

## **L2 Attainment in Work-Based Learning Settings: An Investigation Into the Effectiveness of Explicit Instruction and the Importance of Biological- Experiential Factors in Language Learning**

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### **Abstract**

In this paper I investigate the effectiveness of explicit teaching methods on L2 attainment in a context where the participants live and work in a target language-speaking environment and the learning takes place at work. Two groups—experimental and control—were set up. The experimental group received instruction which consisted of explicit teaching of the present perfect and the past simple tenses. The control group received skills training without any directed focus on grammar. A simple t-test was carried out to compare the results of pre-tests with the results of post-tests. Its results reveal that only the experimental group made significant gains on the post-test, suggesting that explicit instruction is more effective in some contexts. Correlation analyses failed to find significant relationships between biological-experiential factors (e.g. age, length of residence) and language gains on the post-test.

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### **Introduction**

In my work as a teacher of English as a second language I often come across learners who struggle to achieve competence in the target language (TL) which could be compared to that of native speakers of that language. This is despite having lived in the target language community for many years and being exposed to, as well as having to use, the target language for communicative purposes at home and at work. These learners are often very competent communicatively; however, their grammatical and/or phonological accuracy is usually low. Furthermore, they are often aware of

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their shortcomings and when asked about what aspect of their (target) language they would like to improve they reply, 'grammar' or 'pronunciation'.

Another group of learners I often come across are those who had tried to learn the target language in their native countries for many years, often in formal classroom situations. Typically, these learners have lived in the target community for a considerably shorter period of time and having to use the target language on a day-to-day basis has put new demands on their linguistic systems. These learners also seem to have stopped short of achieving native-like competence.

The two groups of learners described above, despite the obvious differences, have a number of things in common, e.g.:

- they all reside (live and work) in the target language communities
- they have all recognised that there are gaps in their interlanguages and want to do something about it

In the discussion that follows I will look at the effectiveness of explicit instruction in overcoming persistent errors in learners' interlanguage as well as the role of biological-experiential factors in language learning.

### **The issue of fossilisation and ultimate attainment**

The fact that some learners seem to be unable to continue beyond a certain point in their interlanguage development is nothing new in linguistics or language teaching. The learner's linguistic competence in their L2 will be determined by a variety of factors which may include: the age of onset, length of residence or length of exposure to the target language, attitude to the target language community, aptitude, motivations (extrinsic, intrinsic), formal instruction or lack thereof, similarity of L1 to L2, and so forth. Han (2004) organises these factors into external and internal ones. Within the external factors she includes environmental factors such as lack of input, and quality of input. Within the internal factors she differentiates between cognitive, neurobiological and socio-affective ones (for a full list, see Han, 2004, p. 29).

### ***Influence of the native language on L2 acquisition***

The distance of learners' L1 and their ethnic and cultural background in relation to that of L2 community plays an important role in long-term L2 attainment. Schachter (1996) (cited in Han, 2004, p. 67) states the following:

An adult speaker of English will require considerably less time and effort to achieve a given level of ability in German than in Japanese because the similarities between English and German, at all levels, are much greater than those between English and Japanese, and the adult's prior knowledge of English influences subsequent acquisition. This contributes to differences in completeness... The closer two languages are in terms of syntax, phonology and lexicon, the more likely it is that higher levels of completeness can be reached.

This has been confirmed in studies reported in Jia, Aaronson and Wu (2002) which contrast Spanish-English bilinguals with Chinese-English and Vietnamese-English bilinguals (Bialystok & Miller, 1999; Birdsong & Molis, 2001; reported in Jia et al. 2002). They found that the Asian groups showed lower levels of L2 proficiency than the European groups. The better results of the European groups in comparison to the Asian groups, besides the relative similarity of L1s, could be attributed to factors such as social and cultural background. For example, European language speakers reported stronger motivation to learn English because of the beauty of the language; they tended to use English more frequently; had stronger identity with American culture, etc. (Jia et al. 2002, p. 617).

However, even learners whose L1s are quite similar to the target language may find certain features of that language quite challenging to internalise if such features do not exist in the learners' L1s. For example, Dutch and English learners learning German are likely to have problems with 'case-marking' (i.e. morphosyntactic mechanism that is used to indicate who is doing what to whom); on the other hand, Dutch learners learning English may find using English progressive duratively problematic (Han, 2004, p. 112). This may lead to habitual errors and be internalised as such.

More generally, learners seem to struggle with aspects of language such as temporality, modality or definiteness and the deviant forms used by the learners are used consistently. Furthermore, some learners never manage to get past these 'hurdles' and continue using deviant forms.

It has also been suggested (Lightbown & Spada, 1999) that all learners go through developmental sequences in the acquisition of negation, questions, or grammatical morphemes. It is important to stress here that while developmental sequences for questions, negations, etc are very similar across learners, they do not escape the first language influence. For example, if a learner's native language forms negative by placing 'no' before the verb, it may take longer for that learner to notice that native speakers of English do not form the negative in that way.

