moreover, much research aimed at comparing the effectiveness of different type of FFI has generally classified the different pedagogic options in terms of explicit and implicit FFI (e.g., Dekeyser, 1995; Robinson, 1996b, 1997; Spada & Tomita, 2010). According to Norris and Ortega (2000), FFI is considered to be explicit if rule presentation or explanation comprises part of the instruction or if L2 learners are directly asked to attend to particular language forms/features and to reach metalinguistic generalizations on their own. Additionally, as Norris and Ortega maintain, when "neither rule presentation nor directions to attend to particular forms are part of an

instructional treatment" (p. 437) that treatment is considered implicit FFI.

Some studies have attempted to compare the relative efficacy of explicit and implicit instruction (here FFI). Forty-nine of these studies which represented 98 instructional treatments were included in Norris and Ortega's (2000) meta-analytic research. In their study, the superiority of explicit types of L2 instruction over their implicit counterparts was empirically demonstrated. However, Norris and Ortega themselves and later Doughty (2003) discuss a number of important biases toward explicit knowledge in their studies that warrant caution in drawing any conclusive generalizations about the effectiveness of explicit versus implicit type of L2 instruction. Hence, the significance of studies attempting to probe this line of inquiry without any biases toward explicit knowledge and taking a balanced position toward both explicit and implicit types of L2 knowledge is clearly understood.

2.2 Interactions between Type of Language Form and Type of FFI

The relative effectiveness of FFI and of different types of FFI have been related to the type of language form/feature to be taught (de Graaff & Housen, 2009; Dekyser, 1995; Ellis, 2002; Robinson, 1996a, 1996b). This issue is of considerable importance and interest to L2 teachers and SLA researchers alike but few studies have attempted to directly compare the effects of different types of FFI on different language forms/features (Dekyser, 1995; Robinson, 1996a, 1996b; Housen, Pierrard, & Van Deale, 2005; Williams & Evans, 1998).

In these few studies, the choice of which language forms to teach is usually based on the consideration of their simplicity/complexity for description or ease/difficulty for learning (Spade & Tomita, 2010). Some scholars have hypothesized that only easy forms can be successfully taught, while difficult forms can only be developed under implicit

instructional conditions through meaning focused practices (Krashen, 1982; Reber, 1989). Others take the opposite view holding that simple grammatical forms are best developed under implicit conditions and complex forms are best learned under explicit instructional interventions (Hulstijn & de Graaff, 1994). Also, this issue is aggravated by lack of any agreed-upon metric or definition of grammatical ease/difficulty (de Graaff & Housen, 2009). Instead, this conundrum has been approached from different perspective (e.g., acquisition, pedagogical, linguistic, and psycholinguistics) (Collin et al., 2009) and in terms of various factors (e.g., a language form/feature's perceptual saliency, frequency, functional or communicative value, processability, regularity, (in)congruency with L1, markedness, form-function transparency) (DeKeyser, 2005; N. Ellis, 2002; R. Ellis, 2006; Goldschneider & DeKeyser, 2001, 2005, Harley, 1994; Hulstijn & De Graaff, 1994). These diverse definitions of grammatical ease/difficulty make the comparisons of different findings very hard. Moreover, the empirical evidence relating to this line of enquiry is mixed, with some studies reporting little or no significant effect of instructional interventions on the type of target forms taught (e.g., de Graaff, 1997; Housen, Pierrard, & Van Daele, 2005), and other studies reporting significant results of L2 instruction based on the type of form instructed (e.g., Dekeyser, 1995; Robinson, 1996a, 1996b). Also, as de Graaff and Housen (2009) noted, the direction of the relationship between type of L2 instruction and L2 form is still far from clear. Some studies found explicit instruction to be most beneficial for simple forms/features (e.g., DeKeyser, 1995; Robinson, 1996a, 1996b), while other studies reported more benefits of explicit instruction with complex forms/features in their research (e.g., de Graaff, 1997; Housen, Pierrard, & Van Daele, 2005). Clearly, the question of any interactions between these two sets of factors (i.e., type of instruction and type of language form) requires more fine-grained studies so that the contribution of these factors which may moderate the effectiveness of L2 instruction (here FFI) can be better investigated.

2.3 Different Types of L2 Knowledge

The potential effects of implicit and explicit FFI on SLA can also be investigated in terms of different types of L2 knowledge that L2 learners may develop as a result of these types of FFI. The most common distinction concerning the different types of L2 knowledge is between explicit and implicit knowledge. Explicit knowledge is characterized as conscious and declarative form of knowledge about language that is potentially verbalizable and generally accessible only through controlled processing in planned language performance (R. Ellis, 2004). In contrast, implicit knowledge is defined as intuitive and procedural knowledge of language that is automatic and systematically variable and thus available for employment in unplanned, fluent language performance (R. Ellis, 2004, 2008). In part, the uncertainty over the efficacy of implicit and explicit types of instruction is due to the difficulty of operationalizing these two knowledge types (Akakura, 2011). Most studies so far have evaluated L2 acquisition employing explicit rather than implicit measures of L2 knowledge (Norris & Ortega, 2000) and this measurement problem according to Hulstijn (2005) has made the effectiveness of L2 type-of-instruction research more controversial. However, some recent developments have provided evidence that it may be possible to measure implicit and explicit types of knowledge as independent constructs (R. Ellis, 2005, R. Ellis et al., 2009). Nevertheless, few studies (Ellis et al., 2009; Akakura, 2011) have attempted to examine the potential effects of implicit and explicit instruction on implicit and explicit types of knowledge in terms of these new measures and hence the necessity of undertaking studies with regard to these new developments in the field is clearly felt.

3. The Current Study

This study expands the previous research by investigating the interactions between three sets of factors which may potentially

moderate the effectiveness of L2 instruction (i.e. type of FFI, type of language form, and type of L2 knowledge). The research questions motivating our study are as follows:

- (1) Do the effects of explicit and implicit FFI on L2 learners' implicit knowledge vary with easy/difficult language forms?
- (2) Do the effects of explicit and implicit FFI on L2 learners' explicit knowledge vary with easy/difficult language forms?

4. Method

4.1 Participants

A total of 120 EFL learners received the instructional treatments and also took the battery of tests developed for this study. The sample comprised low pre-intermediate learners based on 1986 ACTFL Proficiency Guidelines and as determined by a test of KET administered by the researchers. Most of these learners were studying different fields of engineering and some of them were majoring in social sciences. The subjects were enrolled in Islamic Azad University. All the participants were asked to complete the tests and to sign an ethics consent form.

