
The effects of monolingual and bilingual presentations of lexical items on vocabulary acquisition

Ian Smallwood

Abstract

This study investigates the effects on L2 vocabulary acquisition of three types of teaching methodology: (i) a passive, contextualised presentation with no focused teaching; (ii) a contextualised presentation with focused teaching entirely in L2; and (iii) a contextualised presentation with focused teaching which includes L1 translations of the words. Each of these teaching approaches was examined within Hong Kong secondary school classrooms, using 120 subjects over a period of eight weeks. The results of the study strongly suggest that the passive approach, wherein no focused teaching of any kind is provided, results in very low acquisition rates. The results also strongly suggest that the provision of L1 translations leads to significantly higher rates of vocabulary acquisition than an entirely L2 presentation.

文章撮要

本研究探討三種第二語言詞匯的教學法。第一種教學法較為被動，只給學生提供語境，沒有明確指出教學重點；第二種教學法提供語境及教學重點，並全以第二語言教授；第三種教學法也提供語境及教學重點，並於教授時輔以翻譯為母語的詞匯。研究對象為 120 名香港中二學生，課程為期八個星期。研究結果強烈顯示在被動和缺乏教學重點的教學法下，學生掌握詞匯的速度極慢；相對而言，提供母語翻譯比全以第二語言教學更能加快學生掌握詞匯的速度。

Background

With the recent increase in interest and research in the field of vocabulary acquisition, there has been considerable disagreement about the ways in which new vocabulary items should best be introduced and taught, both within a language course and within an ESL context where the medium of instruction in most subject areas is predominantly L2. The current treatment of vocabulary in Hong Kong seems particularly divided, with none of the materials attempting to present new vocabulary in a focused, recognised teaching pattern of initial presentation: controlled practice followed by a task or tasks encouraging a freer practice of the items (although this pattern is constantly used to present structural or functional components of the course).

There is a general tendency in ELT materials to present the great majority of new lexical items in a passage prefacing each new unit or chapter of the course. The words are very rarely accompanied by an L1 gloss or translation and are often not isolated for specific teaching. Where vocabulary items are pre-taught (as opposed to the much more common thematic sensitising type of pre-reading activity) they tend to be presented in a single, paired-associates type of activity which simply gives an L2 synonym or definition of the targeted words.

This treatment of new vocabulary items, however, is not mirrored in non-language courses which are published in English. In these courses, new lexical items tend to be accompanied by an L1 translation in the context in which they appear—but only the first time they appear—and activities which focus on the translated items are not presented.

Research focus

There seems to be an assumption that new lexical items are best learned either by limited teaching of the items, but only in L2, or by presenting a translation of the words in the context in which they appear but with no specific teaching of the items. This study questions this assumption and provides quantitative evidence that focused teaching with L1 translations may, in fact, be the most effective approach to vocabulary teaching.

In an attempt to ascertain which of the approaches towards the presentation of new vocabulary items outlined above is likely to be most effective in promoting vocabulary acquisition, the following research questions were addressed:

1. Are new L2 vocabulary items learned more readily when focused teaching accompanies the initial presentation compared to a more passive, contextualised presentation with no teaching?
2. (In the event of a positive answer to research question 1,) does the use of L1 translation in initial presentation have a particular effect on acquisition?

Explicit vs implicit teaching methodologies

A number of researchers (e.g. Sternberg 1987) point out that L1 vocabulary is learned mainly through encountering words in context with no explicit instruction, and use this as an argument for more inductive methods of vocabulary learning. Saragi et al.'s (1978) research using words based on a Russian slang (*nadsat*) showed a significant number of new vocabulary items were learned by simply reading the book without any instruction (or any definitions of the words at all, as a glossary of the words was not included in the book). However, most recent research now tends to support some form of explicit vocabulary teaching. McCarthy (1990:108) suggests that 'Most teachers accept that some sort of preparation for the introduction of new words in a lesson is a good idea'. He goes on to suggest that this preparation is most frequently (and usefully) to activate appropriate schemata in the students to enable the new vocabulary items to be learned more efficiently. Channell (1988) also stresses that learners need to be presented with new words in isolation and the words need to be clearly marked for stress and phonological shape for them to be efficiently learned. She goes on to suggest that there is a clear need for more vocabulary to be taught as a separate activity and not as part of a general language course or a reading programme. Further empirical support is provided by Hulstjin (1989), who conducted a series of experiments with advanced language learners and found that the retention of new words in incidental learning was poor and could be significantly improved if some form of orienting cue was given. Hulstjin also found that the vocabulary items were learned more effectively if the subjects had to make more effort with them in the initial presentation. In addition to the above arguments for pre-teaching vocabulary before encountering the new items in the context of a reading activity, Swain (1990) suggests there is a need for more linguistically productive activities to follow the contextualised exposure to establish fully the items within the individual's lexicon.