What the above suggests is that learners' first languages play an important part in their interlanguage development i.e. learners draw on their

knowledge of other languages as they try to discover the complexities of the new language they are learning (Lightbown & Spada, 1999, p. 85).

It is, therefore, clear that learners' ultimate attainment will be determined by a combination of the values of the factors listed above. Consequently, the level of ultimate attainment is likely to vary from learner to learner.

### *Age of onset*

The inability to overcome the problems related to such erroneous forms and their consistent use by the learners suggests that these deviant forms have 'fossilised' in the learners' interlanguage.

Fossilisation, a term first coined by Selinker in 1972, is

... the process whereby the learner creates a cessation of interlanguage learning, thus stopping the interlanguage from developing, it is hypothesized, in a permanent way ... The argument is that no adult can hope to ever speak a second language in such a way that s/he is indistinguishable from native speakers of that language. (Selinker, 1996, cited in Han, 2004, p.15)

It has been implied (cf. Gass & Selinker, 2001) that this inability for an adult to acquire an L2 to the same degree as a native speaker could be due to the existence of 'critical periods'. Critical period is a time, usually at around puberty, after which successful language learning may not lead to native-like competence (Birdsong, 1992).

However, we cannot be sure whether the cessation of the interlanguage development is really permanent; for indeed, to guarantee that this is the case one would have to monitor the learner's interlanguage for the duration of its development i.e. for the length of the subject's life. There is also evidence that it is possible to attain native-like competence in an L2 despite a post pubescent exposure to it.

For example, Bongaerts, Summeren, Planken, and Schils (1997) in their study of Dutch speakers of English as a Second Language report that it is possible to attain a native-like level of performance in the pronunciation of a foreign language, despite a relatively late age of onset.

Birdsong (1992) looked at the grammatical competence of post puberty learners of French as a Second Language who had lived in France for at least three years. He reports that the majority of these learners had grammaticality judgement scores within the range of the native French-speaking controls.

Moyer (2004) gives several examples of what she calls exceptional learners who managed to attain native-like proficiency in German despite late age of onset. She also provides examples of learners who failed to attain native-like proficiency in syntax and phonology despite pre-pubescent

exposure to the L2. This further supports the view that the age of onset cannot be the sole predictor of one's success or failure in L2 attainment.

Nonetheless, it has to be pointed out that there is also abundant evidence that post pubescent learners generally fail to achieve native-like competence in an L2. What the above examples do demonstrate, though, is that given the optimal, albeit complex, combination of social, cognitive and psychological factors, native-like attainment can be achieved by post pubescent learners and fossilisation does not have to be inevitable.

I will, therefore, use the term 'fossilisation' in line with Han's definition to mean '*long term* cessation of interlanguage development' (2004, p. 102) (emphasis added), which does not presuppose any permanence of the process or assume that it cannot be overcome.

### **The question of instruction**

The next question one might ask is: what type of instruction is likely to be most effective in a SLA classroom?

This question cannot be answered without a short analysis of the approaches to second language teaching. Over the years there have been numerous schools of thought as to how language should be taught. We can therefore distinguish approaches such as task based approach, the silent way, suggestopedia, Dogme, total physical response, grammar translation, audiolingual method, to mention but a few. These can broadly be divided into two distinct approaches to language teaching; one (implicit) which focuses primarily on the meaning and communication (e.g. total physical response) and the other (explicit) which has the form as its primary focus (e.g. grammar translation).

### ***Communicative approach***

The assumptions underlying the first of these approaches are that learners learn or rather acquire the target language best when they are exposed to comprehensible input. Classroom environment and activities should ideally mimic real life and real life situations. They should therefore be meaningful and relevant. Communication is the centre of attention, therefore, learners' output should be uninterrupted and any treatment of grammar should only be applied when the meaning is ambiguous. Extended grammar instruction should be based on grammar-problem-solving task whilst explicit language instruction should be avoided (Sheen, 2003). Learners are therefore

encouraged to induce rules from the context in which the language is used and create their own hypotheses regarding such language.

This, therefore, reflects Krashen's Input Hypothesis which has it that second languages are acquired by understanding messages or by receiving 'comprehensible input' (Krashen, 1985). Comprehensible input, as Krashen defines it, is language the learners can understand but that is slightly ahead of their current state of grammatical knowledge. He brands it  $i + 1$ .

Krashen (1982) also makes a distinction between 'learning' and 'acquisition'. Learning is a process where the learner has to attend to the form consciously (e.g. by trying to understand, memorising, and then recollecting a rule) in order to be able to use it. Learnt knowledge of the target language is therefore explicit and can be verbalised on demand. Acquisition, on the other hand, is a process similar to the way children develop the ability in their first language. The focus is on the meaning and the learner is not aware that he is acquiring the language. It is, therefore, subconscious. Acquired knowledge is implicit and intuitive i.e. the rules cannot be verbalised. According to Krashen these two processes are unconnected and the learnt knowledge cannot be internalised/acquired (Krashen, 1982).

