

An exploratory investigation of the effects of form-focused instruction on implicit linguistic knowledge

Abstract

It is, arguably, implicit linguistic knowledge rather than explicit linguistic knowledge that is the goal of second language acquisition. The question arises, however, of how such knowledge can be tested (R. Ellis 2003). This article reports on an exploratory investigation of issues associated with measuring the effects of form-focused instruction (FFI) on the acquisition of implicit linguistic knowledge in an intact pedagogical context. The study involved 19 elementary-level adult learners of English who received planned focus-on-forms instruction on the Past Simple tense and who were subsequently tested for both immediate and sustained gains. The results of the study indicate that form-focused instruction may have been effective in promoting immediate gains but that there was no sustained effect. However, such an interpretation is considerably weakened by the fact that the control group statistically outperformed the instructional group. Such a result may be indicative of the aim to preserve 'ecological validity' (van Lier 1988) at the expense of rigorously controlling extraneous variables when conducting research of a quasi-experimental nature. The study, however, raises a number of issues that future researchers should take into account when designing further investigations of implicit linguistic knowledge.

Introduction

The study reported in this paper is an exploratory investigation of the effectiveness of form-focused instruction on the acquisition of implicit linguistic knowledge in an intact pedagogical context [1]. Form-focused instruction is defined as “any planned or incidental instructional activity that is intended to induce language learners to pay attention to linguistic form” (R. Ellis 2001a: 1). In this study, a ‘focus-on-forms’ approach was adopted. That is to say, form-focused instruction was planned and intentional, drawing on a number of pedagogical options (Ellis 1998), rather than adopting an incidental and wide-ranging focus during instruction that is primarily meaning-focused (R. Ellis 2001a; Long 1991; Long and Robinson 1998).

The study was motivated by two issues in second language acquisition (SLA). The first concerns the extent to which intact pedagogical contexts are legitimate sites for research (Borg 2003, Nunan 1991, van Lier 1988). Although it would not be disputed that instructed second language learning takes place in classroom contexts, it is also perhaps still the case that “most second language acquisition theorizing ignores the second language classroom as a relevant source of data and as a place to apply findings” (van Lier 1988: 23). Arguably, however, recent descriptive and interpretative studies have sought to correct this imbalance (Borg 1998; Doughty & Varella 1998; Loewen 2003; Lyster & Ranta 1997; see Lightbown 2000 for a review of recent classroom-based research). The study reported here is a further attempt to situate the concerns of SLA in a pedagogical context.

The second issue concerns the distinction between explicit and implicit linguistic knowledge and its relevance for SLA (DeKeyser 1998; N. Ellis 1994; R. Ellis 2002, 2003, 2004). While both innatist and cognitive accounts of SLA recognise the distinction between the two types of knowledge (R. Ellis 2003), the actual relationship between the two is one of the most hotly disputed debates in the field. This debate is reflected in the interface/ non-interface hypotheses; that is, to what extent is explicit linguistic knowledge available for use as implicit knowledge (DeKeyser 1998; R. Ellis 1993; Krashen 1981). R. Ellis (2004: 268), in discussing the need to clearly define and operationalise explicit linguistic knowledge, concludes by saying that progress in SLA theory-building and theory-testing is critical upon the resolve of such issues. The same can be said in relation to implicit linguistic knowledge. Thus, by situating the investigation in an intact pedagogical context, the study seeks to preserve ‘ecological validity’ (van Lier 1988) while concurrently addressing an issue of crucial importance to SLA.

Explicit and implicit linguistic knowledge

The distinction between explicit and implicit linguistic knowledge (DeKeyser 1998; N. Ellis 1994; R. Ellis 2001b, 2002, 2003, 2004) is one that is paralleled in both developmental psycholinguistics and cognitive psychology, where it is seen as analogous to the distinction between declarative knowledge and procedural knowledge.[2] As Anderson (1995: 308) puts it, “declarative knowledge is explicit knowledge that we can report and of which are consciously aware. Procedural knowledge is knowledge of how to do things, and it is often implicit”.

