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Author(s): Lydia White

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# Adverb placement in second language acquisition: some effects of positive and negative evidence in the classroom

Lydia White *McGill University*

This paper focuses on a parametric difference between French and English, namely the issue of whether or not the language allows verb movement. The lack of verb-raising in English causes a potential learnability problem for francophones, as far as English adverb placement is concerned. In particular, an adverb in English is not allowed to interrupt a verb and its direct object, in contrast to French. It is argued in this paper that form-focused classroom instruction, including negative evidence, is more effective in helping L2 learners to arrive at the appropriate properties of English than positive input alone. An experimental study on the effectiveness of teaching adverb placement was conducted with 11 and 12 year-old francophone learners of English. One group (n = 82) was explicitly instructed on adverb placement, and another on question formation (n = 56). Subjects were tested on a variety of tasks relating to adverb placement; they were pretested, and post-tested twice, immediately after the instructional period, and again five weeks later. Some of the subjects were followed up a year after the original testing. Results show significant differences between the two groups: only the group that received positive and negative evidence that was specifically oriented towards adverb placement came to know that adverbs may not interrupt the verb and object. The results from the follow up, however, suggest that this knowledge is not retained in the long-term.

## I Introduction

Current learnability theories are concerned with issues such as the nature of the evidence needed to acquire language, and the extent to which properties of the input interact with innate principles of Universal Grammar (UG) (e.g., Lightfoot, 1989; Pinker, 1984, 1989; Wexler and Culicover, 1980). Linguists and first language (L1) acquisition theorists argue that parameters of UG are 'triggered' by input, that L1 acquisition proceeds mainly on the basis of positive

Address for correspondence: Lydia White, Department of Linguistics, McGill University, 1001 Sherbrooke Street West, Montreal, Quebec H3A 1G5, Canada.

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evidence (utterances in the input), and that any incorrect hypotheses can be disconfirmed on the basis of subsequent positive evidence. L1 acquirers appear not to adopt parameter values of UG which generate superset languages unless the input data warrant it, thus never making certain problematical kinds of overgeneralization (Berwick, 1985; Wexler and Manzini, 1987). Negative evidence, that is, information about ungrammaticality, is assumed by many to play a minor role in the acquisition of a first language.

In second language (L2) acquisition, however, things are often more complicated. This is because L2 learners sometimes make incorrect generalizations (in many cases based on the mother tongue) that cannot be disconfirmed by positive evidence alone. In the L2 context, then, learnability considerations suggest that negative evidence may play a more significant role than is the case in L1 acquisition. This paper will focus on a potential learnability problem that is raised for French-speaking learners of English concerning English adverb placement. Experimental results will be presented that suggest that explicit information about ungrammaticality (in the form of form-focused instruction and error correction) is beneficial in helping francophones to master certain properties of English, at least in the short-term.

## II Adverb placement

### 1 *Adverb positions in French and English*

Adverb placement in languages like French and English is relatively free, in that adverbs can occur in a number of different positions in the sentence, although there are semantic and syntactic restrictions on which adverbs can appear in which positions (Jackendoff, 1972). Both languages allow adverbs at the end of the VP (SVOA) and in pre-subject position (ASV), as shown in (1):<sup>1</sup>

- 1) a. Jean boit son café rapidement
- b. John drinks his coffee quickly
- c. Prudemment Jean a ouvert la porte
- d. Carefully John opened the door

Both languages allow adverbs to occur after an auxiliary verb, as in (2):

- 2) a. Jean a souvent visité le musée
- b. John has often visited the museum

The two languages also show certain contrasts with respect to adverb placement. In English, adverbs may not appear between the

<sup>1</sup>In all the examples, the English sentences are literal translations of the French sentences; consequently, glosses are not provided.

verb and its direct object (SVAO), whereas they may in French, as can be seen in (3). English (3b) is ungrammatical but the French equivalent, (3a), is grammatical:

- 3) a. Marie regarde souvent la télévision  
b. \*Mary watches often television

A further contrast is that adverbs may appear between the subject and the verb (SAV) in English, whereas they may not in French, as can be seen in (4):

- 4) a. \*Marie souvent regarde la télévision  
b. Mary often watches television

The similarities and differences between the two languages illustrated in (2), (3) and (4) are argued to fall out from a parameter of UG which links a cluster of properties in each language. This parameter is discussed below.

## 2 *Verb-movement and adverb placement*

Pollock (1989) and Chomsky (1989), following earlier work by Emonds (1978, 1985), propose a parameter which accounts for a number of differences between French and English, including the adverb placement differences outlined above.<sup>2</sup> This parameter requires all finite French verbs to raise to INFL, in contrast to English verbs which, with the exception of *have* and *be*, may not do so.<sup>3</sup>

Pollock argues that English and French sentences containing adverbs share the same D-structure: adverbs are optionally base-generated adjoined to the left of the VP.<sup>4</sup> At S-structure, finite