4.2 Design

This study was a quasi-experimental, pretest-posttest-delayed posttest design. But the classes were randomly assigned to the four Explicit or Implicit FFI groups. The experimental groups which received the explicit and implicit FFI consisted of four different groups: The first group received implicit FFI in the form of memorized-only treatment (in which the instructional materials were seeded with the target forms in the hope that the increased frequency will be salient to learners); and the second group received implicit FFI in the form of input enhancement which took the form of bolded and italic target features. The results of the first and second groups were later combined and analyzed as one group and these two groups were called implicit FFI group.

The third group received explicit FFI in the form of deductive instruction which involves the provision of an explicit rule that they then practice in one way or another. Finally, the fourth group also received explicit FFI but in the form of inductive instruction which according to R. Ellis (2008) involves requiring the learners to induce the rules from examples presented to them. The results of the third and fourth groups were later combined as one group and it was called explicit FFI group.

4.3 Materials and Instructional Treatment

In this research, we defined explicit and implicit FFI following Norris and Ortega (2000) and explicit and implicit types of knowledge based on R. Ellis (2004, 2008), which were outlined earlier. Also, there appear to be at least four main ways in which ease/difficulty has been defined in the literature: from acquisition, linguistic, pedagogical, and psycholinguistic perspectives (see Collins et al., 2009). Although these different perspectives for defining form difficulty are useful, each one has its own disadvantages and a single explanation to the ease/difficulty issue seemed insufficient to account for the diversity of the issue. As it was necessary to make a choice for the purpose of carrying out this study, we decided to adopt R. Ellis' (2006) model for defining difficulty. Given the marked differences in how explicit and implicit types of knowledge are represented and processed, it seemed obvious for R. Ellis to examine ease/difficulty in relation to each type of L2 knowledge separately. Thus, drawing on the work of different scholars including N. Ellis (1996), Hulstijn and de Graaff (1994), and Pienemann (1998), R. Ellis (2006) proposed five criteria as determinants of what renders different forms difficult as implicit knowledge (i.e., *frequency*, *saliency* (i.e., ease of noticing), *functional value* (i.e., clarity or multiplicity of the function), *regularity* (i.e., the scope that a rule includes and the extent to which a rule remains true), and *processability* (i.e., related to Pienemann's (1998) explanation of the processing

procedures)) and two criteria as determinants of what makes different forms difficult as explicit knowledge (i.e., *conceptual clarity* (i.e., the degree of formal and functional ease/difficulty) and *metalinguage use* (i.e., the technicality of metalinguage to frame or formulate a rule)).

The current study drew upon these criteria because they allowed us to categorize ease/difficulty across a wide range of morphosyntactic forms and their conceptualization had acquisition, linguistic, pedagogic, and psycholinguistic value.

Also, we needed to choose morphosyntactic forms that could meet Ellis' criteria of difficulty as implicit and explicit knowledge. However, as it was not clear how to measure some of the above-mentioned criteria, the only viable approach was to rely on the judgment of some SLA experts to rate the relative ease or difficulty of the morphosyntactic forms based on the criteria. Therefore, a Likert-type scale of ease/difficulty was developed (Appendix I). R. Ellis (2005, 2006) used 17 morphosyntactic forms that were problematic to many language learners. In this study, we added some more forms to his list as we needed to find not only about difficult but also about easy forms. Then, six experts in the field of linguistics and SLA were asked to rate the ease or difficulty of all these forms based on the two sets of criteria as implicit and explicit knowledge. After the rating process, a correlation between experts' ratings was conducted. The results showed high correlation ($r = .94$) between the ratings of all the experts. Accordingly, four morphosyntactic forms were chosen according to experts' rating of their ease/difficulty. The four target forms were divided into two groups. The first group consisted of an easy (present progressive-ing) and a difficult language form (3rd person present tense-s) which were chosen according to their degree of ease/difficulty based on the implicit knowledge criteria. The second group also consisted of an easy and a difficult language feature based on the explicit knowledge criteria already discussed (possessive-'s and WH-question respectively). These four simple and difficult forms were employed to develop the instructional materials and additionally the test battery.

The instructional materials consisted of many sentence-level exemplars of the four forms and also some texts containing many exemplars of the target forms (Appendix II). These materials were the same for all four groups but the manner of their presentation for each group was different. The input-enhancement group received those materials in the form of bolded and italic features, with an instruction for learners to focus their attention on understanding the meanings of the sentences and texts. The memorized-only group received the same materials without any bolding or italicization with an instruction to just memorize the given sentences and understand the texts. The other two explicit groups also received the materials in an inductive and deductive manner. Inductive FFI required L2 learners to induce rules from the examples given to them and deductive FFI provided learners with explicit rules which they subsequently practiced (R. Ellis, 2008). All these four treatments lasted for two consecutive weeks which consisted of 12 hours of FFI.

4.4 Instruments

Effect of FFI on learners' knowledge of target forms was assessed by comparing their performance on four tests (Appendix III). The tests described below were adaptations of an earlier test battery developed by R. Ellis (2005). Two of the tests, (the Oral Elicited Imitation Test (OEIT) and the Timed Grammaticality Judgment Test (GJT)) originally designed by R. Ellis to measure implicit knowledge of seventeen grammatical features, were also adapted here to measure implicit knowledge of the four features and the other two tests (the Untimed GJT and the Metalinguistic Knowledge Test (MKT)) originally designed to measure explicit knowledge of grammatical features were adapted here to measure explicit knowledge of the target features.

OEIT. The OEIT consisted of a set of belief statements involving both grammatical and ungrammatical sentences

containing the target features. This test contained 16 statements (two grammatical and two ungrammatical sentences per structure). The sentences were presented orally to the participants, who were required to decide whether it was true or not true for them or whether they were not sure about the content of each statement. Requiring participants to decide about the truth value of the given statements they heard, not only focused their attention on meaning rather than on form, it also had the added advantage of delaying rote repetition (McDade, Simpson & Lamb, 1982). Next, the participants were told that they were then to repeat it in correct English and their responses were being taped. The training that they received prior to starting the test gave them practice in both aspects of the task, that is, in specifying their 'beliefs' on the test sheet and in repeating each statement in correct English.

Their responses were then analyzed by identifying obligatory occasions for the use of the four target features. Test takers' inability to imitate a sentence at all or to reproduce the sentence in such a form that they didn't create an obligatory context for the target feature of a sentence were coded as avoidance. Each imitated sentence was given a score of 1 (the target structure was correctly supplied) or 0 (the target structure was either avoided or attempted but incorrectly supplied). Scores were expressed as percentage correct.

Timed GJT. It was a test delivered through computer consisting of 16 sentences. These sentences which differed from those used in OEIT were presented to participants in a written format on a computer. Participants of the study were required to indicate their answers about the grammaticality of each sentence by pushing response buttons within a fixed time limit. The time limit for each sentence was determined based on native speaker's average response time to which an additional 20 percent of time was added by R. Ellis (2005), to compensate for the slower processing rate of L2 learners. So according to R. Ellis, the time permitted for judging the grammaticality of each sentence ranged from 1.8 to 6.24 seconds. Test items were scored dichotomously as correct/incorrect and items without

any response were considered as incorrect. Finally, a percentage accuracy score was computed based on the given responses.