However, it has been suggested (cf. Valette, 1991) that fossilisation frequently occurs where the language has been acquired in a naturalistic environment e.g. on the street where the learner has been exposed to content rich input the majority of which is in fact beyond this learner's comprehension. The demands of the communicative environment results in the learner having to focus on the meaning without always having the time to attend to the form. The learner's imperative is to successfully communicate messages quickly and efficiently. This, in turn, may lead to the learner producing communicatively successful but ill-formed sentences. Moreover, according to Valette (1991) most of the comprehensible input the learner gets is self-generated. This means that the learner forms his linguistic hypotheses on the language he himself has produced. Successful communication coupled with a lack of corrective feedback may lead the learner to believe that the utterances he produced were, in fact, well-formed. Subsequently, this may encourage this learner to use them again in the future. Future lack of corrective feedback will only reinforce the conviction of the well-formedness of such forms and lead to their consolidation in the learner's interlanguage.

It is not difficult to imagine a similar situation taking place in a classroom in which the communicative approach is used, although the classroom environment will, by its very nature, impose certain constraints on the type of language the learners will be exposed to. Such language is more likely to be comprehensible; however, it will, also, often be peer generated and therefore potentially erroneous. Exposure to such language may, consequently, be facilitative of the learners' own errors, and since the focus is on communication corrective feedback may be avoided if not withdrawn

altogether. As such the communicative approach may, in fact, promote fossilisation rather than combat it. As Johnson (1996, cited in Han, 2004, p. 155) notes:

Many communicative techniques placed the emphasis on 'getting the message across', and sometimes this inevitably occurs at the expense of grammatical correctness. Often the result is that learners develop sophisticated strategies across in almost any situation, but in so doing they develop a form of pidgin.

The extensive research carried out on the so-called 'immersion programmes' in Canada in which English L1 students participated in French-medium education provides us with further evidence that relying on communicative approach alone with no focus on form is not sufficient for a successful L2 acquisition. The learners who participated in these programmes developed a near-native comprehension of the L2; however, they failed to achieve productive control of many aspects of French grammar and lexis which resulted in the apparent fossilisation of their L2 (Mitchell & Myles, 1998, p. 127).

### *Explicit instruction*

As mentioned above the explicit approach to teaching languages focuses mainly on the form and the structure. Consequently, accuracy is given priority over meaningful interaction. The input is structurally graded and simplified. Linguistic items are presented and practised in isolation – one at a time. This type of learning is, therefore, deductive, that is, learners are given the rule and shown how and when to apply it. This approach is also characterised by frequent explicit correction. This implies that there is pressure on learners to speak or write the second language correctly from the beginning (Lightbown & Spada, 1999).

Krashen argues that explicit knowledge gained through explicit instruction cannot be internalised (or become acquired) this is known as non-interface theory (Han, 2004). Contra and alongside this theory there are also the strong and weak interface positions. According to the strong interface position, proposed by Gregg (1984) and Sharwood Smith (1981, 1994), amongst others, the explicit knowledge can become implicit and vice versa through practice. The weak interface position, on the other hand, maintains that explicit knowledge has served as a facilitator of implicit knowledge by helping learners to attend to linguistic features in the input (cf. Ellis, 1993, cited in Han & Ellis, 1998).

Han and Ellis (1998) report on several experimental studies which have investigated the effectiveness of L2 learning under explicit and implicit

conditions and which demonstrate an advantage for explicit learning (e.g. DeKeyser, 1995; Ellis, 1993, amongst others).

In his recent comparative study of the effectiveness of Focus on Form (i.e. the communicative implicit approach with incidental focus on form (FoF)) vs. Focus on Forms (i.e. the more traditional explicit approach (FoFS)), on learning two grammatical structures, Sheen (2005) finds that the more traditional approach to language teaching (i.e., FoFS) has a significantly more positive effect on students learning the two grammatical structures than does the communicative approach. The students subjected to the FoFS instruction made a significant improvement in the two targeted areas, while the group under the FoF instruction failed to achieve any considerable progress in these areas and continued producing largely incorrect forms thus allowing fossilisation to continue to develop (Sheen, 2005, p. 300). He also reports on a number of similar studies (e.g. Palmer 1992; Kupferberg & Olshtain 1996; Sheen 1996, in Sheen 2005, p. 299) which show that approaches exploiting FoFS consistently produce better results than other approaches.

Sheen (2005) also suggests that one should closely analyse research suggesting FoF is more successful than FoFS, as one may find that what is intended to be FoF may in fact have more to do with FoFS.

Housen, Pierrard, and Van Daele (2005) in their study on structure complexity and the efficacy of explicit grammar instruction conclude that the explicit instruction has a beneficial effect on learners' mastery of two different grammatical structures when used productively and that this beneficial effect is even more observable in the targets' unplanned speech. This implies that explicit instruction may, in fact, promote not only explicit but also implicit knowledge. They suggest that this could be achieved by increasing saliency of previously discrete items by directing the learners' attention towards these discrete items thus leading to increased awareness and noticing (2005, p. 261).