Bilingual presentations of vocabulary

As with the debates regarding the explicit teaching or more inductive acquisition of vocabulary, the question of whether or not the inclusion of L1 translations of new vocabulary items enhances acquisition has also been debated for some time. The arguments for inclusion of translations have tended to come from more explicit teaching methodologies and those for the exclusion of any form of translation from methodologies depending upon 'direct association of language with objects and persons of the immediate environment, for example, the classroom, the home ...' (Stern 1983:459), i.e., the 'Direct' teaching methods (cf. Howatt 1984). However, once again, the pendulum appears to be swinging away from the total exclusion of L1 in L2 language teaching and towards an acceptance that there may be (perhaps great) benefit to be gained by presenting L1 translations of specific vocabulary items and in the controlled use of L1 in teaching contexts generally—although linguists often claim that no word can be translated exactly. Nation (1982) even reports large numbers of words being successfully learned by simply presenting students with lists of decontextualised paired-associates (translations). This method is, perhaps, the most extreme use of L1 in L2 teaching contexts, though most linguists (e.g. McCarthy 1990:120) would argue for some form of contextualised presentation of new vocabulary items. Nation describes research which he concludes clearly shows that 'Learning is more efficient if the foreign word form is associated with a word in the mother tongue rather than a foreign synonym or definition' (op. cit.:126).

Nation goes on to point out that although the use of translation in teaching contexts does have drawbacks, for example the lessening of exposure time to L2 and the difficulties of providing accurate translations, the appropriate, controlled use of translation is a very powerful teaching tool. He argues that the exclusion of L1 deprives learners of a very useful technique for encoding which frequently leads to inaccurate translations. Further support for the use of translation is made by Nation when he suggests that the comparisons made between the L1 and L2 versions are useful ways of developing in learners an interest and understanding of how a language works: 'how different languages organise the world and experience in different ways' (op. cit.:64).

The use of elements of the learners' L1 in L2 teaching contexts does not seem to be in any way dependent on how the L1/L2 lexicons are perceived to be structured. In general terms, the structures could be semantically dependent or phonologically dependent. Erdmenger (1985) found that 248 German-speaking learners of English produced basically identical word-association

patterns for a specific word in German and in English. He uses these findings to support his argument that there is a strong case for using L1 word-association patterns in the teaching of L2. Conversely, if the lexicons are arranged phonologically, as argued by Fay & Cutler (1977) and Channell (1988), then there is still an argument for L1 translations, as these may reduce the incidence of 'clang-associations' (i.e. mistaking a word for one with a phonological similarity) by establishing the lexical item more effectively in the paradigmatic lexicon suggested by adult responses as opposed to the syntagmatic (and phonological) lexicon as suggested by children and L2 responses (Carter 1987:158).

Perhaps the strongest (and least theoretical) support for the use of L1 translations in teaching is provided by Taylor (1990:31), when she points out that regardless of whether L1 translations are provided in the materials themselves, the first thing a group of monolingual language learners (such as is the norm in Hong Kong classrooms) does when a new vocabulary item is presented is to offer each other translations and to discuss the meaning in the common L1 language of the class. To ensure the resultant translation is accurate, it would seem logical to include it in the materials.