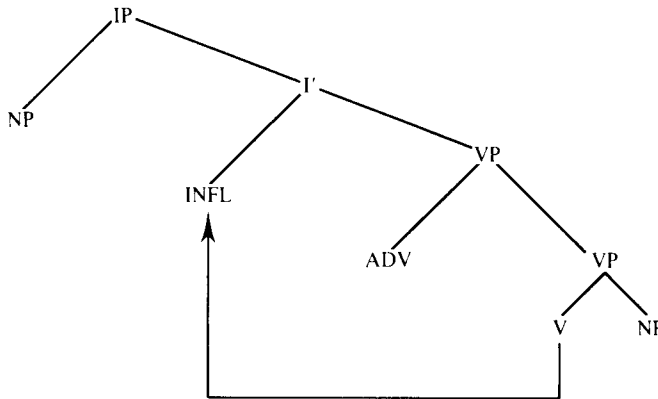
<sup>2</sup>Previously, the differences in (3) were accounted for by a different parameter, the adjacency condition on case assignment (Stowell, 1981), which did not account for other aspects of English and French adverb placement, such as those in (2) and (4). The L2 implications of the adjacency condition have been investigated by White (1989a) and will not be discussed further here.

<sup>3</sup>According to Pollock, the possibility of verb raising, or lack thereof, follows from certain properties of agreement ('transparency' versus 'opacity') and their effects on theta-role assignment. These agreement properties constitute the parameter; I will ignore such details here, and treat the parameter as involving + or – verb-raising, as in older accounts of these issues (e.g., Emonds 1978).

<sup>4</sup>Pollock specifically proposes this position for frequency adverbs (*often*, *seldom*, etc.) and does not discuss manner adverbs. However, Emonds (1976) proposes that manner adverbs are generated at the end of the VP, with a transformational rule moving them to the front. Jackendoff (1972) suggests that there are several possible positions for manner adverbs, including at the beginning of the VP. Thus, either by base-generation or by movement, VP-initial is a possible position for various classes of adverbs.

verbs in French obligatorily raise from V to INFL.<sup>5</sup> This underlying structure, together with verb movement, is illustrated in (5).

5)



The verb-movement analysis accounts for the similarities and differences between French and English adverb placement in the following way. French sentences have a D-structure order as shown in (6):

6) Marie souvent regarde la télévision

The verb raises past the adverb, resulting in the order SVAO, as in (3a). Failure to raise results in the ungrammatical SAVO, as in (4a). In English, the D-structure order is the same as in French, namely that shown in (7):

7) Mary often watches television

However, verb-raising is prohibited, preventing the SVAO order, as in (3b) and permitting SAVO, as in (4b). The only English verbs that raise are *have* and *be*. From the D-structure order in (8):

8) John often has visited the museum

<sup>5</sup> In fact, Pollock proposes that INFL should be split into two categories, T(ense)P and AGRP, and that verb movement involves movement first to AGR and then to T. For the sake of simplification of the issues to be discussed in this paper, this split analysis of INFL will be ignored, since it is not crucial to the adverb placement issues to be discussed here. See White (in press) for further discussion of TP and AGRP in L2 acquisition.

*have* raises to INFL over the adverb, giving the order SauxAVO.<sup>6</sup> *Avoir* and *être* do the same in French, hence the parallelism between (2a) and (2b).<sup>7</sup>

The verb-raising parameter accounts for a whole cluster of properties other than adverb placement, including negation, question formation, quantifier placement and differences between finite and non-finite clauses (Pollock, 1989). The experiment to be discussed in this paper is concerned with adverb placement aspects of this cluster, namely the fact that the French value of the parameter allows SVAO order and prohibits SAV, whereas the English value allows SAV order and prohibits SVAO. (See White, 1991, and in press for discussion of whether the various aspects of the cluster continue to work together in L2 acquisition.)

### III Learnability and parameter resetting in L2 acquisition

White (e.g., 1989a, 1989b) has argued that L2 learners use L1 settings of UG parameters as an interim theory about the L2, that under certain conditions they are able to reset to the L2 value, and that sometimes negative evidence may play a role in this resetting, in contrast to L1 acquisition. Others have argued that L1 settings in fact constitute the L2 learner's only access to UG (e.g., Bley-Vroman, 1989; Schachter, 1988).

The present study is concerned with native speakers of French learning English. Their L1 instantiates the verb-raising value of the parameter discussed above, in contrast to the L2 which disallows verb-raising. As far as adverb placement is concerned, there are two (related) differences between the L1 and the L2 that the learner must discover:

- i) the L2 allows SAV order
- ii) the L2 does not allow SVAO order.

Let us consider what kind of evidence might inform the learner about these properties of the L2, i.e., might trigger the appropriate

<sup>6</sup>The possibility of pre-subject and VP final adverbs in both languages does not relate to verb-movement. In addition, English has another position, between the subject and INFL, as in *John probably has left*. This position does not relate to the verb raising issue; in such cases, an adverb can also appear between the auxiliary and main verb, as in *John probably has quietly left*, showing that even after the raising of *have*, there is another available adverb position. French does not have this position. This means that there are actually two different reasons why SAV may be unfamiliar to French learners of English: (a) obligatory verb raising in French, and (b) no position between subject and INFL.