### ***Choice of approach and justification***

Based on the above analysis of the two approaches to language teaching I would argue that the latter (i.e. explicit instruction) will be more effective in treating potentially fossilised errors. I would also argue that explicit focus on such forms through explicit instruction and corrective feedback will increase their saliency, raise the learners' awareness of the deviant forms in their interlanguage as well as make them notice these forms more in the input.

The particular group of learners I have in mind have lived in the UK for a considerable length of time (ten years or more) during which time they have been exposed to and have had to use the target language extensively for

communicative purposes. They have therefore had substantial exposure to the target language. I believe that subjecting these learners to further communication based instruction would render the whole exercise fruitless.

### **Research questions and hypotheses**

The questions that motivated the present study were:

1. Will explicit instruction be effective in helping to overcome tenses potentially fossilised in the learners' interlanguage?

Hypothesis: The explicit knowledge gained through explicit instruction will enable the learners to notice and address the disparity between the target form and the way it is represented in their interlanguage. This, in turn, should have a corrective effect on their use of tenses.

2. To what extent do biological-experiential factors such as age, length of residence, length of language learning and age of onset impede or facilitate the effects of the instruction on the learners' interlanguage?

Hypothesis: Younger learners should respond better to instruction and make greater progress on the tests. Equally, the learners with younger age of onset and longer length of language learning should perform better on the post-test. The length of residence will have less effect on participants' progress in the post-test.

### **Method**

#### ***Teaching context***

This research was conducted in English classes which took place on various employers' sites. The lessons were funded by the Learning and Skills Council as part of their Work Based Learning initiative. One such employer was Entertainment UK, a distribution company for a large superstore 'Woolworths'. The majority of their workforce, most of who are from Eastern Europe, is employed by agencies. Many of them are in need of language training.

All learners were assessed prior to starting the course using a placement test. Once their level had been determined they were placed in relevant level groups.

A typical class would last two hours and take place twice a week for ten weeks. At the end of the course learners sat exams which led to nationally recognised qualifications.

### ***Participants***

Two groups of learners participated in this study (experimental and control). Both groups were equal in size with twenty participants in each group.

The experimental group comprised participants from countries such as Lithuania ( $n = 8$ ), Poland ( $n = 7$ ), India ( $n = 3$ ), Ukraine ( $n = 1$ ) and Romania ( $n = 1$ ). There were 14 female participants and 6 male participants. The average age of the participants in the experimental group at the time of the experiment was 28.7 (20 to 49). All but one participants had attended English classes before either in the UK or in their own countries and the length of instructed learning varied from 0 to 10 years ( $m = 5.75$ ). The age of onset for the participants in this group ranged from 5 to 29 ( $m = 14.5$ ). All participants lived in the UK at the time of the experiment and the length of residence ranged from 1 to 30 years ( $m = 5.55$ ).

All but one participant learnt English before coming to the UK and the mean length of exposure to instruction is 5.75 years. The initial assessments and pre-tests show that the learners were not totally secure in using the Present Perfect and often confused it with the Past simple tense. This is despite the number of years being exposed to instructed English and also time spent in the UK. This implies that these forms had not been internalised by the learners and were still used incorrectly. This, in turn, may imply that these two forms have become stabilised (fossilised) within the participants' interlanguages.

The control group was comparable in terms of nationality of participants, their length of stay, length of instructed learning of English, age, etc. The participants in the control group were therefore from the following countries: Poland ( $n = 8$ ), Lithuania ( $n = 6$ ), Estonia ( $n = 1$ ), The Czech Republic ( $n = 1$ ), India ( $n = 1$ ), Somalia ( $n = 1$ ), Latvia ( $n = 1$ ), and Belgium ( $n = 1$ ). There were 12 female participants and 8 male participants aged between 20 and 45 years old ( $m = 28.3$ ). Nearly all participants (there were two exceptions) had attended English classes before either in the UK or in their own countries; the length of instructed learning varied from 0 to 12 years ( $m = 5.1$ ). The age of onset for the participants in this group ranged from 7 to 26 ( $m = 14.2$ ). All participants lived in the UK at the time of the experiment. The length of residence for the participants in the control group was shorter than that in the experimental group and ranged from 1 to 20 years ( $m = 3.75$ ).

### ***Procedure***

As mentioned above the learners attended the classes twice a week over ten weeks which resulted in forty guided learning hours. The two groups attended the training at different locations; however, the times of classes and the length of intervals between the sessions were the same for both groups.

The research adopted the pre-test/delayed post-test design to compare the effectiveness of the explicit teaching on the experimental group with the control group who received no such input. Both groups were, therefore, assessed before (in session one of the course) and after the experiment (session four). In order to make the comparison of the obtained data possible, the same instrument was used in both the pre-test and the post-test. Thus, on each occasion the participants completed the same test, once as a pre-test and again as a post-test.