Some practical considerations

The question of how many words to present in a single lesson (of one hour) is given little attention by most researchers. The research tends to focus on the lexical requirements of a language course as a whole (see Nation 1990: ch. 2) and not on the optimum lexical input in a limited and specified time. The reasons for this are clearly that the number of possible variables (e.g. learner level, method of presentation, types of vocabulary etc.) would make it almost impossible to generalise. However, Gairns & Redman (1986:66) suggest that:

It is impossible to be dogmatic about the number of new lexical items that should be presented in a sixty-minute lesson. We would suggest an average of eight to twelve productive items as representing a reasonable input.

A more important question than the number of words to focus on in a lesson would, perhaps, seem to be what is the most effective way of presenting the new lexical items. One method of presenting vocabulary with particular reference to reading is proposed by Nation (1990: ch. 8). This requires the reader to be encouraged to follow a number of defined steps to look for clues as to the meaning of the word from its immediate context and the

function of the word in that context. Briefly, the learner should be encouraged to study the form of the word itself (in isolation) for clues as to which part of speech it is, then move on to the sentence in which it appears for further clues of syntactic and semantic relationships with other parts of the sentence. From the information gained from steps 1 and 2, the learner then tries to work out the most likely meaning of the word (and subsequently check in some way that the assumed meaning is correct). These general strategies are also proposed as being effective ways for learners to learn new words (encountered in context) by Honeyfield (1977) and Kruse (1979). This general approach to the presentation of new vocabulary is used in this study with the addition of a further stage—the reading of a passage which contains all of the targeted words. This may well reinforce the acquisition of the word by placing it in a further context, whereas the pre-teaching of the word may also have the effect of increasing the prominence of the word when it is encountered in the passage.

The testing of vocabulary acquisition

A final question which needs to be addressed is that of how to test whether or not the targeted words have been learned by the subjects. Can a word be assumed to be known if it can simply be recognised as belonging to the total L2 lexicon (as in the *Lingua Vocabulary Tests*, Meara 1993); if it can be recognised and the semantic element of the word understood; or does it have to be produced in a meaningful way before we can accept that it is fully *acquired*? The first option seems unsuitable for this, very controlled and restricted vocabulary testing, as it was felt that:

Although in certain contexts verbal report and self-ratings by test-takers are practical and valid methods of assessing vocabulary knowledge, in most testing situations it is clearly inappropriate to rely on unverified self-report. (Read 1993:356)

It was felt that for this study the subjects' knowledge of the word should be assessed by testing their ability to use the word in an entirely L2 context (cloze texts) and by their ability to express the same or a very similar concept in their L1. Carter (1987:187) proposes a range of requirements (both productive and receptive) which must be demonstrated by the learner before he/she can be said to *know* a word. However, it would be impractical to attempt to test all of the requirements. As receptive knowledge is both easier to test and always larger than productive knowledge (ibid.:169), it was decided to restrict the testing procedures to this aspect of L2 vocabulary

knowledge (although it can be argued that there is an element of *production* in a translation activity).

The cloze texts were used both to mirror in some ways the activities used to teach the items and also to provide as much contextual information for each word as possible. The importance of context, both situational and linguistic has been stressed by many linguists, for example Ellis (1985), Gairns & Redman (1986), McCarthy (1990). The translation activity was used as a means of testing the subjects' ability to conceptualise accurately the semantic component of the words and associate or describe this component with words in their L1. Although it is sometimes argued that it is not possible to translate a word exactly from one language to another, there is plenty of evidence that the concept behind the word exists in both languages, and can be transferred from one to the other quite readily—even if sometimes a paraphrase is required rather than a direct translation (cf. Labov 1973; Fillmore 1976).

The design and methodology

An overview

Forty vocabulary items, which it was believed the subjects would be unlikely to know, were chosen as the target items for the experiment. These items were piloted in a cloze test similar to the one to be used in the pre-test of the experiment, against a group of 40 students of the same age and ability level as the subjects of the experiment, but who were not involved in the experiment themselves. Any item which was known by 25% or more of the pilot group was replaced.