<sup>7</sup>In addition, English modals are base-generated in INFL, so adverbs can be found to their right.

parameter setting. The current trend in language teaching is to avoid grammar teaching, form-focused instruction and error correction, and to rely on providing ample positive evidence as the best means for the learner to acquire the L2. In the case of SAV order, providing appropriate positive L2 input should be sufficient. The L2 allows a range of sentences which do not occur in the L1. Even if the learner initially assumes that SAV is ungrammatical, there should be positive evidence from English for this order. That is, the L2 learner will presumably hear sentences like (4b) as part of the input. In contrast, learning that SVAO is not possible in English constitutes a greater problem, if the learner is only supplied with positive input. If the learner assumes that SVAO is a possible order, as it is in French, there appears to be no positive English input that these sentences are ungrammatical; they are non-occurring, and other input may give the impression that adverb placement is totally free in English. This, then, is a case where negative evidence (that is, specific information as to the ungrammaticality of SVAO order in English) may be required to indicate to the learner the impossibility of certain structures or word orders, i.e., a case where the L2 learner will be unable to set the appropriate L2 value of the parameter on positive evidence only. (In fact, this is an oversimplification; since the adverb placement possibilities and impossibilities are related, and since there are other syntactic effects of the verb-raising parameter, there may be other sources of positive evidence to trigger the knowledge that verbs do not raise in English; I return to this question in the discussion.) It should be noted that the claim that negative evidence may be required in situations like this does not imply that UG does not operate in L2 acquisition; L1 learners do not need or use negative evidence because they do not get themselves into this kind of problematical situation in the first place, assuming the operation of the Subset Principle (Berwick, 1985; Wexler and Manzini, 1987). In other words, the possibility that negative evidence may help the L2 learner is consistent with the assumption that parameter settings of UG are still available, but not always accessible directly via positive evidence, because of mother tongue influence.

#### **IV Hypotheses**

The following hypotheses will be investigated in this paper:

1) L2 learners will assume that L1 parameter settings are appropriate for the L2. In particular, French learners of English will assume that SVAO is a possible English word order and that SAV is not, in accordance with the verb-raising value of the parameter.

2) Specific teaching (including negative evidence) on English adverb placement will be effective in helping French learners of English to master the fact that English allows SAV order and disallows SVAO. Simple exposure to English (positive evidence) will not allow them to learn that SVAO is prohibited.

3) Learners will show evidence of a clustering of properties in accordance with the parameter, i.e. learners will either inappropriately adopt the French value (\*SAV, SVAO) if they fail to reset, or correctly adopt the English value (SAV, \*SVAO).

## V The experiment

### 1 Subjects

In order to test these hypotheses, an experimental study on the effectiveness of teaching adverb placement was conducted with francophone learners of English as a second language (ESL) in the Province of Québec, Canada. Subjects were children in grades 5 and 6, in intensive ESL programmes. On entering these programmes, the children are beginners with very little knowledge of English, other than instruction received in grade 4 or grade 5, i.e., a maximum of two hours of instruction per week. In addition, they have very little contact with English outside the classroom. In these intensive programmes, five months of the academic year are devoted solely to ESL instruction. (In the remaining five months, learners receive regular subject-matter instruction in French.) The emphasis is on communicative language teaching, with little use of form-focused instruction or error-correction, although this varies from teacher to teacher.

Five classes (ranging in size from 25 to 30 students per class) participated in this study, two at the grade 5 level (average age 11 at time of testing) and three at grade 6 (average age 12). The study involved two experimental conditions: an adverb group, consisting of one grade 5 and two grade 6 classes (82 children in all), was assigned to be taught certain aspects of English adverb placement; a question group, consisting of one grade 5 and one grade 6 class (56 children in all), was not taught adverb placement but was given alternative instruction in question-formation, in order to make sure that they would not be disadvantaged by lack of familiarity with the kinds of activities used to test knowledge of adverbs.<sup>8</sup> Our assumption was

<sup>8</sup>Question formation was chosen because it was something that we wished to look at for independent reasons, as described in White, Spada, Lightbown and Ranta, 1991. Of course, word order in questions is in fact one of the cluster of properties affected by the verb-raising parameter. White (1991 and in press) provides further discussion of the fact that knowledge of this aspect of the cluster does not automatically trigger knowledge of adverb placement.



that this group would in fact receive ample positive evidence of adverb placement possibilities (but no evidence about impossibilities) in their normal classroom input. This assumption turned out to be incorrect (see the discussion in Section VI). In addition, there was a control group of 26 children (in grades 4 and 5) who were monolingual native speakers of English.

## *2 Timetable and research design*

The research timetable was as follows. After approximately three months in the programme, by which time it was felt that students should be sufficiently proficient in English to participate in the study, both groups were pretested on adverb placement using three different tasks. Up to this point, neither group had had any instruction on adverbs. Immediately after this pretesting, the teachers of the classes assigned to the adverb condition introduced teaching materials and activities on adverb placement, which they taught for the two subsequent weeks. The classes assigned to the question condition were taught question-formation during the same time period. Immediately after this teaching period, both groups were retested on adverb placement (first post-test), using the same three tasks, to see whether there were differences between the classes instructed and uninstructed on adverbs. The teachers were asked not to do any further teaching of adverbs subsequent to the first post-test. A second post-test (using the same three tasks) was administered at the end of the intensive programme, approximately five weeks after the first post-test, to see whether any differences between the groups were maintained, and also to see whether the question group might have acquired simply by exposure what the adverb group had been taught.