The test consisted of twenty items in which the participants were asked to complete gaps using verbs in brackets and the correct tense. To avoid a situation whereby the learners would recognise the target structures (i.e. present perfect and past simple) and use them throughout the test, other structures were used in the test (e.g. present simple, future continuous, and so forth.); however, these structures served as distracters and only the present perfect and past simple sentences were used in the analysis.

In some sentences both the present perfect simple and present perfect continuous could be used. The participants were not penalised for using the present perfect continuous which was also mentioned briefly in the input.

Participants had one hour to complete the test (although some of them managed to finish the test in less time). This gave them enough time to analyse the sentence and focus not only on the relevant grammatical structure but also, and perhaps more importantly, on the meaning of the sentence.

The experimental group received input that focused on the differences between the present perfect and the past simple tense. Following the pre-test the experimental group received four hours (two sessions) of input which consisted of explicit metalinguistic information regarding the two tenses as well as a range of controlled and less controlled activities (e.g. sentence transformations, cloze tests, gap fill activities, writing an application letter, preparing for an interview, or role-playing a mock job interview) with the teacher controlling the learner output and providing corrective feedback where required.

Further reinforcement and consolidation of the target structures were expected to come from the input outside the classroom, i.e. from television, radio, conversations with colleagues, supervisors and various other social exchanges.

The post-test was administered during the following session. Just as with the pre-test, participants were given the same amount of time to complete the

test i.e. one hour. As mentioned above, the post-test was identical to the pre-test in terms of the contents i.e. the same sentences were used in the same order. The results of the pre-test and the post-test were compared.

The intervals between the tests and the sessions were 2 and 3 days (Monday – pre-test, Thursday – input session, Monday – input session and Thursday – post-test). There was, therefore, a two-day break between the pre-test and the first session, a three-day break between the first session and the second session, and again, a two day break between the second session and the post-test.

The control group followed the same pattern in terms of the number of sessions between the pre-test and post-test and the lengths of the intervals between them. However, unlike the experimental group, the control group did not receive any explicit or intentional input regarding the present perfect simple, continuous and the past simple tenses, and corrections were avoided where possible. Any occurrences of those structures in the input sessions were, therefore, incidental and unplanned. The participants in this group attended skill-focussed sessions during which they practised developing their reading, writing, speaking and/or listening skills. Just like the participants in the experimental group, the participants in the control group could also ‘pick up’ the target structures from their environment i.e. social and formal exchanges with their colleagues, supervisors, when watching television, listening to the radio, etc.

All numeric data collected for the assignment were computed using SPSS for Windows.

## Results

### *Hypothesis 1*

To test the first research question i.e. whether the explicit instruction was effective in helping to overcome forms fossilised in the learners’ interlanguage as when compared to learners who have not received such targeted instruction, a simple repeated measures t-test was carried out to compare the results of the pre-tests with the results of the post-tests. Its results reveal that the experimental group made significant gains on the post-test ( $M = 15.35$ ,  $SD = 2.85$ ) when compared with the pre-test ( $M = 7.80$ ,  $SD = 2.30$ ,  $t(19) = -11.06$ ,  $p < .001$ ), see Table 1 below for detailed analysis of the paired samples test. This confirms the assumption set in the first hypothesis.

**Table 1: Paired Samples Test - Experimental group**

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - post test	-7.550	3.052	.682	-8.978	-6.122	-11.064	19	.000

To check whether it was indeed the input that had an effect on the post-test results in the experimental group, a control group was asked to complete the same tests and the results were compared using the same repeated measures t-test. Its results reveal that the control group did not make any gains on the post-test ( $M = 8.75$ ,  $SD = 1.83$ ) when compared with the pre-test ( $M = 8.80$ ,  $SD = 1.79$ ,  $t(19) = .17$ ,  $p = ns$ ), (see Table 2 below for detailed analysis of the paired samples test). This confirms the assumption set in the first hypothesis.

**Table 2. Paired Samples Test - Control group**

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	.050	1.317	.294	-.566	.666	.170	19	.867

It is worth noting that the percentage score of the control group was actually higher on the pre-test than the experimental group ( $M = 8.80$  and  $M = 7.80$  respectively) and that their performance on the post-test was lower than on the pre-test ( $M = 8.75$  and  $M = 8.80$  respectively). The difference, however, was not significant as reported above.

Thus, the experimental group and the control group differed in their performance on both tests. The experimental group made a significant improvement between the tests while the control group did not. This indicates that the input was effective.

To check that both samples were normally distributed, Kolmogorov-Smirnov tests of normality were carried out. Both confirm that the data were normally distributed (see tables 3 and 4 below for the experimental group and the control group respectively).

**Table 3. Tests of Normality – Experimental Group**

	Kolmogorov-Smirnov(a)		
	Statistic	df	Sig.
pretest	.186	20	.069
post test	.132	20	.200(*)

\* This is a lower bound of the true significance.