The subjects were pre-tested for their knowledge of these vocabulary items by means of a multiple-choice cloze test and, a week later, a test of their ability to translate or gloss the items. The words were then divided into four sets of 10 words and written into four passages (two narrative and two informative) of approximately equal length and level of difficulty, with each word occurring only once. One set of passages had a translation of the target words included next to each. Teaching materials were also produced to accompany each of the passages. The materials varied according to the group they were intended for, but all sets were designed to enable the subjects to complete the tasks with no, or very little, teacher involvement.

The total subject population (120) returned to their original three groups of 40 and once a week for the following four weeks were given one of the

passages with the accompanying teaching materials. Each class took place at the same time on the same day for each group. All passages and teaching materials were collected by the teacher at the end of each lesson.

Group A was pre-taught the vocabulary items for each passage entirely in English. The passage itself contained no contextualised translation of the targeted items.

Group B was pre-taught the vocabulary items for each passage with an L1 translation for each item included in the teaching materials. The passage itself did not contain a contextualised translation of the targeted items.

Group C received no pre-teaching of the words. However, the passage itself contained contextualised translations of all the targeted items. To guarantee the same length of time was spent on the passage as in Groups A and B, materials which focused on general understanding or which used the passage as a stimulus for creative writing were presented to the subjects instead of the given vocabulary pre-taught in the other groups.

At the end of the four weeks of presentations, the subjects were given the two pre-tests, again separated by one week, as post-tests. To ascertain any increase in knowledge of the targeted vocabulary items the subjects' scores on the pre-tests and the post-tests were compared for any significant increase (the pre-test cloze and pre-test translation were compared with the post-test cloze and post-test translation, both independently and as a combined score). Research Question 1 was examined by comparing the scores of Groups A and B with the scores of Group C. Research Question 2 was examined by comparing the scores of Group A with those of Group B.

The subjects

The 120 subjects were all Form 2 students (aged about 13 years) from a co-educational, Band 3, secondary school in Hong Kong. The subjects were in their existing class groupings of 40 students per group. The classes were not streamed or set within the school in any way and were generally believed to be of approximately equal standard in English proficiency.

In an attempt to maintain normal classroom behaviour and attitudes, the existing class teachers were used in the research design. The classes selected for the experiment had teachers appropriate for the research (e.g. the class which was presented materials with no L1 translations had a non-Chinese-

speaking teacher who could not, therefore, provide any form of translation of the targeted lexical items).

The vocabulary items

Two basic criteria were applied in the choice of the vocabulary items to be targeted in the study.

The first was that the words were unlikely to be known by the students at the time of the investigation but that they were likely to be encountered by the subjects later in their study of English. To meet this criterion the words had to be absent from a corpus of published teaching materials for secondary schools in Hong Kong, Forms 1–3, but present in a similar corpus for Forms 4 and 5.

The second criterion was that the 40 words should represent a range of types and the range should approximately reflect the word-types the subjects are commonly exposed to in their L2 language studies. This was done by examining the corpus of Forms 1–3 teaching materials—both manually and electronically—and tagging the main abstract and common nouns, principal verbs, adjectives and adverbs. The frequency ratio within these word-types was then calculated and mirrored in this study.

The texts

The 40 targeted words were equally distributed within four passages, viz. ten items in each passage. As it was felt that aspects of the passages could affect the acquisition of vocabulary items contained within them, the following criteria were imposed on their composition and appearance:

1. The passages should reflect more than one type of writing so that any findings could be readily generalised.
2. The passages should, as far as could be reasonably ascertained, be of equal level of difficulty.
3. The passages should appear to the subjects to be published materials and not supplementary materials produced by the individual school. (It was felt that attitudes toward the materials might be affected were the subjects to think they were in any way 'less important' than the published materials they were accustomed to using.)

The teaching materials

Each of the four passages was supplied with detailed teaching materials appropriate for each of the targeted groups. Three general criteria were considered when producing the materials:

1. The level of teacher involvement in any of the groups should be as restricted as possible. The materials should allow the subjects to work for the whole of one lesson with no teaching input from the teacher. (This was to reduce any possibility of differing teaching methodologies/styles influencing the success rates of vocabulary acquisition.)
2. The materials should all reflect traditionally accepted principles of effective teaching.
3. The materials, like the passages, should resemble commercially published materials as far as possible.