One year later, the grade 5 children (now in grade 6) who had been in the adverb group were followed up by being retested on all three tasks. During this one year period, they had had no further instruction on adverbs. The year had not been spent in the intensive programme; rather the children had had two 45 minute periods of instruction in English per week. Due to the unavailability of any of the original question group for this follow up, an additional class of 27 students in grade 6 was added; these children had participated in the intensive programme in grade 5, with the same teacher as the grade 5 children in the adverb condition, but received no instruction in either adverb placement or question formation. They also had only had two 45 minute periods of instruction in English per week subsequent to being in the intensive programme.

### 3 Teaching materials

Two teaching packages were specially prepared for the project, one for the classes to be instructed on adverbs and one for the classes to be instructed on questions. Teachers spent five hours of intensive work on adverb placement in the first week, with approximately two hours in the second week devoted to follow-up activities. Teaching concentrated on two kinds of English adverb: adverbs of frequency (*sometimes, often, etc*) and adverbs of manner (*quickly, slowly, etc*). Emphasis was on adverb meanings (in context), and form (specifically, positions in SVO structures). The teaching materials and activities emphasized that these adverbs could go in a variety of positions in the sentence: ASVO, SAVO, SVOA, but not SVAO. Teaching deliberately concentrated on sentences with main verbs and no auxiliaries. There was no attempt to teach the kind of subtle meaning differences that can result from placing adverbs in the various different positions (see Jackendoff, 1972, for discussion). A number of contextualized activities were devised, to give the children a chance to use adverbs. Teachers were encouraged to point out and correct errors, as were the children. Activities included the following: trying out various different word orders using words on cards, judging the correctness of sentences and correcting them if necessary, putting scrambled sentences into correct orders, making preference judgements between different versions of the same sentence. Since similar activities were used in our tests, the question group also was taught using such activities, so that these subjects would not be at a disadvantage when it came to doing things like error correction, preference judgements or sentence manipulation during the post-testing.

All teachers taking part in this study were native speakers of English. This was crucial, since the persistence of SVAO forms in the speech of native speakers of French who are otherwise very accurate bilinguals is well-known; it was important that the children should not get misleading input from their teachers, and that the teachers should notice any relevant errors.

### 4 Tests

Three different tests were devised to test knowledge of English adverb placement, and they were used on all four testing occasions. The tests covered the following frequency and manner adverbs (a subset of those included in the teaching materials): *often, always, sometimes, usually, quickly, slowly, quietly, carefully*. The following adverb

positions were tested with transitive verbs: ASVO, SAVO, SVAO, SVOA. In addition, some sentences included intransitive verbs followed by PPs, testing the following positions: SVAPP, SAVPP. In all the tests, care was taken to use simple vocabulary and sentence structures.

In addition, a measure of their general proficiency in English was provided by the English proficiency test of the Ministry of Education of Québec (MEQ test) which all three adverb groups and one of the question groups took at the end of their intensive programme. Subjects also filled out a background questionnaire.

*(a) Grammaticality judgement task:* One of the tests was a written grammaticality judgement task in the form of a cartoon story. The format of a continuous story was chosen in order to give a context for the sentences to be judged. Subjects had to read the story and correct any sentences that they thought incorrect by indicating word order changes with arrows. There were 33 sentences in the story, of which 16 involved adverb positions (both permissible and impermissible). Six of the eight test adverbs were included in the story, each adverb occurring two or three times in the story, and each position being tested with two to four different adverbs. There were also 10 other grammatical sentences, and seven ungrammatical distractors.

*(b) Preference task:* Another test was a written preference task which consisted of pairs of sentences. Subjects had to read each pair and then circle one of the options beneath it, as in (9):

- 9) a. Susan often plays the piano.  
b. Susan plays often the piano.  
only a is right    only b is right    both right    both wrong    don't know

This has the advantage of preference tasks, in that it limits what the subject has to think about, since two sentences are presented for consideration which differ only in syntactic form. It also has the advantage of judgement tasks, in that one is nevertheless getting an outright judgement in the case where one sentence is preferred over the other.

There were four versions of this test, each consisting of 32 sentence pairs, of which 28 covered the various adverb positions and the rest were distractors. Two versions had different sentences in them, and each of these versions occurred in two orders. All adverbs and positions were tested on each version. Subjects were randomly assigned

to a particular version at the pretesting, and subsequently took the same version in a different order.<sup>9</sup>

*(c) Manipulation task:* The third task was a sentence manipulation task where subjects were tested individually. The subject was handed a set of word cards and asked to form sentences using these words. Each adverb was tested with a different set of cards. Subjects would be handed the first set (randomly shuffled) and asked to lay out a sentence using all the words. Then they were asked if they could make another sentence using the same words, and so on until they could do no more. They were then presented with the next set of cards, and the procedure was repeated. Responses were entered on a response sheet by an experimenter. There were two versions of this test, each testing two of the frequency and two of the manner adverbs, three of the sentences being SVO in form, and one being SVPP. Children were randomly assigned to one or other version at each test session. In other words, each child manipulated four different sentences at each test session, responding with anything from one to four different orders for each sentence.