**Table 4. Tests of Normality - Control group**

	Kolmogorov-Smirnov(a)		
	Statistic	df	Sig.
Pretest	.172	20	.123
Posttest	.109	20	.200(*)

\* This is a lower bound of the true significance.

## ***Hypothesis 2***

The second hypothesis looked at the extent to which biological-experiential factors such as age, length of residence, length of language learning and age of onset impede or facilitate the effects of the instruction on the learners' interlanguage. Table 5 presents the characteristics of the participants.

**Table 5: Descriptive statistics for ordinal variables**

Variable	<i>M</i>	<i>SD</i>	Range
Biological			
Age	28.7	7.32	20 – 49
Age of Onset	14.4	5.57	5 – 29
Instruction and exposure			
Years of instruction	5.75	3.24	0 – 10
Length of residence	5.55	7.37	1 – 30

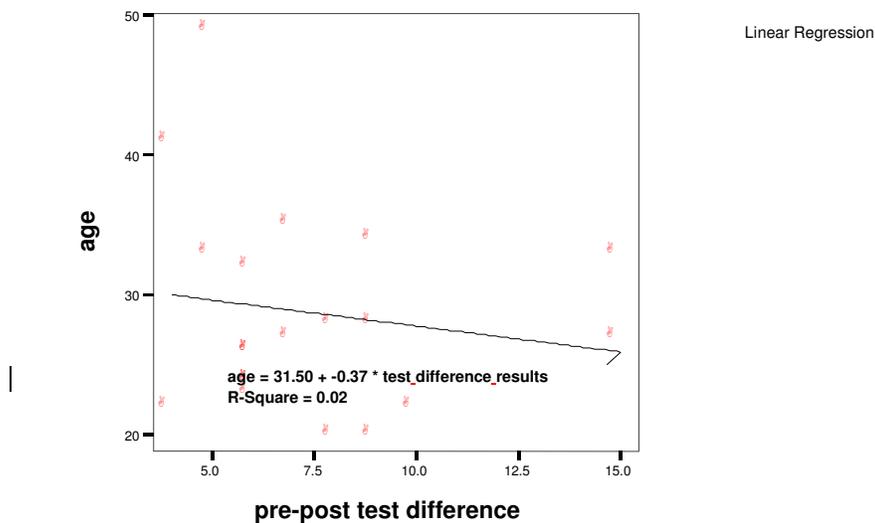
To test the relationships between the biological-experiential factors outlined in Table 1 above and the performance results on the tests Pearson Correlation tests were calculated.

### **Age**

The Pearson product-moment correlation coefficient between the age of the participants ( $M = 28.7$ ,  $SD = 7.32$ ) and the score difference between the

results of the pre-test and the post-test ( $M = 7.55$ ,  $SD = 3.05$ ) revealed a very weak negative correlation ( $r = -.16$ ,  $p = .26$ ) in response to the instruction caused by two outliers who happen to be the oldest participants. The scatterplot (Figure 1 below) shows the distribution of the participants' improvement scores in this category. A larger sample with a larger number of participants in 40 + age group is necessary to ascertain whether or not the age of forty and above does, indeed, have adverse effects on learning.

**Figure 1: Age and test results**



### Age of Onset

The Pearson product-moment correlation coefficient between the age of onset ( $M = 14.4$ ,  $SD = 5.57$ ) and the score difference between the results of the pre-test and the post-test ( $M = 7.55$ ,  $SD = 3.05$ ) revealed no relationship ( $r = -.05$ ,  $p = ns$ ), i.e. the age of onset does not have an effect on the performance on the post-test which is contrary to what was predicted.

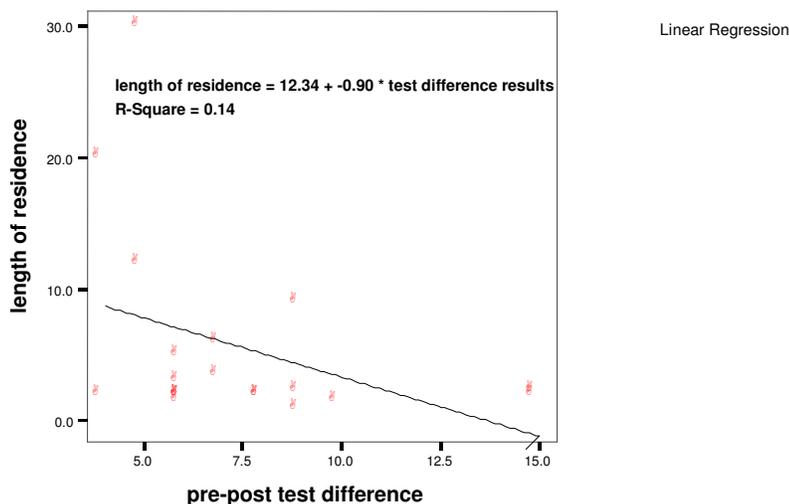
### Years of instruction

The Pearson product-moment correlation coefficient between the years of instruction ( $M = 5.75$ ,  $SD = 3.24$ ) and the score difference between the results of the pre-test and the post-test ( $M = 7.55$ ,  $SD = 3.05$ ) revealed no relationship ( $r = .11$ ,  $p = ns$ ).