As Group C was, in effect, being used as a control group, two different sets of materials had to be produced: one set for Groups A and B, and another for Group C. The materials for Groups A and B were designed to reflect a typical teaching structure of

Initial presentation → Controlled practice → Free practice.

To control as many variables as possible within the teaching context of the study, the passages for these two groups were identical and the only difference between the teaching materials was that Group B was provided with an L1 translation of the target words in the initial presentation stage of each lesson. All four sets of materials (i.e. one set for each of the four passages), were identical in structure and the tasks the subjects had to complete in each set were the same—only the ten target words changed. The materials were designed according to the following structure:

Initial presentation: The ten words were given in a table (Group A was given L2 only, Group B was given L2 and an L1 translation). Each word was accompanied by a contextualised usage of the word from which the subject could deduce a probable meaning.

Controlled practice: The second task was to complete a crossword puzzle in which all the clues were definitions of the ten words (i.e. the subject had to match the definition to the usage and write the word into the crossword grid).

Free practice: Finally, the subjects were asked to write sentences for each of the words—but omit the actual word. In effect, the subjects were creating cloze sentences for each of the words. These sentences were then exchanged with a partner and each subject completed the newly created cloze sentences.

The only time the teacher was required to provide any input into the lesson, other than at a general supervisory level, was in the initial presentation when it was suggested that the teacher read out the words (and the translations, for Group B). This was included as a possible teaching aid to the phonological storage of vocabulary.

The materials for Group C were intended to provide work on the passages for the same length of time as for Groups A and B, but the materials did not focus on specific lexical items at all. (The passages did, however, include a contextualised L1 translation of the targeted words.) Instead, the materials concentrated on global understanding of the passage, or used the passage as a stimulus for productive writing by the students.

The pre- and post-tests

To establish the success of vocabulary acquisition after each of the three presentations and teaching procedures, the 40 targeted words were pre- and post-tested (the difference between the two indicating the various levels of acquisition). All of the subject population was given identical pre- and post-tests. Because of the measure of disagreement as to how a word can be adjudged to be *known* or not, two pre-tests and two post-tests were designed, the aims of which were to establish whether or not the words:

- could be recognised and used in context in the L2;
- could be translated (or paraphrased) from the L2 into the subjects' L1.

Pre- and post-test 1

The first of the two pre-tests was designed as a multiple-choice cloze test. The test was divided into four sections, each testing ten of the targeted words. To give the subjects as much contextual assistance as possible, each cloze word was embedded into a text of (usually) several sentences. All the words used in the text around the words occurred in the corpus of materials used in Forms 1–3. This was to limit the possibility of the subjects being

unable to answer the question correctly through a lack of understanding of the surrounding text, and not through a lack of understanding of the target word itself.

The ten targeted words were provided at the bottom of the same page, mixed with ten of the other targeted words as distracters. Other targeted words were used as distracters, as the subjects may have been able to differentiate between the targeted words and the non-targeted words (in the post-test) without actually knowing the meanings of the words, and therefore significantly increasing the possibility of guessing the correct answers. As each cloze question had twenty options from which to select the correct answer, it was felt that no *chance factor* needed to be built into the analysis. Each question could only be sensibly completed by one of the twenty words presented.

This design was repeated four times. The subjects were given as long as they required to complete the full test. The subjects were instructed not to use any form of dictionary, and to work individually.

All the test scripts were objectively marked, by the same person. As the two tests (pre-test 1 and post-test 1) were separated by a period of six weeks, not discussed/corrected in any way at any stage, and given exactly the same treatment by all three groups, it was felt that a reasonably accurate measure of the increase in vocabulary knowledge could be gained by presenting the same test as the post-test 1.

Pre- and post-test 2

The second test was included, as it was felt that some subjects may have known the meaning of the word but have been unable to place the word correctly in the context of the passages provided. The subjects were presented with the 40 words (in a different order from that of the cloze tests) and asked to provide an L1 translation of as many words as they could.