Subjects took on average 10–20 minutes to complete each of the preference and judgement tasks, and individual testing on the manipulation task took 5–10 minutes per child.

## 5 Results

*(a) The main study:* The results reveal clear differences between the adverb and question groups on all three tasks. There proved to be no significant differences between the grade 5 and grade 6 levels in either the adverb or question condition, so the results will simply be discussed in terms of the two main groups: those taught adverbs versus those taught questions.

The difference between the group test scores on the MEQ test of English proficiency was significant, ( $F(3,106) = 10.48, p = 0.0001$ ). Post-hoc Scheffé procedures ( $p < 0.5$ ) show that the three classes instructed on adverbs were not significantly different from each other. The highest average score on this test (75%) was achieved by the grade 6 question group, their performance being significantly better

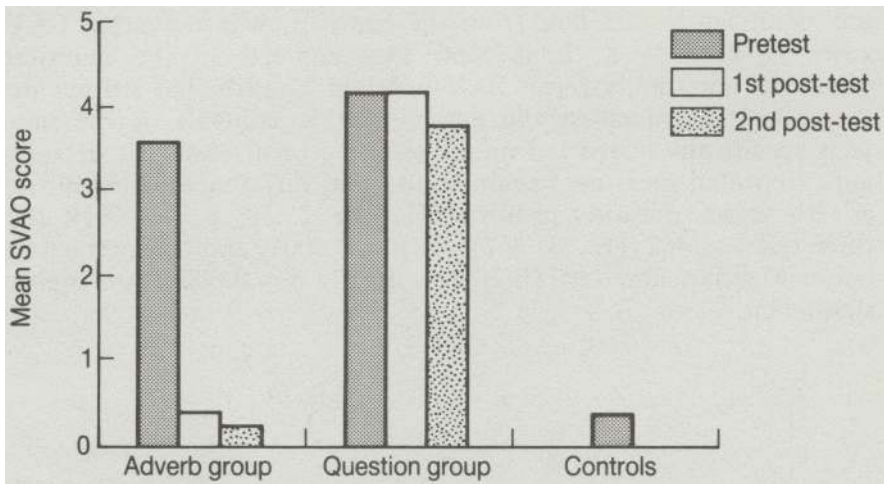
<sup>9</sup>The reason for the two different versions was that we had too many sentences to reasonably include in one task. The reason for the different orders was to reduce ordering effects. Originally, it was intended to assign children randomly to the different versions at each test session (as was done in the manipulation task). However, pilot testing appeared to suggest that there might be an effect for version, and so children were assigned to the same version each time, though not the same order. In fact, the results show no significant effects for version or order.

than the grade 5 adverb group (average score 54%) and one of the grade 6 adverb groups (average score 58%) but not significantly different from the other grade 6 adverb group (average score 64%). Unfortunately, the grade 5 question group did not take this test.

(i) *The grammaticality judgement task (cartoon)*: The grammaticality judgement task was scored in the following way. Each subject was assigned an SVAO error score, which is made up of responses to any SVAO sentences which are left unchanged (maximum 4 in the test) plus any other adverb sentences whose order was incorrectly changed to SVAO. In principle, 16 is the maximum error score, since there were a total of 16 sentences involving adverb placement in this task. However, sentences could in fact be altered to one of several correct orders as well as the incorrect one. The actual SVAO error scores vary considerably between individuals, from 0–10.

The test contained seven ungrammatical distractor sentences, which were included to make sure that subjects were indeed capable of doing the task (i.e., judging and correcting incorrect sentences), and that they were paying attention to it. Any subjects who altered fewer than three of the distractors have been eliminated from the analysis of this task, since they appear to have a tendency not to change sentences in general, in which case failing to correct an SVAO sentence would not be very revealing of their competence on adverb positions in English. This leaves 37 of the adverb group and 38 of the question group who passed the distractor criterion each time they took this test. Their SVAO error scores are presented in Figure 1.

On pretesting, both groups make an average of 3.5–4 SVAO errors (involving both manner and frequency adverbs). This error score drops dramatically in the case of the adverb group (to less than 0.5 errors) at the first post-test, and stays low (0.25 errors) at the second post-test. In contrast, the question group's average error rate remains at about 4 on both post-tests. Analysis of variance (repeated measures) shows that differences between the adverb versus question groups ( $F(1,73) = 89.61$ ,  $p = 0.0001$ ), and the three test sessions ( $F(2,73) = 49.43$ ,  $p = 0.0001$ ) are highly significant, as is the interaction between groups and test sessions ( $F(2,73) = 39.13$ ,  $p = 0.0001$ ). Post-hoc Scheffé tests ( $p < 0.05$ ) show that there is no significant difference prior to instruction between adverb and question groups, and both differ significantly from the native speaker controls. At the two post-tests, the performance of the classes instructed on adverbs is not significantly different from the native speakers. There is no significant difference between the question group's scores on the three test occasions, suggesting no improvement over time in the absence of appropriate teaching. In contrast, the