### Length of residence

The Pearson product-moment correlation coefficient between the length of residence ( $M = 5.55$ ,  $SD = 7.37$ ) and the score difference between the results of the pre-test and the post-test ( $M = 7.55$ ,  $SD = 3.05$ ) revealed a marginally significant negative correlation ( $r = -.37$ ,  $p = .053$ ). This is in line with the hypothesis which predicts that the length of residence will negatively correlate with the performance on the post-test. The participant distribution on the scatterplot below (Figure 2) shows that the participants with the longest length of residence (30, 20, 12 years) made the smallest progress on the post-test. The scatterplot also shows that only one of the participants with shorter length of residence (2 years) made such small progress (4 pts), while other participants performed better on the post-test. The two participants who scored the highest number of points on the post-test have lived in the UK for only two years.

**Figure2: Length of residence and test results**



### Discussion

The quantitative analyses of the data obtained through tests have yielded somewhat mixed results. The analysis of the test results yielded significant results which supported the first hypothesis; but the analyses of the data used to test the second hypothesis failed to show significant relationships.

***Hypothesis 1***

As reported above, qualitative analysis yielded significant results in line with the first hypothesis, i.e. the treatment (explicit instruction) had a significant effect on the experimental group. This is in contrast to the control group which received no such instruction and thus showed little or no improvement on the post-tests. However, with the post-test carried out a week after the treatment and no follow-up post-tests, one can only assume and hope that the effect of the treatment on the experimental group was lasting. Previous studies which examined the effectiveness of explicit instruction show that it does have a durable effect on the language learners' interlanguage. For example, Ellis (2003) refers to a study review by Norris and Ortega (2000) who analysed 49 Form Focused Instruction studies and found among other things that explicit instruction was significantly more effective than implicit instruction and that the effects of Form Focused Instruction were durable.

A detailed analysis of such studies was carried out by Ellis (2003). His analysis was based on various categories, e.g. type of instruction (i.e., focus on form vs. focus on forms), the extent of the treatment (i.e. "extensive," consisting of several hours of instruction or many different tasks completed, or "limited," consisting of less than two hours or just one or two tasks completed) and most importantly, the effectiveness of the instruction. His analysis showed that

(t)he effectiveness of the FFI was evident in both immediate and delayed post-tests. In fact, in studies that included both an immediate and a delayed post-test, there was no study that reported a statistically significant result in the immediate post-test and not in the delayed test. There is some evidence (Mackey, 1999; Muranoi, 2000) that the effects of FFI were stronger in the delayed than the immediate post-test. (Ellis, 2003, p. 229)

This implies that the instruction in the experimental group had, in fact, had a durable effect. The post-test carried out in this group was by no means 'immediate'. In fact, as mentioned above, it took place as late as a week after the last of the targeted input sessions. However, it would be prudent to run another post-test a few weeks later to check first hand whether or not the effect of the explicit instructions was indeed durable.

Another issue that should be briefly discussed here is the way the learners were tested. A grammaticality judgement test was employed to measure the learners' performance on both tests. With an hour to complete the test, the participants could gain controlled access to explicit knowledge. Moreover, during the input sessions the participants were repeatedly asked to justify their choices of tenses using metalinguistic knowledge and sometimes

terminology. The participants could have employed similar strategies during the post-test which, in turn, could have helped them make relevant choices. However, one might argue that in order to get a full picture of the effectiveness of the treatment on the experimental group, an attempt to measure the participants' implicit knowledge of the two tenses should have been made. This could have been achieved by recording, scripting and analysing interviews with the learners for the use of the two structures, or alternatively learners could have been asked to complete the test under timed conditions. This would ensure that tacit rather than metalinguistic knowledge was applied in the processing of the test sentences (Sorace, 1996, cited in Ellis, 2005).

Nonetheless, explicit knowledge was, in fact, the target of this experiment as it was hypothesised that the explicit knowledge gained through explicit instruction would enable the learners to notice and address the disparity between the target form and the way it was represented in their interlanguage resulting in a corrective effect on the errors. And this is what happened. What cannot be claimed, however, is the fact that this has helped the learners overcome the erroneous forms in their interlanguage. This is why any future research setting out to explore the effects of explicit instruction on stabilised forms should employ a combination of delayed tests (interviews and grammaticality judgement tests). It should also attempt to test the durability of the treatment as well as the learners' tacit knowledge of the targeted structures because tacit knowledge is potentially more indicative of whether or not such structures have been internalised.

### ***Hypothesis 2***

The analyses of the four variables i.e. age, length of residence, age of onset, and length of language learning show that none of these variables correlated significantly with the post-test results.

The analysis of the first variable – age – yielded a very weak negative correlation. And although the results were not significant, the fact that the correlation was negative is promising as it is in line with the hypothesis which states that the younger learners should respond better to instruction and make greater progress.