Explicit knowledge, then, can be thought of as ‘knowing that’, whereas implicit knowledge is ‘knowing how’. In linguistic terms, the distinction might be seen as the difference between knowing about a grammatical feature, for example, by being able to verbalise rules or complete a gap-fill exercise drawing on analysed knowledge of form/function mappings, and the ability to correctly use the same feature in spontaneous communicative contexts. Thus, for the purpose of this study, implicit linguistic knowledge can be defined as “the knowledge of a language that is typically manifest in some form of naturally occurring language behaviour, such as conversation.... It is intuitive and can be rapidly processed”. (R. Ellis 2001b: 252). Given that grammatical resources (as with lexical resources) are a means to an end, it is arguably implicit linguistic knowledge which constitutes the main goal of second language acquisition.

FFI research on implicit linguistic knowledge

While there is strong empirical evidence to show that FFI has a positive effect on the acquisition of explicit linguistic knowledge (Norris and Ortega 2000; Spada 1997)[3], to date there have been few studies that have attempted to investigate the effects of FFI on implicit linguistic knowledge. Ostensibly, the main reason for this is that acquisition has not been operationalised in terms of spontaneous oral language.

R. Ellis (2002) reviewed eleven studies that included (a) a control group and (b) a measure of acquisition based on communicative free-production (i.e. a task that calls for unplanned language use directed at fulfilling some communicative purpose). He found that seven of the eleven studies were effective in improving accuracy scores and identified three key variables that might impact on such success, namely the

complexity of the target feature (morphological features were more amenable to instruction than complex syntactic structures), the extent of the instruction (extensive instruction was more effective than one-off treatments) and the availability of the target feature in non-instructional input.

A number of further reasons help to explain the relative lack of studies on implicit linguistic knowledge. First, there are issues associated with designing focused communicative tasks that succeed in eliciting the target feature (Loschky & Bley-Vroman 1993). Second, when using multiple tasks, there are also issues related to the control of variables such as task variability and planning time (Douglas 1994; Fulcher 1996; Tarone 1998; Wigglesworth 2000). Different tasks, and the conditions under which they are implemented, impact on both the quality and quantity of linguistic output. Most significant, however, is what R. Ellis (2003) identifies as the “measurement problem”; that is, the failure of SLA to consider the construct validity of the testing instruments used. Although recognising that it is extremely difficult to prevent learners accessing at least some explicit knowledge or having some access to their Monitor when completing a communicative task, R. Ellis (2003) proposes four criteria for the design of tests of implicit linguistic knowledge: (1) oral production tasks that succeed in eliciting the target feature, (2) a focus on meaning rather than form, (3) no awareness of the target feature that might encourage monitoring and (4) pressured time constraints.

This study is cognizant of the above issues. However, in that one focus of the study was to preserve ‘ecological validity’ by situating the study in an intact pedagogical context, there was always the possibility that without the strict control of extraneous

variables, other aspects of validity might be compromised. For this reason, the study is best seen as exploratory.

Methodology

The aim of the study was to investigate the extent to which FFI facilitates the acquisition of implicit knowledge. Specifically, it examined the extent to which a period of instruction in the use of the Past Simple tense enabled L2 learners of English to accurately use the Past Simple tense when conversing in real time with another interlocutor. Although it is recognised that acquisition of the Past Simple tense appears to involve both lexical (item) and rule-based learning (Salaberry 2000), in this study no distinction was made between corresponding irregular and regular forms[4]. No consideration was given in the study to the lexical aspect hypothesis (Bardovi-Harlig & Reynolds 1995) which concerns the semantic development of past tense marking. Designed to see whether there was an immediate effect for the treatment and whether any improvements in the accurate use of the targeted feature were sustained over time, the following research questions were investigated:

1. To what extent is there an immediate effect for FFI on implicit knowledge?
2. To what extent is there a sustained effect for FFI on implicit knowledge?