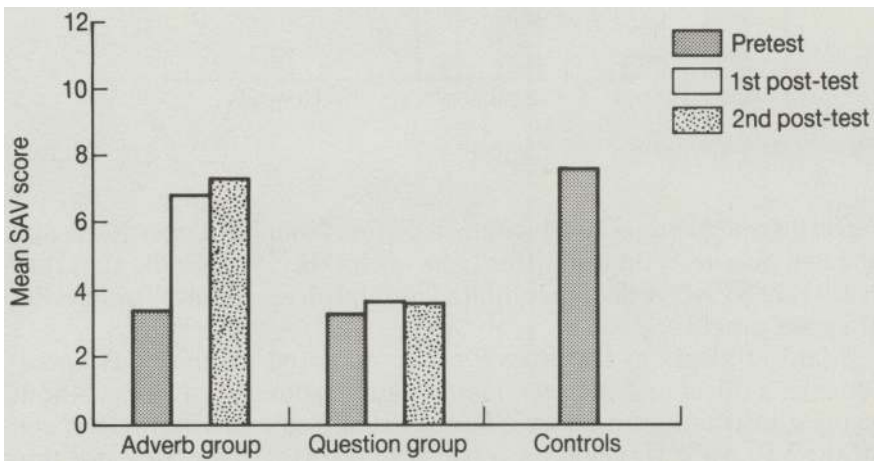
**Figure 1** Judgement task: SVAO error scores

adverb group's pretest performance differs from both post-tests, and the two post-tests do not differ from each other, suggesting that they learn that SVAO order is prohibited in English and do not forget what they are taught.

Many students in the adverb group acquired unconscious knowledge of a difference between manner and frequency adverbs without explicit instruction: manner adverbs usually sound better at the end of the VP, while frequency adverbs sound better in the SAV position (i.e., near INFL). In their responses to the incorrect SVAO sentences in the judgement task, the native speaker control group would move the adverb to the SAV position if it was a frequency adverb and to the SVOA position if it was manner. Two of the three classes that were taught adverbs also showed this pattern of error correction, even though this point was not covered by the instruction. However, the class with the lowest level of proficiency in English almost invariably moved the adverb to the SAV position, regardless of whether it was frequency or manner.

Subjects were also assigned an SAV score on this task, calculated by adding responses to any SAV sentences which were left unchanged plus any other adverb sentences whose order was changed to SAV. SAV responses are correct in English. Once again, 16 is the maximum possible SAV score. These results are presented in Figure 2. The pretest average SAV score is similar for both experimental groups, at just under 3.5. The question group's scores at both post-tests remain near this level (3.6), whereas the adverb group's use of SAV order increases significantly to a mean of around 7, becoming

not significantly different from the controls, whose average SAV score is close to 8. It is clear that subjects in the question group do not totally reject SAV order in English, but neither do they use it as much as the native speaker controls or the subjects specifically instructed on adverb placement. Analysis of variance (repeated measures) again shows that differences between the adverb versus question groups ( $F(1,73) = 25.89$ ,  $p = 0.0001$ ), the three test sessions ( $F(2,73) = 21.59$ ,  $p = 0.0001$ ) and the interaction between group and test ( $F(2,73) = 16.57$ ,  $p = 0.0001$ ) are highly significant.



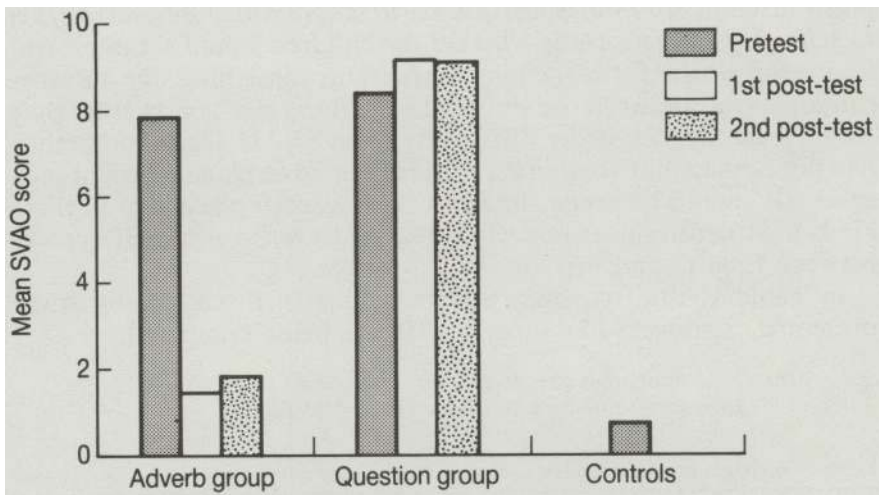
**Figure 2** Judgement task: SAV scores

In summary, these analyses of the results from the grammaticality judgement task show clear differences between the adverb and question conditions, not only for the ungrammatical word order which appears to require negative evidence for disconfirmation (i.e., SVAO) but also for the grammatical word order that presumably occurs in the English input (SAV) even when it is not explicitly taught. These differences are maintained beyond the immediate teaching period. In other words, explicit evidence in the classroom (both positive and negative) appears to be more effective in helping L2 learners master the relevant properties of English than naturalistic positive evidence alone. Results from the other tasks confirm these findings.