Untimed GJT. This test has the same content as the timed version of GJT, which was delivered through computer screen. Following R. Ellis (2005), participants were given as much time as they needed to judge the grammaticality of the sentences. Participants were asked to (a) indicate whether each sentence was ungrammatical or grammatical, (b) indicate the degree of their certainty with regard to their judgment by inserting a score on a scale marked from 50 to 100% (as proposed by Dienes & Scott, 2005) and (c) to report whether they employed 'feel' or 'rule' to decide about the grammaticality of each sentence. Instructions detailed what judging 'by feel' and 'by rule' meant. Participants were told to tick 'by feel' if 'you knew your answer immediately, just by reading the sentence' or 'if you did not decide immediately, but you did not rely on any grammatical rule to make your judgment.' They were told to tick 'by rule' if 'you did not decide immediately, but you relied on a grammatical rule to make your judgment' and 'if you changed your answer from what you first 'felt', after thinking of a grammatical rule.'

MKT. This test adapted from Ellis (2005) consisted of an untimed multiple-choice test in two parts. Part 1 presented participants with five ungrammatical sentences based on the four target features (each target feature had one ungrammatical sentence except for WH question which had two exemplars), and required test takers to state a rule in their L1 that explains why the sentence is ungrammatical. Part 2 consisted of two sections (a & b). In the first section, the participants were asked to read a short text and try to find examples of the target features in it. In section (b), they were asked to try to identify the named grammatical parts in a set of four different sentences which contained the four features. Finally, a total percentage accuracy score was computed.

Reliability of all the tests was estimated by means of internal consistency of responses to every item in each of the tests. Cronbach's alpha coefficient was calculated for the pre-

tests of the TGJT ($\alpha=.84$), UGJT ($\alpha=.85$), MKT ($\alpha=.81$) and OEIT ($\alpha=.82$). The reliability coefficients for all the tests were above the .80 level deemed to be acceptable by Davies et al. (1999).

Evidence for test validity was investigated by calculating Pearson correlation coefficients between the four pre-tests using the total pre-test scores to gauge whether the OEIT, Timed GJT, Untimed GJT, and MKT tests tapped the types of knowledge as hypothesized and predicted in this study. Based on the results of previous studies (R. Ellis, 2005, 2006), it was hypothesized that there would be correlations between the OEIT and Timed GJT, as these were designed to measure implicit knowledge, and between the Untimed GJT and MKT as they were designed to be measures of explicit knowledge. Results of correlations showed that the Timed GJT test significantly correlated with OEIT ($r=.77$); the two tests allegedly measuring implicit knowledge. There was also a significant correlation between the Untimed GJT test and MKT ($r=.73$), the two tests supposedly measuring explicit knowledge. There was no significant correlation between the OEIT and the Untimed GJT ($r=.12$), indicating that these two tests are likely tapping separate knowledge types. The MKT also did not correlate significantly with Timed GJT ($r=.13$).

5. Results

Research questions of the study examined possible effects of explicit and implicit FFI on L2 learners' implicit and explicit knowledge of two different types of language forms and whether the effects of FFI lead to similar types of knowledge for these forms or not. To probe the corresponding null hypotheses, first descriptive and then inferential statistics for the explicit and implicit FFI groups are reported for each of the following tests.

5.1 OEIT

To assess the effect of Explicit and Implicit FFI on implicit knowledge of L2 learners, the OEIT was utilized. As the results of descriptive statistics for OEIT in Table 1 depict, there was less than 10% accuracy levels on the pretest scores. These accuracy scores generally increased for both FFI groups over both immediate and delayed posttests based on the nature of the four target features. Both posttests of learners in the Explicit and implicit FFI groups showed that the highest scores belonged to the simple explicit (possessive-'s) and simple implicit (present progressive-ing) language features, respectively, and the lowest scores to the difficult implicit (3rd person present tense-s) and difficult explicit (Wh-questions) features, respectively. Here the implicit knowledge of two language features received the highest scores which were simple and also congruent in nature with the explicit and implicit types of FFI provided to the learners of these groups, and the lowest scores belonged to two features which were difficult and additionally incongruent in nature with the type of FFI provided to the learners.

Table 1: Descriptive statistics on the implicit knowledge of L2 learners

| Treatment | Structure type | Time | M | SD | N |
|--------------|--------------------|------------|-------|------|----|
| Explicit FFI | simple implicit | pretest | 6.35 | 2.55 | |
| | | posttest 1 | 55.33 | 1.62 | 60 |
| | | posttest 2 | 52.17 | 1.25 | |
| | difficult implicit | pretest | 7.06 | 2.23 | |
| | | posttest 1 | 38.33 | 1.49 | 60 |
| | | posttest 2 | 35.75 | 1.34 | |
| | simple explicit | pretest | 7.95 | 2.33 | |
| | | posttest 1 | 61.58 | 1.51 | 60 |
| | | posttest 2 | 58.17 | 1.43 | |
| | difficult explicit | pretest | 7.75 | 2.56 | |
| | | posttest 1 | 46.67 | 1.45 | 60 |
| | | posttest 2 | 44.80 | 1.26 | |
| Implicit FFI | simple implicit | pretest | 6.91 | 2.23 | |
| | | posttest 1 | 53.21 | 1.28 | 60 |
| | | posttest 2 | 50.71 | 1.43 | |

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|--------------------|------------|-------|------|----|
| difficult implicit | pretest | 7.98 | 2.38 | |
| | posttest 1 | 42.42 | 1.43 | 60 |
| | posttest 2 | 39.42 | 1.15 | |
| simple explicit | pretest | 7.36 | 2.13 | |
| | posttest1 | 42.67 | 1.58 | 60 |
| | posttest 2 | 41.66 | 1.93 | |
| difficult explicit | pretest | 7.83 | 2.31 | |
| | posttest 1 | 34.92 | 1.56 | 60 |
| | posttest 2 | 32.20 | 1.28 | |

In order to examine the first question and probe the corresponding null hypotheses (which predict no effect of 1) explicit FFI and 2) implicit FFI on the implicit knowledge of simple/difficult forms), ANOVA (GLM Univariate Analysis) was carried out.

As the ANOVA results summarized in Table 2 illustrate, there is a statistically significant difference at the $P < .01$ level in the first posttest scores of the target features: $F = 67.8$, $P = .000$. The actual difference between simple and difficult features in each type is very large (according to Cohen's (1988) guidelines, the values more than .14 are considered to be large effects). The effect size, calculated using partial eta-squared (h_{2p}), is .67. The significant difference is sustained with a slight decrease in posttest 2 ($F = 61.67$, $P = .000$), where the effect size is still very large ($h_{2p} = .65$). Accordingly, we are led to believe that the first null hypothesis is highly unlikely, so we have a statistical basis upon which we can reject this null hypothesis.