Design

Two groups of participants took part in the study. Both groups were enrolled in a 15-week certificated ESOL programme in two elementary-level classes. The instruction (treatment) group received from one of the researchers (one of two classroom teachers) the form-focused instruction on the Past Simple tense but the control group (with different teachers) did not receive the instructional package. Participants from both groups were given a pre-test in week one to determine their current level of implicit knowledge of the targeted feature. Immediately after the treatment period in week seven, both groups were given another test of their implicit knowledge of the target feature. In order to find out if positive effects from the immediate post-test were sustained over time, another test of implicit knowledge was given in a delayed post-test in week eleven.

The Past Simple tense was chosen as the target structure because it is regarded as a problematic structure for learners at an elementary-level of proficiency and because, essentially, a pass grade in three of the competency-based assessments (two oral and one written) employed as summative assessment in the elementary-level certificate required learners to demonstrate proficiency in the use of the targeted structure. Thus, the rationale for choosing the Past Simple tense was both psycholinguistically and pedagogically motivated.

Three instruments were designed to elicit this linguistic knowledge. In the pre-test, participants were required to give an oral recount of a short story about a garage sale. For the immediate post-test, they were asked to provide an oral recount of their

weekend activities and for the delayed post-test, they were asked to provide an oral recount of their first few weeks in New Zealand.

After the pre-test, the instruction group received instruction on the Past Simple tense over a 5-week period (approximately 30 hours of instruction). As additional linguistic features (and macro-skills) relevant to course objectives were taught concurrently it would be misleading, however, to attribute all 30 hours of instruction to the target structure. In accordance with pedagogical options available for planned focus-on-forms instruction (Ellis 1998), an instructional package including explicit instruction, implicit instruction (enhanced and non-enhanced input), structured input, production practice (controlled and free) and negative feedback (implicit and explicit) was administered. Although the instructional package was of the planned focus-on-forms type, this was situated in a pedagogical context that sought to make explicit the relationship between form, meaning and use (Larsen-Freeman 2003) and, to a large extent, drew on principles of text-based syllabus design (Feez 1998). There was some review of the target structure in the weeks prior to the delayed post-test, consisting mostly of enhanced input, free practice and corrective feedback.

Instructional context

Thirty-six adult migrant ESOL learners from a prominent New Zealand university agreed to take part in the study. As a result of the university's placement tests, all participants were deemed to be at an elementary level of proficiency and were placed in two different classes according to the class schedules they nominated. One class became the instructional group and the other the control group. All of the participants

were permanent residents. Most were from mainland China but other countries like Korea, Ethiopia, Russia, Iran and Iraq were also represented. Their length of time in New Zealand ranged from a few months to several years and their ages ranged from early twenties to early fifties. Many of the Chinese, Korean and Russian participants had previously gained tertiary qualifications before arriving in New Zealand. The programme they were enrolled in at the university was a certificated competency-based General English Programme, consisting of six proficiency levels. At the elementary level, course goals are to develop learners' English language skills for community use and to familiarize learners with aspects of New Zealand culture.

Data collection

Prior to the pre-test with the two researchers, participants in both groups were given a copy of the Garage Sale story and allowed to follow this as they listened twice in class to a tape recording of the story. To help them consolidate the details of the narrative, they were then given some written questions to answer and these were briefly discussed in class. This procedure was followed to ensure that all learners were provided with sufficient schematic knowledge to complete the task. The participants were then tested individually in separate rooms by the two researchers using story illustrations as cues. Sometimes, prompts such as 'what happened next?' were given by the researchers. Half the participants from each group were tested by one of the researchers and the other half by the second researcher.