The completed test scripts were all checked by a single native speaker of the L1 translations (Chinese) who was told to accept any translation which conveyed the same or a very similar concept as the target word. Variations in parts of speech were accepted (as this was regarded as a grammatical not a lexical error) and, in the case of polysemous words, any of the possible translations was accepted, even though it may not have been the meaning of the word in the passages and teaching materials. Paraphrased translations or

glosses were also accepted if they conveyed the essential semantic content of the target word.

To establish any increase in vocabulary knowledge of the 40 targeted lexical items the scores on each pre-test were compared to the scores on each post-test (viz. the scores on the cloze pre-test were compared to the scores on the cloze post-test; the scores on the translation pre-test were compared to the scores on the translation post-test) and also each subject's mean score on the two pre-tests was compared to the mean score of the post-tests. In this way, three aspects were assessed:

- increase in the subjects' ability to use the items in L2 context;
- increase in ability to express the same or similar concept in their L1; and
- increase in general semantic understanding of the targeted words.

Results and discussion

The mean scores of the pre- and post-tests for each of the three groups and the mean increases in word knowledge for each of the groups are given in Tables 1-3.

Table 1: The mean scores for the two pre-tests.

	Cloze (max. score = 40)		Translation (max. score = 40)		Mean score: <u>Cloze + Translation</u> 2
	Mean	Standard Deviation	Mean	Standard Deviation	
Group A	3.85	2.65	2.95	1.47	3.40
Group B	3.62	2.74	4.43	5.71	4.02
Group C	3.15	2.29	2.20	1.62	3.17

Table 2: The mean scores for the two post-tests.

	Cloze (max. score = 40)		Translation (max. score = 40)		Mean score: <u>Cloze + Translation</u> 2
	Mean	Standard Deviation	Mean	Standard Deviation	
Group A	7.30	5.39	10.28	4.85	8.79
Group B	13.65	10.02	28.85	9.41	21.25
Group C	3.93	2.86	6.03	2.89	4.98

Table 3: The mean increases in word knowledge.

	Cloze	Translation	Mean increase: Post-test – Pre-test mean
Group A	3.45	7.33	5.39
Group B	10.03	24.42	17.23
Group C	0.77	3.83	2.30

Hypothesis 1

The first of the two hypotheses to be tested was that:

New L2 vocabulary items are learned more readily when focused teaching accompanies the initial presentation compared to a more passive, contextualised presentation with no teaching.

This was tested by calculating the mean increase in word knowledge of Groups A and B to establish the mean increase in word knowledge of the groups receiving some type of formal, overt teaching of the targeted words. Therefore, as

$$\frac{\text{Mean increase of Group A} + \text{Mean increase of Group B}}{2} = \frac{5.39 + 17.23}{2} = 11.31$$

the mean increase in word knowledge of the groups receiving focused teaching of the words (either in L1 or in L2) was 11.31, or 28.27% of the total targeted words. This figure was compared to the mean increase in word knowledge of Group C (2.30 or 5.75%) for any significant difference by using the t-distribution test. To establish that teaching in L1 and in L2 both resulted in significant increases in word knowledge compared to contextualised exposure, the mean increases in scores for Groups A and B were then tested against the mean increase in scores of Group C independently (again using the t-distribution test). The results of these comparisons and the t-values (and significance levels) for each of the comparisons are given in Table 4.

Table 4: Comparisons of mean increases in scores of subjects receiving focused vocabulary teaching (Groups A and B) with those of subjects receiving no focused vocabulary teaching (Group C) on the cloze test and translation tests (combined).

Group A	Group B	Group C	t-value	df	Significance level
$\frac{5.39 + 17.23}{2} = 11.31$		2.30	11.68	39	.001
5.39	--	2.30	4.01	39	.001
--	17.23	2.30	13.38	39	.001

As all the t-values are significant at the 0.001 level, Hypothesis 1 was strongly supported by these results and the response to Research Question 1 would be that there seems to be a significant difference with respect to the success of vocabulary acquisition when the items are explicitly taught as compared to a more passive exposure to the items in a variety of texts. It was found that an average of over five times the number of vocabulary items was learned when the items were explicitly taught (either entirely in L2 or with L1 translations).