Previous studies have shown 'age' to be a good predictor of language learning. Some examples may include recent studies by Naveh-Benjamin, Brav and Levy (2007), Henkel (2007), and Luo, Hendriks and Craik (2007) which demonstrate that older learners experience more difficulty in learning new things and younger learners tend to outperform the older ones on memory tasks such as recall tests.

As reported above, the results in this study show that the oldest subjects did, indeed, improve less than the younger subjects. A larger sample with more varied age groups, e.g. 20 – 30, 30 – 40 and 40+, would be more likely to yield more interesting and potentially even significant results.

The second variable tested here was the age of onset. When asked to give their age of onset (age of English acquisition/learning) many learners gave the age at which they first started classroom English; however, conventionally in bilingualism research the age at which a person moves to a country (i.e. age of arrival) where the new language is spoken rather than the age of exposure in school is regarded as the true age of acquisition (Johnson & Newport, 1989, cited in McDonald, 2000). However, in this study it was the age of exposure that was really measured.

Yet again the correlation was weak ( $r = -.05$ ). This came as a surprise for it was hypothesised that an earlier age of onset would correlate positively with the progress scores. I believe that the reason why the analyses did not return results more in line with previous studies is the size of the sample as well as the relative similarity among the subjects. Most participants started learning English in their teens ( $m = 14.4$ ) with three exceptions who started learning the language either very early i.e. at the age of five ( $n = 1$ ) or late i.e. at the ages of twenty six and twenty nine ( $n = 2$ ).

Previous studies investigating the effects of age of exposure have found that it does, in fact, correlate strongly with scores obtained on grammaticality judgement tests. For example McDonald (2006) reports that there was a strong positive correlation between grammaticality judgment latency and exposure age, with faster reaction times for those with earlier exposure age.

Other studies (cf. Flege, Yeni-Komshian & Liu, 1999, cited in Flege & Liu, 2001) also report strong positive correlations between age effects and grammaticality judgement tests, i.e. the earlier the first exposure the better the results. However, they looked at the age of arrival rather than the age of onset which could also explain the differences in the results.

The next tested variable—the length of residence—showed a stronger (although not significant) negative correlation with the test results, i.e. the subjects who have lived in the target language country a shorter time responded better to instruction and improved more on the post-test. It could be argued that this is because the subjects who have lived in the target language country longer have been using the target language longer and have, therefore, had more time to internalise bad linguistic habits. These habits may have also been reinforced through frequent and often successful interaction as well as a lack of correction.

Flege and Liu (2001) carried out a study in which they compared groups of Chinese adults living in the United States who differed in LOR in order to assess the role of input in adults' naturalistic acquisition of an L2. The Chinese participants were assigned to one of four groups based on LOR in the United States and their primary occupation (students vs. non-students).

They found that length of residence correlated negatively with grammaticality judgement test results in non-students but positively when correlated with grammaticality judgement test results in students. They concluded that adults' performance in an L2 will improve measurably over time, but only if they receive a substantial amount of native speaker input (Flege et al., 2001).

The analysis of the years of instruction variable against the test results returned positive albeit insignificant results. Some reasons to explain this absence of relationship have already been mentioned in the *results* section above. They include a potential lack of motivation at the time of instruction or quality of teaching. The assumption that the participants who had studied English in more formal contexts longer would perform better on the post-test following the treatment was made on the premise that these participants would have been exposed to the target structures before. The treatment would therefore serve as a stimulus that would activate, reinforce and consolidate the knowledge which may have been dormant for some time after the instruction due to non-use. However, the results of this study suggest that the length of previous exposure to instructed language does not appear to correlate with gains on the post-test.

## **8. Conclusion**

I took on this project to satisfy my professional curiosity. As a language tutor I wanted to explore the various variables which have been shown to correlate with language performance. The current study set this research in a somewhat different context, i.e. work based learning. Unlike other studies which have looked at language attainment in general, this study tested the improvement or language gains between pre-test and post-test following a period of treatment (explicit instruction). I, therefore, wanted to see what factors determine which students will respond better to instruction and perform better on tests.

Thus, the present study has explored the variables that could influence language attainment in the classroom environment. The results of the statistical analyses carried out for the purposes of this study are shown to be mixed.

On the one hand the analysis of the effectiveness of explicit teaching to correct persistent errors in the learners' interlanguage proved to be successful and yielded significant results. This was in contrast to the control group which did not show any improvement between the pre-test and the post-test. This may imply that the participants in the experimental group managed to notice and correct the potentially stabilised erroneous forms in their interlanguage. However, it has also been acknowledged that any future

research into the effectiveness of explicit instruction on raising awareness of and correcting erroneous forms in learners' interlanguage should also include delayed post-tests. This would ensure that the effect of the treatment has been durable.

On the other hand, none of the biological-experiential factors have significantly correlated with progress scores. I have argued that a larger and more varied or more representative sample could show stronger correlations. This, in turn, may help to identify the factors which characterise better performing learners.

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