Table 2: Analysis of variance for the effect of simplicity/difficulty on learners' implicit knowledge in the explicit FFI group

| Treatment | Test type | Time | | df | F | Sig. | h_{2p} |
|--------------|-----------|-----------|----------|-----|--------|------|----------|
| Explicit FFI | OEIT | pretest | Contrast | 1 | .346 | .792 | .011 |
| | | | Error | 118 | | | |
| | | posttest1 | Contrast | 1 | 67.808 | .000 | .679 |
| | | | Error | 118 | | | |
| | | posttest2 | Contrast | 1 | 61.674 | .000 | .658 |
| | | | Error | 118 | | | |

Effect of explicit and implicit FFI

The results of post-hoc comparisons through Bonferroni test showed that both posttest scores for the simple implicit feature in OEIT knowledge of the explicit FFI group are significantly different from the difficult implicit feature (the significance level between them is $p=.000$) Moreover, both posttest scores for the simple explicit feature are also significantly different from the posttest scores of the difficult explicit language feature ($p = .000$).

Also, as ANOVA results summarized in Table 3 illustrate (conducted to probe the second null hypothesis of the first question), there is a statistically significant difference at $p<.01$ level in the first posttest scores of the target features: ($F=37.25$, $p=.000$). The actual difference between simple and difficult language features in each type (explicit vs. implicit) is very large. The effect size, calculated using partial eta-squared, is 0.53. This significant effect is sustained with a slight increase in delayed posttest ($F=38.36$, $p=.000$), where the effect size is still very large ($h_{2p} = .54$). This evidence directs us to believe that the second null hypothesis is very unlikely, so we can reject it as well.

Table 3: Analysis of variance for the effect of simplicity/difficulty on learners' implicit knowledge in the implicit FFI group

| Treatment | Test type | Time | | df | F | Sig. | h_{2p} |
|--------------|-----------|-----------|----------|-----|--------|------|----------|
| Implicit FFI | OEIT | pretest | Contrast | 1 | .153 | .927 | .005 |
| | | | Error | 118 | | | |
| | | posttest1 | Contrast | 1 | 37.253 | .000 | .538 |
| | | | Error | 118 | | | |
| | | posttest2 | Contrast | 1 | 38.365 | .000 | .545 |
| | | | Error | 118 | | | |

Moreover, post-hoc comparisons showed that both posttest scores for simple implicit and explicit language features are significantly different from their difficult counterparts ($p=.000$).

5.2 Timed GJT

To assess the effect of Explicit and Implicit FFI on the implicit knowledge of learners the timed GJT was also utilized. As the results of descriptive statistics for timed GJT in Table 4 depict, there are very low levels of accuracy on the pretest scores (less than 10%). These accuracy scores greatly increased for both FFI groups over both posttests based on the nature of the target features. The immediate and delayed posttest scores of learners in the explicit and implicit FFI groups show that the highest scores again belonged to simple explicit and simple implicit features and the lowest scores to the difficult implicit and difficult explicit features respectively. Here the implicit knowledge (as measured by Timed GJT) of simple explicit and implicit features has received the highest scores which are simple and additionally congruent in nature with the explicit and implicit FFI provided to the learners of these two groups, respectively, and the lowest scores belong to two difficult language features that are also incongruent in nature with the type of FFI provided to the learners.

Table 4: Descriptive statistics on the implicit knowledge of L2 learners for explicit and implicit FFI groups

| Treatment | Structure type | Time | M | SD | N |
|--------------|--------------------|------------|-------|------|----|
| Explicit FFI | simple implicit | pretest | 8.41 | 2.55 | |
| | | posttest 1 | 52.94 | 1.62 | 60 |
| | | posttest 2 | 51.17 | 1.25 | |
| | difficult implicit | pretest | 7.90 | 2.23 | |
| | | posttest 1 | 39.33 | 1.49 | 60 |
| | | posttest 2 | 35.59 | 1.34 | |
| | simple explicit | pretest | 9.01 | 2.33 | |
| | | posttest 1 | 58.50 | 1.51 | 60 |
| | | posttest 2 | 56.00 | 1.43 | |
| | difficult explicit | pretest | 7.55 | 2.56 | |
| | | posttest 1 | 47.94 | 1.45 | 60 |
| | | posttest 2 | 44.99 | 1.26 | |

Effect of explicit and implicit FFI

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|--------------|--------------------|------------|-------|------|----|
| Implicit FFI | simple implicit | pretest | 7.50 | 2.23 | 60 |
| | | posttest 1 | 54.32 | 1.28 | |
| | | posttest 2 | 52.50 | 1.43 | |
| | difficult implicit | pretest | 6.00 | 2.38 | 60 |
| | | posttest 1 | 39.88 | 1.43 | |
| | | posttest 2 | 38.92 | 1.15 | |
| | simple explicit | pretest | 9.17 | 2.13 | 60 |
| | | posttest 1 | 43.95 | 1.58 | |
| | | posttest 2 | 42.75 | 1.93 | |
| | difficult explicit | pretest | 7.00 | 2.31 | 60 |
| | | posttest 1 | 34.07 | 1.56 | |
| | | posttest 2 | 32.50 | 1.28 | |

To probe the null hypotheses corresponding to the first research question (which predict no effect of 1) explicit FFI and 2) implicit FFI on the implicit knowledge of the target forms), ANOVA was carried out. As the ANOVA results summarized in Tables 5 & 6 illustrate, there are significant differences at $P < .01$ level in the first posttest scores of the target features: $F_{\text{Explicit}} = 43.62$, $P = .000$; $F_{\text{Implicit}} = 47.96$, $P = .000$. The actual differences between simple and difficult language features in each type are very large. The effect sizes, calculated using partial eta-squared, are .57 and .60 for explicit and implicit FFI groups, respectively. These significant differences are sustained with slight changes in posttests 2 ($F_{\text{Explicit}} = 51.06$, $P = .000$, $h_{2p} = .61$; $F_{\text{Implicit}} = 46.15$, $P = .000$, $h_{2p} = .59$). Therefore, based on this statistical evidence, we are led to accept the null hypotheses as highly unlikely, so they can be rejected.