To establish that knowledge of the targeted words in both the cloze and the translation tests was significantly greater in groups receiving focused teaching of some type, these scores were also compared independently to the corresponding scores of subjects in Group C. The results of these comparisons and the t-values for each are given in Table 5.

Table 5: Comparisons of mean increases in scores of subjects receiving focused vocabulary teaching (Groups A and B) with those of subjects receiving no focused vocabulary teaching (Group C) on the cloze test and translation tests (separate).

	Cloze test	Translation test
Mean score increase of Group A + Group B	6.74	15.87
Score increase of Group C	0.77	3.83
t-value	6.91	10.69
df	39.00	39.00
Significance level	0.001	0.001

Again, both of these increases are significant at the 0.001 level. It would therefore seem that the subjects' ability to recognise and use the words in an L2 context and their ability to translate the words from L2 into L1 both increase markedly when some form of specific teaching takes place.

Hypothesis 2

The second hypothesis to be tested was that:

Lexical items are more readily learned when presented with an L1 translation than when presented entirely in L2.

This was tested by comparing the mean increases in word knowledge of Groups A and B and testing for any significant differences (using the t-distribution test). To ascertain whether any noticed increases occurred only in one or other of the cloze and translation tests, the two types of pre-/post-tests were again also tested independently. The results of these comparisons and the t-values (and significance levels) for each of the comparisons are given in Table 6.

Table 6: A comparison of mean increases in scores of subjects receiving focused teaching in L2 only (Group A), with those of subjects receiving focused teaching which included an L1 translation of the targeted words (Group B).

	Mean increases in cloze test	Mean increases in translation test	Overall increase in word knowledge
Group A	3.45	7.33	5.39
Group B	10.03	24.42	17.23
t-value	4.20	12.08	10.41
df	39.00	39.00	39.00
Significance level	0.001	0.001	0.001

As all the t-values are significant at the 0.001 level, Hypothesis 2 was strongly supported by these results and the response to Research Question 2 would be that there seems to be a significant difference in the success of vocabulary acquisition when the items are presented with an L1 translation. This difference is significant in the students' ability to recognise and use the items in an entirely L2 cloze context, their ability to translate the items into L1 and in the mean of the two (which was taken as representing the students' overall word knowledge). It was found that an average of approximately three times the number of words were learned when the items were presented with an L1 translation.

A further element of the nature of vocabulary acquisition that these results indicate can be shown by analysing the increases in word knowledge made by subjects in both Groups A and B in their ability to use the words in an L2 context compared to their ability to express the same concepts in L1.

Although the principal aim of the teaching materials used by both groups was to increase the subjects' ability to use the words in an L2 context, the results indicate that there were significantly greater increases made in both groups' ability to express the same concept in L1 (i.e. the increases made in the translation tests were significantly greater than those made in the cloze tests). These increases are shown in Table 7.

Table 7: A comparison of mean increases in scores in the cloze tests with those in the translation tests.

	Increases in cloze scores	Increases in translation scores	t-value	df	Significance level
Group A	3.45	7.32	5.39	39.00	0.001
Group B	10.02	24.42	7.56	39.00	0.001

As both the t-values are significant at the 0.001 level, there were significantly greater increases made by both groups in the translation tests than in the cloze tests. In both groups the increases in the translation tests were a little over double the increases made in the cloze tests (although Group A was at no time given the L1 translation of the words).

These increases may, in part, be explained by the possibility that the subjects did not know the Chinese characters to be able to express the same concept in L1 before the focused teaching. It may be that the teaching helped them with the translation (even the entirely L2 teaching, in that the subjects could subsequently have checked the translations in a bilingual dictionary). However, it is, perhaps, more likely that the results are due to the ability to express the same concepts in L1 being an essential stage in the acquisition of new L2 vocabulary which precedes the ability to recognise and use the words in an L2 context. This suggests that new L2 vocabulary may first be matched with the L1 conceptual equivalent and only then, when the item is sufficiently well placed within a bilingual semantic network, can the L2 item be used within an entirely L2 context. This theory is, perhaps, supported by evidence provided by an analysis of the effects of word-types on vocabulary acquisition (although it should be noted that, as the experimental design was not specifically intended to test this, the results might not be totally reliable).