For both post-tests, similarly, the participants from both groups were paired with a different researcher in a one-to-one interview. Both post-tests were also oral recounts,

but differed in that they were not based on the recall of a written text with picture cues. For the instruction group, the post-tests also doubled as summative competency-based assessment tasks in which one criterion for achievement related to (near) correct use of the past simple tense.

Data analysis

The interactions of each participant and researcher were audio-taped and transcribed. Obligatory uses of the Past Simple tense were identified and coded as either (1) correctly used, (2) incorrectly used or (3) omitted when required. Percentage accuracy scores were then determined for each participant by dividing the number of correct uses of the targeted feature by the number of obligatory situations. These percentage scores were fed into the SPSS package and mean percentage scores for each of the two groups across the three tests were obtained. In order to examine the extent to which accuracy improvements were achieved as a result of the treatment period (research question one), the difference between the mean score of the pre-test and that of the immediate post-test were calculated. The same calculation was completed for the control group in order to determine whether there was an effect for the treatment given to the instruction group. To test the statistical significance of these differences, T-tests for Equality of Means were conducted. The second research question which investigated the sustained effect of the instructional treatment was answered in the same way by comparing the mean scores for the immediate and delayed post-tests.

Results and Discussion

The results of the two research questions investigating accuracy scores for obligatory Past Simple usage in the tests of implicit knowledge are presented in Table 1.

Table 1 Mean accuracy percentages for obligatory Past Simple usage in implicit tests

	Pre-test	Immediate Post-test	Delayed Post-test
Instruction Group	58.90%	76.65%	59.95%
Control group	46.00%	72.17%	63.29%

Research question one:

To what extent is there an immediate effect for FFI on implicit knowledge?

It can be seen from Table 1 that the participants scored 58.90% accuracy in the pre-test and improved this performance to 76.65% when tested immediately after the FFI treatment. On the T-test for Equality of Means, this 17.75% improvement is statistically significant at the 5% level ($p=.002$). Thus, one would be inclined to conclude that this rate of improvement was the result of the FFI treatment. However, when these results are compared with those of the control group, it becomes clear that this may not have necessarily been the case. In the pre-test, the control group scored

46.00% accuracy and 72.17% in the immediate post-test. This is a mean difference of 26.17% and again a statistically significant improvement ($p=.002$). One would not have expected the control group to improve more than the treatment group. Clearly then, a number of issues need to be discussed in order to understand what might have brought about this finding.

The first concerns the extent to which the instruction and control groups were equal. As Table 1 reveals, the instruction group scored a 58.90% accuracy rate and the control group a 46.00% accuracy rate. Although the 12.90% difference between the two is not statistically significant at the 5% level ($p=.078$), it is significant at the 10% level. Ostensibly, it would seem that the proficiency level of the participants in the two groups may have been different. However, this was not the case as proficiency levels are determined before students are placed in particular levels within the General English Programme. On the other hand, it is always possible that participants in one group may, by chance, have been exposed in their earlier L2 learning to some degree of instruction in the use of the targeted linguistic feature. For this reason, we examined the student profiles to determine exactly which students had entered the two elementary classes as ‘rollover students’ (that is, as students who had previously been enrolled in a lower proficiency level class at the university), which students had transferred to this university from another institution where classroom instruction had been received, and which students had not been exposed to earlier classroom instruction. This investigation found that fifteen of the nineteen participants in the instruction group were ‘rollover students’ and that only one of the seventeen participants in the control group were ‘rollover students’. Thus, we feel confident in

suggesting that the instruction group may have had more prior instruction of the target feature.