Table 5: Analysis of variance for the effect of simplicity/difficulty on learners' implicit knowledge in the explicit FFI group

| Treatment | Test type | Time | | df | F | Sig. | h_{2p} |
|--------------|-----------|------------|----------|-----|--------|------|----------|
| Explicit FFI | Timed | pretest | Contrast | 1 | .265 | .850 | .008 |
| | | | Error | 118 | | | |
| | GJT | posttest 1 | Contrast | 1 | 43.623 | .000 | .577 |
| | | | Error | 118 | | | |
| | | posttest 2 | Contrast | 1 | 51.066 | .000 | .615 |
| | | | Error | 118 | | | |

| | |
|-------|-----|
| Error | 118 |
|-------|-----|

Table 6: Analysis of variance for the effect of simplicity/difficulty on learners' implicit knowledge in the implicit FFI group

| Treatment | Test type | Time | | df | F | Sig. | h_{2p} |
|-----------------|--------------|------------|----------|-----|--------|------|----------|
| Implicit FFI | Timed GJT | pretest | Contrast | 1 | 1.156 | .331 | .035 |
| | | | Error | 118 | | | |
| | | posttest 1 | Contrast | 1 | 47.969 | .000 | .600 |
| | | | Error | 118 | | | |
| | | posttest 2 | Contrast | 1 | 46.150 | .000 | .591 |
| | | | Error | 118 | | | |

The results of post-hoc comparisons through Bonferroni test show that both posttest scores for simple explicit and simple implicit features in the timed GJT knowledge of both FFI groups are significantly different from the difficult explicit and difficult implicit features, respectively ($p=.000$).

5.3 Untimed GJT

To assess the effect of FFI on the explicit knowledge of learners, the untimed GJT was utilized. As the results of descriptive statistics for the untimed GJT in Table 7 depict, both Explicit and Implicit FFI groups performed similarly on the pretest with very low levels of accuracy (less than 10%). These accuracy scores greatly increased for both FFI groups over both posttests. The scores of both FFI groups increased immediately after instruction with the highest scores belonging to the simple explicit ($M=71.44$) and simple implicit ($M=55$) features of the Explicit and Implicit FFI groups, respectively, and the lowest scores belonging to the difficult implicit ($M=49.69$) and difficult explicit ($M=34.8$) language features of the Explicit and Implicit FFI groups, respectively. Also, this initial gain in the explicit knowledge of both FFI groups does appear to be durable as the scores of both groups negligibly decreased in the

Effect of explicit and implicit FFI

3 weeks period between the first and the second posttests. Table 7 further shows that the gains of simple and difficult language features for Explicit FFI group are consistently higher than those of the implicit FFI group. Here the explicit knowledge of simple explicit and implicit features as measured by the Untimed GJT has received the highest scores based on their two characteristics of simplicity and congruency in nature with the type of FFI provided to each group.

Table 7: Descriptive statistics on the explicit knowledge of L2 learners for explicit and implicit FFI groups

| Treatment | Structure type | Time | M | SD | N |
|--------------|--------------------|------------|-------|------|----|
| Explicit FFI | simple implicit | pretest | 8.52 | 2.43 | 60 |
| | | posttest 1 | 57.05 | 1.63 | |
| | | posttest 2 | 53.50 | 2.46 | |
| | difficult implicit | pretest | 8.06 | 2.45 | 60 |
| | | posttest 1 | 49.69 | 1.62 | |
| | | posttest 2 | 46.58 | 1.34 | |
| | simple explicit | pretest | 8.67 | 2.24 | 60 |
| | | posttest 1 | 71.44 | 1.93 | |
| | | posttest 2 | 68.89 | 1.58 | |
| | difficult explicit | pretest | 7.60 | 2.46 | 60 |
| | | posttest 1 | 59.87 | 1.85 | |
| | | posttest 2 | 57.21 | 1.64 | |
| Implicit FFI | simple implicit | pretest | 8.33 | 2.25 | 60 |
| | | posttest 1 | 55.00 | 1.65 | |
| | | posttest 2 | 53.17 | 1.28 | |
| | difficult implicit | pretest | 8.50 | 1.86 | 60 |
| | | posttest 1 | 41.00 | 1.48 | |
| | | posttest 2 | 38.16 | 1.68 | |
| | simple explicit | pretest | 8.67 | 2.63 | 60 |
| | | posttest 1 | 43.82 | 2.23 | |
| | | posttest 2 | 42.00 | 1.96 | |
| | difficult explicit | pretest | 9.33 | 2.43 | 60 |
| | | posttest 1 | 34.80 | 1.86 | |
| | | posttest 2 | 32.17 | 1.69 | |

In order to examine the second research question and probe the corresponding null hypotheses (which predict no effect of 1) explicit FFI and 2) implicit FFI on the explicit knowledge of the target forms), we ran ANOVA. The results as summarized in Tables 8 and 9 show significant differences at $P < .01$ level in the first posttest scores: $F_{\text{Explicit}} = 53.82$, $P = .000$; $F_{\text{Implicit}} = 47.04$, $P = .000$. The actual differences between simple and difficult features in each type as shown by effect sizes are very large ($h_{2p \text{ Explicit}} = .62$; $h_{2p \text{ Implicit}} = .59$). These significant differences are sustained with negligible changes in delayed posttests of both FFI groups ($F_{\text{Explicit}} = 57.42$, $p = .000$, $h_{2p} = .64$; $F_{\text{Implicit}} = 51.51$, $P = .000$, $h_{2p} = .61$). The existence of strong evidence against the null hypotheses leads us to infer that they are very unlikely, so we can reject them.

Table 8: Analysis of variance for the effect of simplicity/difficulty on learners' explicit knowledge in the explicit FFI group

| Treatment | Test type | Time | | df | F | Sig. | h_{2p} |
|--------------|----------------|-----------|----------|-----|--------|------|----------|
| Explicit FFI | Untimed GJT | pretest | Contrast | 1 | .155 | .926 | .005 |
| | | | Error | 118 | | | |
| | | posttest1 | Contrast | 1 | 53.828 | .000 | .627 |
| | | | Error | 118 | | | |
| | | posttest2 | Contrast | 1 | 57.421 | .000 | .642 |
| | | | Error | 118 | | | |

Table 9: Analysis of variance for the effect of simplicity/difficulty on learners' explicit knowledge in the implicit FFI group

| Treatment | Test type | Time | | df | F | Sig. | h_{2p} |
|--------------|----------------|-----------|----------|-----|--------|------|----------|
| Implicit FFI | Untimed GJT | pretest | Contrast | 1 | .126 | .944 | .004 |
| | | | Error | 118 | | | |
| | | posttest1 | Contrast | 1 | 47.048 | .000 | .595 |
| | | | Error | 118 | | | |
| | | posttest2 | Contrast | 1 | 51.518 | .000 | .617 |
| | | | Error | 118 | | | |

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Additionally, post-hoc comparisons show that both immediate and delayed posttest scores for the simple explicit and implicit features in the untimed GJT knowledge of both FFI groups are significantly different from the difficult explicit and implicit target features, respectively ($P=.000$).