Conclusion

The results of this project seem to be particularly relevant during the current debate in Hong Kong relating to the most appropriate medium of instruction to be used in secondary schools and tertiary institutions. The very strong indications that (i) lexical items are more readily learned with some form of explicit instruction than by simple contextualised exposure; and, perhaps more significantly, that (ii) L2 lexical items are much more readily learned when presented with an L1 translation than when presented entirely in L2, suggest that an L1 medium of instruction is not necessarily disadvantageous to students. There are indications in the research data to support suggestions that in order to acquire new L2 lexical items fully, these items must first be matched with an L1 conceptual equivalent. L2 lexical items can only be used when they have been fully integrated into the user's bilingual semantic network. In an entirely L2 curriculum it is likely that crucial concepts are not sufficiently developed in the learner's L1, and therefore may not be understood at all.

The effects of monolingual and bilingual presentations of lexical items on vocabulary acquisition

Ian Smallwood

References

- Carter, R. 1987. *Vocabulary: Applied linguistic perspectives*. London: Allen & Unwin.
- Channell, J. 1988. Psychological considerations in the study of L2 vocabulary acquisition. In R. Carter & McCarthy (Eds), *Vocabulary and language teaching* (pp. 83–96). London: Longman.
- Ellis, R. 1985. *Understanding second language acquisition*. Oxford: Oxford University press.
- Erdmenger, M. 1985. Word acquisition and vocabulary structure in third-year EFL learners. *IRAL* 23, 2, 159–64.
- Fay, D. & Cutler, A. 1977. Malapropisms and the structure of the mental lexicon. *Linguistic Inquiry* 8, 3, 505–20.
- Fillmore, C. J. 1976. Frame semantics and the nature of language. *Annals of the New York Academy of Science* 1976, 280, 20–32.
- Gairns, R. & Redman, S. 1986. *Working with words*. Cambridge: Cambridge University Press.
- Honeyfield, J. 1977. Simplification. *TESOL Quarterly* 11, 4, 431–40.
- Howatt, A. P. R. 1984. *A history of English language teaching*. Oxford: Oxford University Press.
- Hulstijn, J. 1989. Learning word meanings from context: An experimental comparison of the effects of four orienting cues. *Toegepaste Taalwetenschap in Artikelen* 34, 13–25.
- Kruse, A. F. 1979. Vocabulary in context. *English Language Teaching Journal* 33, 3, 207–13.
- Labov, W. 1973. The boundaries of words and their meanings. In C.-J. N. Bailey & R. W. Shuy (Eds), *New ways of analyzing variation in English*. Washington DC: Georgetown University School of Language and Linguistics.
- McCarthy, M. 1990. *Vocabulary*. Oxford: Oxford University Press.
- Meara, P. 1993. *LLEX: Lingua Vocabulary Tests*. Swansea: Centre for Applied Language Studies, University College.
- Nation, I. S. P. 1982. Beginning to learn foreign vocabulary: A review of the research. *RELC Journal* 13, 1, 14–36.
- _____. 1990. *Teaching and learning vocabulary*. Boston MA: Heinle and Heinle.
- Read, J. 1993. The development of a new measure of L2 vocabulary knowledge. *Language Testing* 10, 3, 355–71.
- Saragi, T., Nation, I. S. P. & Meister, G. 1978. Vocabulary learning and reading. *System* 6, 70–8.
- Stern, H. H. 1983. *Fundamental concepts of language teaching*. Oxford: Oxford University Press.
- Sternberg, R. J. 1987. Most vocabulary is learned in context. In M. G. McKeown & M. E. Curtis (Eds), *The nature of vocabulary acquisition* (pp. 89–105). Hillsdale NJ: Lawrence Erlbaum.

Swain, M. 1990. The immersion experience in Canada: Is it relevant to Hong Kong?
Plenary paper presented at the sixth international conference of the Institute of
Language in Education, 13th December, Hong Kong.

Taylor, L. 1990. *Teaching and learning vocabulary*. London: Prentice Hall.