(ii) *Preference task:* The preference task results were analysed like the grammaticality judgement task, that is by assigning an



SVAO error score to each subject, calculated by looking at the 12 pairs of sentences on each test that compare an SVAO position (ungrammatical) with some other adverb position (grammatical).<sup>10</sup> The error score for an individual subject consists of any preferences for the SVAO position plus any answers that rate SVAO and the other sentence to be 'both right'. These results are presented in Figure 3.



**Figure 3** Preference task: SVAO error scores

The SVAO error scores on the preference task reveal parallel trends to those found in the judgement task. Analysis of variance (repeated measures) again shows a significant effect for adverb versus question groups ( $F(1,115) = 269.13$ ,  $p = 0.0001$ ) and for test sessions ( $F(2,115) = 95.66$ ,  $p = 0.0001$ ), as well as a significant interaction ( $F(2,115) = 103.25$ ,  $p = 0.0001$ ). Post-hoc Scheffé tests ( $p < 0.05$ ) reveal no significant difference between adverb and question groups on the pretest, where subjects show an average of about 8 errors, differing significantly from the native speaker controls, whose average error score is 0.7. On the two post tests, the adverb group's error scores drop to an average of about 1.5, which does not differ significantly from the controls, while the question group continues to show an average of 9 SVAO errors.

<sup>10</sup> An SAV score is not reported here. This is because (on this particular task only) a preference for the SAV sentence alone is sometimes accurate (if the other sentence is SVAO) and sometimes inaccurate (if the other sentence is some other grammatical word order).



In Tables 1 and 2, the structures that are compared involve adverbs in sentences with intransitive verbs followed by prepositional phrases, i.e., SAVPP and SVAPP. The position of adverbs in such cases was deliberately not taught to the children, in order to see whether they would reveal unconscious sensitivity of structural differences between SVO and SVPP sentences without being taught this. In particular, manner adverbs can appear between the verb and a prepositional phrase in English, but frequency adverbs sound quite bad in this position (compare *John walks quickly to school* with *John walks often to school*). Of interest was whether the children would simply learn, as a result of the form-focused instruction, something like ‘adverbs cannot appear between the verb and something else’, or whether they would treat SVAPP order differently from SVAO even though they had not been taught anything specific about adverb placement in such cases. (It should be noted, however, that adverb placement in these kinds of structures does not relate directly to verb-raising differences between English and French.)

In Table 1, the frequency adverb results in these structures are presented. Sentences like those in (10) are being compared:

- 10) a. Jane sometimes goes to the movies (= SAVPP)  
 b. Jane goes sometimes to the movies (= SVAPP)

**Table 1** Preference task – frequency adverbs: SAVPP versus SVAPP choices, in percentages

|            | Adverb group |                 | Question group |                 | Controls |
|------------|--------------|-----------------|----------------|-----------------|----------|
|            | Pretest      | First post-test | Pretest        | First post-test |          |
| Both right | 26.92        | 7.19            | 28.97          | 41.67           | 15.38    |
| Both wrong | 7.05         | 2.61            | 9.35           | 7.41            | 0.0      |
| Don't know | 3.21         | 0.0             | 5.61           | 1.85            | 3.85     |
| SAVPP      | 18.59        | 81.7            | 17.76          | 13.89           | 75.0     |
| SVAPP      | 44.23        | 8.5             | 38.32          | 35.19           | 5.77     |

It can be seen that the control group has a strong preference (75%) for the SAV order. The adverb group reflects this preference (81.7%) at the first post-test, in contrast to the question group (13.89%). Thus, it might appear that the classes instructed on adverbs do indeed make the correct assumptions about how to treat adverbs when intransitive verbs are involved. However, the results from frequency adverbs are also consistent with a strategy of avoiding anything between the verb and other material in the sentence.

The results from manner adverbs are more revealing here; they suggest that the learners instructed on adverb placement have not been able to arrive at the difference between permissible adverb positions in transitive and intransitive sentences. In sentences like (11):

- 11) a. Harry quickly runs to his house (= SAVPP)  
 b. Harry runs quickly to his house (= SVAPP)

the control group overwhelmingly considers both versions of the sentence to be correct (86.54%), as can be seen in Table 2. After instruction, the adverb group favours only the SAV order (76.62%), suggesting that they are treating SVAO and SVAPP alike, incorrectly overgeneralizing certain aspects of their instruction.

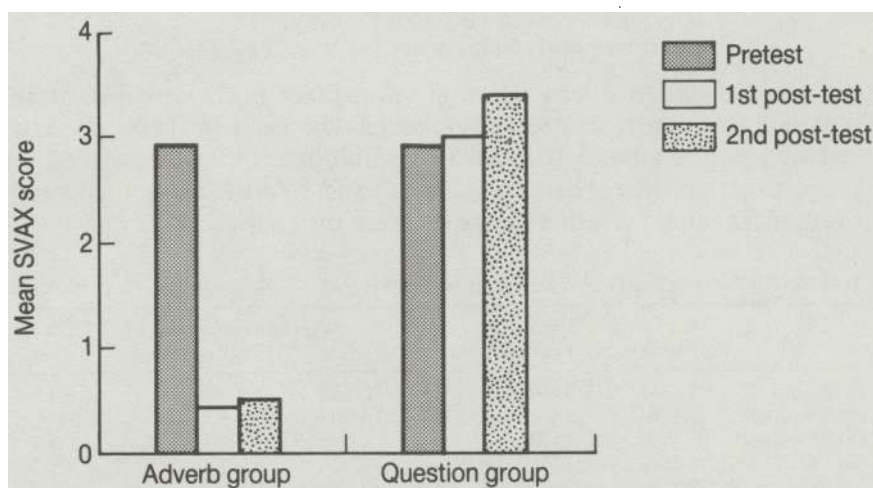
**Table 2** Preference task – manner adverbs: SAVPP versus SVAPP choices, in percentages