5.4 MKT

To assess the effect of Explicit and Implicit FFI on the explicit knowledge of L2 learners, the MKT was additionally utilized. The results of the descriptive statistics for MKT as summarized in Table 10 show very low levels of accuracy in both FFI groups' pre-test scores (again less than 10%). Both groups' accuracy scores greatly increased over the posttest scores based on the nature of the target language features. The immediate and delayed posttests of learners in the explicit and implicit FFI groups show that the highest scores belong to the simple explicit and simple implicit features and the lowest scores to the difficult implicit and difficult explicit features, respectively. Here the explicit knowledge of language features which are simple and congruent in nature with the type of FFI provided has received the highest scores, and the explicit knowledge of features which are difficult and incongruent in nature with the type of FFI has received the lowest scores.

Table 10: Descriptive statistics on the explicit knowledge of L2 learners for explicit and implicit FFI groups

| Treatment | Structure type | Time | M | SD | N |
|--------------|--------------------|------------|-------|------|----|
| Explicit FFI | simple implicit | pretest | 7.93 | 2.12 | 60 |
| | | posttest 1 | 76.27 | 1.84 | |
| | | posttest 2 | 73.72 | 1.62 | |
| | difficult implicit | pretest | 8.60 | 2.46 | 60 |
| | | posttest 1 | 67.50 | 1.72 | |
| | | posttest 2 | 63.67 | 1.52 | |
| | simple explicit | pretest | 9.34 | 2.34 | 60 |
| | | posttest 1 | 82.54 | 1.86 | |
| | | posttest 2 | 80.30 | 1.96 | |
| | difficult explicit | pretest | 7.84 | 2.11 | |

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| | | | | | |
|--------------|--------------------|------------|-------|------|----|
| | | posttest 1 | 70.43 | 1.78 | 60 |
| | | posttest 2 | 67.30 | 1.45 | |
| Implicit FFI | simple implicit | pretest | 9.65 | 2.45 | |
| | | posttest 1 | 53.00 | 1.64 | 60 |
| | | posttest 2 | 51.61 | 1.38 | |
| | difficult implicit | pretest | 8.48 | 2.63 | |
| | | posttest 1 | 39.50 | 1.91 | 60 |
| | | posttest 2 | 36.82 | 1.68 | |
| | simple explicit | pretest | 8.94 | 2.18 | |
| | | posttest1 | 44.72 | 1.48 | 60 |
| | | posttest 2 | 43.50 | 1.67 | |
| | difficult explicit | pretest | 8.00 | 2.64 | |
| | | posttest 1 | 33.61 | 1.76 | 60 |
| | | posttest 2 | 32.67 | 1.52 | |

In order to examine the second research question with MKT test and probe the corresponding null hypotheses, we ran ANOVA.

The ANOVA results as summarized in Tables 11 and 12, show significant differences at $P < .01$ level in the first posttest scores: $F_{\text{Explicit}}=29.21$, $P=.000$; $F_{\text{Implicit}}=44.58$, $P=.000$. The actual differences between simple and difficult features in each type as indicated by effect sizes are large ($h_{2p \text{ Explicit}}=.47$, $h_{2p \text{ Implicit}}=.58$). These significant differences are sustained with slight changes in delayed posttests of both FFI groups. ($F_{\text{Explicit}}=35.38$, $P=.000$, $h_{2p}=.52$; $F_{\text{Implicit}}=45.17$, $p=.000$, $h_{2p}=.58$). Thus, there is enough statistical evidence to reject the null hypotheses (corresponding to second research question) as they are highly unlikely.

Table 11: Analysis of variance for the effect of simplicity/difficult on learners' explicit knowledge in the explicit FFI group

| Treatment | Test type | Time | | df | F | Sig. | h_{2p} |
|--------------|-----------|-----------|----------|-----|--------|------|----------|
| Explicit FFI | MKT | pretest | Contrast | 1 | .319 | .812 | .010 |
| | | | Error | 118 | | | |
| | | posttest1 | Contrast | 1 | 29.211 | .000 | .477 |

Effect of explicit and implicit FFI

| | | | | | | | |
|--|-----------|----------|-----|--------|------|------|--|
| | | Error | 118 | | | | |
| | posttest2 | Contrast | 1 | 35.383 | .000 | .525 | |
| | | Error | 118 | | | | |

Table 12: Analysis of variance for the effect of simplicity/difficulty on learners' explicit knowledge in the implicit FFI group

| Treatment | Test type | Time | | df | F | Sig. | h_{2p} |
|-----------------|-----------|------------|----------|-----|--------|------|----------|
| Implicit FFI | MKT | pretest | Contrast | 1 | .325 | .808 | .010 |
| | | | Error | 118 | | | |
| | | posttest 1 | Contrast | 1 | 44.582 | .000 | .582 |
| | | | Error | 118 | | | |
| | | posttest 2 | Contrast | 1 | 45.172 | .000 | .585 |
| | | | Error | 118 | | | |

Post-hoc comparisons additionally show that both immediate and delayed posttest scores for the simple explicit and implicit language features in the MKT knowledge of both FFI groups are significantly different from the difficult explicit and implicit target features, respectively ($P=.000$).

The results of this study indicated a relationship between type of FFI (implicit & explicit) and type of target language features (simple explicit/implicit, difficult explicit/implicit) for both types of outcome knowledge (explicit & implicit). The findings do not appear to support the hypothesis that type of language feature interacts with type of language knowledge. It means that the effects of explicit and implicit FFI on the four types of language features targeted in this study are maintained regardless of the type of L2 knowledge tapped in the present research.

6. Discussion

The current study investigated the possible relationship between type of FFI and type of language feature with regard to the explicit and implicit knowledge of L2 learners.

The results of the study indicate that explicit and implicit FFI are significantly more effective for simple language features compared to difficult ones. In particular, the results of the study as assessed by implicit knowledge outcome measures (i.e., OEIT & Timed GJT) indicate that explicit FFI is significantly more effective for the simple explicit language form. That is, explicit FFI has the largest impact on learning when a simple feature which is also congruent in type (i.e., explicit) with the type of FFI is targeted and then a simple feature of a different type (i.e., implicit). These results are also maintained for delayed posttests which were administered three weeks after the immediate posttests.

The results also show the same trend for the implicit FFI. That is, implicit FFI is significantly more beneficial for simple implicit language form as assessed by implicit knowledge measures in this study. It means that implicit FFI has the largest effect on acquisition when a simple form which is of the same type as the type of FFI (i.e., implicit) is targeted and then a simple form which is incongruent in nature (i.e., explicit) with the type of FFI is targeted.