The second issue concerns the greater improvement rating of the control group over the instruction group that had been given the FFI treatment. Clearly, this is the opposite of what one would have expected and therefore leads one to question whether, in fact, the control group was a genuine control group that did not receive any form of instruction (including incidental oral and written corrective feedback) during the weeks when the instruction group was being exposed to a range of instructional options on the targeted linguistic feature. This was always going to be a possibility given that the aim of the study was to preserve ecological validity and not control variables to the extent that one would typically do when designing an experimental study. Discussion with the teacher of the control group after the data had been analysed confirmed to some extent that a degree of instruction had been provided and that, for ethical reasons, it was considered important because several of the summative competency assessments would require students to use the Past Simple tense. Future investigations of this question will need to consider ways in which this situation can be avoided. It may be possible to investigate the effect of FFI on linguistic features less critically salient to the competency assessments being used as instruments for data collection, to reduce the instruction period prior to the immediate post-test, or to assemble a control group of invited participants at the designated proficiency level from a different institution and require that the teacher not provide any instruction on the targeted feature. Until future research examines this important research question, it will not be possible to conclude whether accuracy improvements of an instruction group are the result of FFI.

Research question two:

To what extent is there a sustained effect for FFI on implicit knowledge?

The results of Table 1 show that the performance of the instruction group deteriorated from a 76.65% accuracy rating in the immediate post-test to a 59.95% score in the delayed post-test. The difference between the two scores is 16.70% and this is statistically significant at the 5% level ($p=.004$). By comparison, for the control group the difference between the immediate and delayed post-test scores is 8.88%. Although this is not statistically significant ($p=.190$), the difference is also a regression. Two reasons could explain this outcome. First, in the case of the instruction group, the absence of a focused period of instruction in the use of the Past Simple tense in the weeks following the immediate post-test could have meant that the participants were less primed to focus their attention on accurately using the targeted feature in the delayed post-test than they were in the immediate post-test. A similar argument could be given for the control group which it was later understood also received some degree of instruction prior to the immediate post-test. That the accuracy regression of the instruction group was greater than that of the control group is understandable given the scope and intensity of the treatment received by the instruction group.

A second explanation for the outcome could be the inflated accuracy scores of the immediate post-test. The competency assessment given as the immediate post-test invited the participants to discuss what they had done last weekend. This is a task that can easily elicit previously learned and practised formulaic language. By comparison,

the topic of the task (a recount of learners' experiences during their first weeks of settling in New Zealand) used to elicit the target feature in the delayed post-test was far less likely to have been prepared for in advance and far more likely to have generated a range of less formulaic language. Thus, it would seem that the instrument that was used in the immediate post-test was unreliable as a means of eliciting unprepared usage of the target feature. The instrument that was used for the immediate post-test could be used as a valid and reliable pre-test instrument but what is more important is the need for both the immediate and delayed post-tests to have the same potential for eliciting unprepared statements in the Past Simple tense.

The second research question also examined the extent to which the performance scores of the instruction and control groups were similar or different when the pre-test and delayed post-test scores were compared. For the instruction group, there was an insignificant accuracy improvement of 1.05% ($p=.840$) but for the control group, the rate of improvement was significant at 17.29% ($p=.002$). Ironically, therefore, the control group improved the accuracy of their use of the Past Simple tense across the investigation period whereas the instruction group failed to do so despite the extensive treatment package. One could therefore be tempted to cynically conclude that a lesser amount of planned instruction in the use of the Past Simple tense was more facilitative of improved accuracy. Further research on this question needs to be conducted before such an interpretation is seriously considered. Additionally, a clear measurement of the difference between the scope and intensity of the instruction given would need to be made. Potentially possible as this may be, the more valid and reliable option would be to resolve the issues referred to above and re-conduct the study.

Conclusion

At first glance, the test results suggest that form-focused instruction was effective in promoting immediate gains in learners' implicit knowledge but that these gains were not sustained over the following five weeks. This explanation, however, is untenable when the results of the control group are taken into consideration. Statistically, the control group outperformed the instruction group. One would not expect this to be the case. An obvious explanation is simply that planned form-focused instruction is not effective, a position Long (1991), and others, have argued for some time. However, a preliminary examination of the data for individual learners does show instruction was effective for some learners, a pedagogical reality that classroom practitioners have long been aware of. Until research presents comparative evidence of the effectiveness of one type of instruction over another, one cannot say for certain that planned form focused instruction is any less effective than an incidental focus on a range of linguistic forms. Indeed, in many instructional contexts it would be difficult to clearly differentiate between the two approaches.