The finding that explicit FFI was more beneficial for simple features with respect to the implicit knowledge of L2 learners is consistent with DeKeyser (1995) who provided empirical evidence for the effectiveness of explicit instruction on the learning of simple language forms. However, the finding of the present study contradicts the finding of Spada and Tomita's (2010) meta-analysis who found no interaction between type of instruction and type of language feature, of course as operationalized in that study (they adopted the criteria proposed by Hulstijn and de Graaff (1994), who determined the degree of complexity of language forms by the number of transformations required to arrive at the target form). But as mentioned previously, no published study so far has attempted

to investigate the effects of explicit and implicit FFI in terms of the four categories of the language features adopted in this study following R. Ellis (2006) (i.e., simple explicit, simple implicit, difficult explicit, difficult implicit) and additionally with respect to the different types of knowledge (implicit & explicit L2 knowledge) developed as a result of FFI. In particular, the finding of this study about the effectiveness of implicit FFI for a simple implicit language feature as assessed by implicit knowledge outcome measures is unique to this study without any precedents whatsoever. Furthermore, the results of the delayed posttests indicate that the effects of types of instruction (both implicit & explicit FFI) on the language forms targeted in this study and as assessed by implicit knowledge tests are durable even after three weeks of FFI.

The findings of this study also seem to contradict the non-interface hypothesis that claim explicit instructional interventions do not result in unanalyzed and unconscious knowledge available for use in unplanned and spontaneous communications (Krashen, 1982; Schwartz, 1993). Indeed, the positive impact of explicit FFI on measures of implicit knowledge could be interpreted as support for the strong interface hypothesis and the argument that the conscious, analyzed and declarative (i.e., explicit) L2 knowledge obtained through explicit FFI can be converted into implicit and procedural L2 knowledge with practice (DeKeyser, 1998; Hulstijn, 1995). One might argue, however, that the outcome measures characterized as implicit in this study (i.e., OEIT & Timed GJT) may not represent 'pure' measures of unplanned and spontaneous ability tapping exclusively into implicit L2 knowledge of learners. These are valid concerns in need of more fine-grained studies. In particular, the need for more validation studies of the kind conducted by R. Ellis (2005) in which he attempted to validate a battery of five tests as implicit and explicit language measures is deeply felt.

Also, the current study addressed the effects of explicit and implicit FFI on explicit outcome measures (i.e., Untimed GJT & MKT) based on the nature of the four target features. In

particular, the results indicate that explicit FFI is significantly more effective for simple explicit language feature. That is, explicit FFI has the largest effect when a simple language feature of the same nature (i.e., explicit) is targeted and then simple language feature of a different nature (i.e., implicit). The results also show the same pattern for implicit FFI. That is, implicit FFI is significantly more beneficial for the simple implicit feature as measured by explicit knowledge measures. It means that implicit FFI has the largest impact when a simple form which is congruent in nature with the type of instruction (i.e., implicit) is targeted and then simple forms of a different type (explicit). Furthermore, the results of the delayed posttests showed that the effects of types of instruction (both implicit and explicit FFI) on the four language features targeted in this study and as assessed by explicit knowledge tests are durable after three weeks of FFI.

The finding that explicit FFI is more beneficial for simple forms is consistent with DeKeyser (1995) and Williams and Evans (1998), who reported advantages of explicit instruction for simple features (although not with difficult language features). These studies (DeKeyser, 1995; Williams & Evans, 1998) did not distinguish between implicit and explicit types of language forms and just went forward with the simple/complex dichotomy. Additionally the cited studies did not specify the type of knowledge developed as a result of the interactions of explicit/implicit instruction and simple/difficult language features. Furthermore, the finding that implicit FFI is significantly more beneficial for a simple language feature which is implicit in nature, is unique to this study. No previously-published study (to our knowledge) has investigated the effects of implicit types of FFI on simple/difficult language forms by differentiating the nature of these target forms based on the explicit/implicit dichotomy. Moreover, no previous study has investigated the effectiveness of FFI with the consideration of the three factors addressed in this study, that is, type of FFI, type of target feature, and type of outcome knowledge.

Finally the findings of this study did not provide empirical evidence to support any correspondence between type of

language feature and type of language knowledge developed, as reported by R. Ellis (2006). R. Ellis provided some evidence to support the claim that the ease or difficulty of grammatical forms correspond with explicit and implicit L2 knowledge. That is, language forms that were found to be easy for L2 learners with respect to their explicit L2 knowledge were difficult in terms of their implicit L2 knowledge and vice versa. However, the findings of this study are inconsistent with R. Ellis' (2006). The results of this study indicate a relationship between type of FFI and type of target language features for both types of outcome knowledge. It means that the effects of explicit and implicit FFI on the four types of language forms are maintained irrespective of the type of L2 knowledge tapped in the this research.

7. Conclusion

This study found evidence of an interaction between type of FFI and type of language form as measured by explicit/implicit tests. More specifically, the present study indicated that explicit and implicit FFI are significantly more beneficial for simple language features of the same explicit and implicit types, respectively.

These results were also maintained after the three week time interval. Additionally, the findings of this study did not provide any evidence to support any correspondence between type of language feature and type of language knowledge as contended by R. Ellis (2006). Additionally, the previously-mentioned effects of FFI on the simple (primarily) and difficult (secondarily) forms seem durable as observed by the results of the delayed post-experimental tests.

Moreover, the results of this study seem to contradict the non-interface hypothesis. Indeed, the positive effect of explicit FFI on measures of implicit knowledge can be interpreted as support for the interface hypothesis and the argument that the explicit L2 knowledge obtained through explicit types of FFI can be converted into implicit L2 knowledge with practice.

These results afford some theoretical and pedagogical implications.

The main theoretical implication that may be drawn from this study is that the effect of FFI benefits L2 knowledge in terms of both explicit and implicit knowledge of simple and difficult forms. More specifically, explicit FFI can teach learners metalinguistic facts about target forms and thereby contribute to their explicit knowledge. Also, the results of this study provide evidence that explicit knowledge developed through explicit FFI can help L2 learners' acquisition of implicit knowledge. Thus, these findings provide theoretical and empirical support for the interface position.

Furthermore, implicit FFI can assist L2 learners in developing the ability to produce the targeted features in planned and free constructed responses. This is the case for both simple and difficult features although the results are more effective for simple features of the same type. These findings address the criticism leveled at much FFI research by Doughty (2003), that the type of measurement chosen in many form-focused studies is biased towards explicit knowledge. Implicit FFI as demonstrated in this study can serve to facilitate the processes involved in natural acquisition of language, providing that the target forms are not too difficult for the target learners and the instruction is of sufficient quantity.

Pedagogically, the results of this study, particularly on implicit knowledge, provide positive reasons for pre-intermediate learners to receive FFI on language forms (primarily simple forms) that are congruent in nature with the type of instruction provided. So, there are some constraints on how well FFI works and it does not follow that FFI will always be as effective and other mediating factors should be taken into account. These findings are encouraging contributions made by this study for L2 learners who struggle with the acquisition of English morphosyntax, as well as for language teachers, educators or language program designers who are in a position to decide the type of instruction, the type of language form, and the type of learner who receives the instruction.

This research is not of course without its limitations. The validity of the present study's findings rests heavily on the outcome measures used to assess implicit and explicit L2 knowledge. Arguments and psychometric evidence for the validity and reliability of these outcome tests have been presented in this study and also elsewhere (see also R. Ellis, 2005). However, additional work on developing tests or measures of these two knowledge types is clearly necessary (R. Ellis, 2006).

It is of great importance that future studies investigate the effects of FFI in terms of implicit and explicit knowledge on a range of other moderating factors. These factors could include individual learner factors such as language aptitude, age, learning style, personality and motivation; cognitive factors such as learner's degree of developmental readiness and degree of noticing of L2 input; and pedagogical factors such as duration, timing, and intensity of instruction (Norris and Ortega, 2000).

Further research also needs to be conducted with widely varying population (e.g., children and adult) and in widely differing contexts (e.g., naturalistic contexts, instructed contexts). It may then be possible to draw some firm conclusions regarding the relationship between implicit and explicit instruction, explicit and implicit learning, and finally explicit and implicit knowledge.

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Appendix I

Instruction: Please rate the following *grammatical features* based on the given *criteria* (a sample is provided)

- 1) **Plural -s**
- 2) **Possessive –s**
- 3) **Third person singular possessive adjectives (his, her, its)**
- 4) **Present progressive –ing**
- 5) **Regular past tense –ed**
- 6) **Third person -s** (-s is attached to the base form of the verb in the 3rd person of the Present Simple Tense)
- 7) **Indefinite article** ('a/an' precedes a countable noun when the referent is non-specific and not already known to the hearer)
- 8) **Comparative** (Monosyllabic comparative adjectives add **-er** to the base form of the adjective; polysyllabic adjectives make the comparative by placing '**more**' before the base form)
- 9) **Unreal conditionals** (The main clause in an unreal conditional sentence requires the use of a **past modal+ have+Ven**)
- 10) **Dative alternation** (Whereas verbs like '**give**' permit two sentence patterns (...V+IO+DO and ...V+DO+IO) verbs like '**explain**' only permit one sentence pattern (...V+DO+IO))
- 11) **WH- Questions** about an **Object** (when any object (i.e., direct object, indirect object or object of preposition) in a declarative sentence is questioned)

| Criteria /Rating | 1 | 2 | 3 | 4 |
|-------------------------|----------|----------|----------|----------|
| Frequency | | | | |
| Saliency | | | | |
| Functional value | | | | |
| Regularity | | | | |
| Processability | | | | |
| Congruency with L1 | | | | |
| Conceptual clarity | | | | |
| Metalanguage | | | | |

Appendix II

*Read the following Sentences and Passages and try just to **understand** their Meanings (a sample is provided):*

1. John is **taking** a class at Skyline College this year.
2. Helen is **studying** Modern Arts this semester.
3. Everyone **loves** comic books and reads them.
4. Many people **spend** a lot of money each week on eating out.
5. People worry about their parent's health and their children's future.
6. Physical exercise is important to all the people's good health.
7. Most of our country's energy use is in the home.

Kiwi

The Kiwi **lives** only in New Zealand. It is a very strange bird because it cannot fly. It has no wings or tail. A Kiwi **likes** to have a lot of trees around it. It **sleeps** during the day, because the sunlight **hurts** a Kiwi's eyes. It **smells** things very well. The government **says** that people cannot kill Kiwis. New Zealanders **want** their Kiwis to live.

Unemployment

This month, Marcial is **having** difficulty because his company fired several employees, including Marcial! Usually, he **works** at Micro Systems where he is a circuit designer. However, the company has to make budget cuts and they can't afford to keep all of the employees.

Effect of explicit and implicit FFI

Losing his job is **upsetting** for Marcial. Usually, he **gets** up at 6:00 has breakfast and **leaves** for work. However, this morning, Marcial is **searching** the job sites on the Internet. He also is **feeling** a bit depressed. He **knows** it will take time to find another position because he is a highly-trained specialist. His company isn't unsympathetic; they are **assisting** him in his job search. Meanwhile, Marcial is **cutting** back on his spending habits until he **finds** a job.

Some Useful Questions:

1. The teacher said something.
What did the teacher say?
2. Ali telephoned his friend.
Who did he telephone?
3. I usually buy milk and fruit.
What do you usually buy?
4. Jack wrote a story last year.
What did he write last year?
5. She likes big animals.
What does she like?

Appendix III**Test Battery** (*a sample is provided*):**A: OEIT**

1. Princess **Diana death** shocked the whole world.
2. Everyone **loves** comic books and **read** them.
3. What **does a person** usually drink every day?
4. Our teacher **goes** to a conference in Canada **this week**.
5. What **does children** usually watch every morning?
6. You **wear** a white hat and a gold watch **today**.

B: GJT Items (for both **timed** and **untimed** versions)**C: MKT**

(Part 1)

In this part, there are five sentences. They are all ungrammatical. The part of the sentence containing the error is underlined. For each sentence, if you know a rule that explains why the sentence is ungrammatical, write it in Farsi in the space provided.

1. **Martin work in a car factory**.....
2. **John lost his friend books yesterday**.....
3. **Your friend is take an English course this term**..
4. **What do she drinks every day?**.....
5. **Who he did call last Monday?**.....

(Part 2)

- a) Read the passage below. Find at least one example in the passage for each of the grammatical features listed in the table.

What do people do in their leisure time? Studies show that people are watching more TV today than they did twenty years ago. Computers are also changing the way people use their leisure time. Today people are spending more time doing things on their computers. Surfing the Internet is becoming another popular free-time activity. In fact, some employers are finding that workers are skipping lunch to surf the Internet.

More and more, people are mixing their work time and play time. They talk on the telephone while they are commuting to work. They read work papers while they are eating. They listen to music while they are studying. Maybe this is why people's lives have changed and they believe that they have less free time today.

| Grammatical feature | Example |
|----------------------------|----------------|
| Possessive –s | |
| Present progressive –ing | |

Effect of explicit and implicit FFI

| | |
|------------------------------|--|
| Third person -s | |
| WH-questions about an object | |

b) In the following sentences, underline the item requested in brackets:

1. Gas prices are rising all the time because of strong demand.
(Present Progressive)
2. When a child's toy breaks, my father usually fixes it.
(Possessive –s)
3. Poor living condition affects children's physical health.
(Third person –s)
4. She likes big animals. What does she like? (WH-questions about an object)