A far more plausible explanation points to the preservation of 'ecological validity' at the expense of rigorously controlling extraneous variables. Given the intact pedagogical context, in which ethical issues were also a consideration, such limitations were a distinct possibility from the outset. First, participants were not randomly assigned to the two groups. Both the instruction and control groups were intact classes studying at the same level in the same certificate programme. Although the pre-tests indicated some differences between the two groups, a far more critical

factor was the discovery that the control group also received some instruction on the target feature. To control for this would have been unethical in this context as both groups had the option of sitting summative achievement assessments which relate to oral and written recounts.

Second, there are limitations associated with task variability. While we are confident that the instruments used were effective in eliciting the target feature, there were differences across the three tasks in regard to both the quantity and range of items. In other words, the three tasks were not comparable. The pre-test was a somewhat contrived task that some subjects were able to negotiate much better than others while the topic of the immediate post-test allowed for the use of well-rehearsed routines. One of the findings that have consistently emerged from research on task-based instruction is that language performance may vary according to the type of task and the conditions under which it is implemented (Wigglesworth 2000).

Finally, and perhaps most critically, there were issues relating to planning time, particularly for the immediate post-test. It will be recalled that this instrument (and the delayed post-test) also doubled as a summative competency-based assessment. In such a context, where assessment relates to actual classroom instruction, learners are quick to guess the topic prior to the assessment. Given the learning strategies of some learners (and the fact that it is a relatively high-stakes assessment), some learners have a predisposition for memorization. For this reason, the immediate post-test, in this case, cannot be said to be a valid instrument of implicit linguistic knowledge as it does not meet the second and third criteria relating to construct validity, respectively, 'focus on meaning rather than form' and 'no awareness of the target feature' (R. Ellis

2003). In hindsight, the immediate-post-test would have been a more valid instrument if administered as a pre-test, where subjects would have been less aware of the target feature and less disposed to access their Monitor. Awareness of the target feature, in fact, appears to be a critical criterion in all tests of implicit linguistic knowledge, and one that is extremely hard to control for in intact pedagogical contexts where general principles of second language learning would seem to be at odds with the concerns of construct validity.

From our experience in conducting this study, a number of recommendations can be made for further research. First, researchers attempting to investigate implicit linguistic knowledge in classroom-contexts need to be critically aware of the caveats associated with preserving ‘ecological validity’ at the expense of rigorously controlling variables as one would do in an experimental design. Second, and this applies equally to non-classroom research, careful consideration needs to be given to the design and implementation of the tasks used, not only for each task but also across tasks, so that they meet the criteria for construct validity. After all, little can be claimed if the instruments used are not valid measures of implicit linguistic knowledge. In the end, few claims can be made in regard to this study. The value of the study, however, lies in its exploratory nature and the lessons that have been learnt.

Notes

1. The study reported in this article is part of a larger study focusing on both explicit and implicit linguistic knowledge.
2. The relationship between explicit (declarative) and implicit (procedural) knowledge is a complex one. Multhaup (1997), drawing on L1 research, points

out that the relationship is, in fact, a two-way one in that learning can occur by either transforming explicit knowledge into implicit knowledge or by developing explicit knowledge from implicit knowledge. This is also recognised in earlier SLA discussions of explicit/ implicit knowledge (e.g. Bialystok 1994).

3. R. Ellis (2004: 245) points out that most FFI research has not expressly set out to investigate explicit linguistic knowledge but rather has done so incidentally.
4. Analysis was conducted in respect to both irregular and regular forms; however, results of the present study make no distinction between the two. It is intended that results pertaining to both forms are included in a further study.

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