|            | Adverb group |                 | Question group |                 | Controls |
|------------|--------------|-----------------|----------------|-----------------|----------|
|            | Pretest      | First post-test | Pretest        | First post-test |          |
| Both right | 18.47        | 11.04           | 28.97          | 50.93           | 86.54    |
| Both wrong | 4.46         | 5.84            | 11.21          | 4.63            | 0.0      |
| Don't know | 3.18         | 1.3             | 6.54           | 1.85            | 0.0      |
| SAVPP      | 10.19        | 76.62           | 11.21          | 18.52           | 5.77     |
| SVAPP      | 63.69        | 5.19            | 42.06          | 24.07           | 7.69     |

(iii) *The sentence manipulation task:* In the sentence manipulation task, subjects were assigned an SVAX score and an SAV score, presented in Figures 4 and 5 respectively. The maximum possible average score is 4 in each case, since each subject was given four different sentences to manipulate. Each subject manipulated adverbs in three SVO sentences and one SVPP sentence (the latter involving a manner adverb). The native speaker controls, however, only manipulated the three SVO sentences. The SVAX score is effectively an error score, although the order SVAPP is not, in fact, incorrect in the case of manner adverbs, as discussed above.<sup>11</sup>

Figure 4 shows the same trends as were revealed in the other tasks. Analysis of variance (repeated measures) shows highly significant differences between the adverb versus question groups ( $F(1,133) = 183.91$ ,  $p = 0.0001$ ), and the three test sessions ( $F(2,113) = 84.1$ ,  $p = 0.0001$ ), as well as a significant interaction between groups and test sessions ( $F(2,113) = 71.71$ ,  $p = 0.0001$ ). On pretesting, both groups have an average score of 2.9. The adverb group's use of SVAX order drops dramatically to 0.44 after the teaching period and remains low (0.51) at the second post-test, whereas the question group's use of this word order increases (non-significantly) to 3 on the first post-test and 3.42 on the second. The native speaker controls never inserted an adverb between verb and object on this task, so that their average error score was 0.

<sup>11</sup> Recall that results presented in Table 2 suggest that subjects treat SVAPP exactly like SVAO; that is, an effect of instruction is that they incorrectly assume SVAPP to be ungrammatical. After instruction, they also avoid laying out this order in the manipulation task.

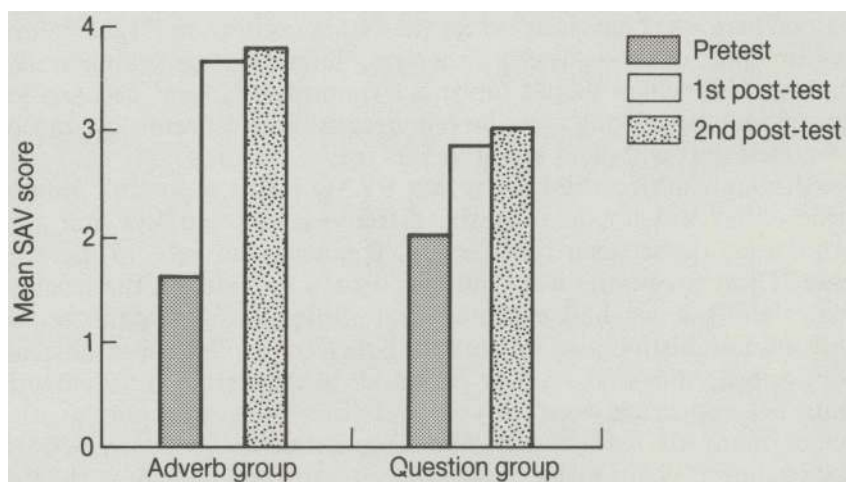


**Figure 4** Manipulation task: SVAX scores

The SAV scores on the manipulation task are presented in Figure 5. Analysis of variance (repeated measures) shows significant differences between the groups ( $F(1,113) = 6.91$ ,  $p = 0.01$ ), the test sessions ( $F(2,113) = 114.1$ ,  $p = 0.0001$ ), and a significant interaction between groups and test sessions ( $F(2,113) = 13.99$ ,  $p = 0.0001$ ). Both adverb and question groups use SAV at the pretesting (average scores of 1.6 and 2 respectively) and increase their use of this order on the first post-test (to 3.7 and 2.9) and again on the second post-test (to 3.8 and 3). The post-hoc Scheffé tests ( $p < 0.05$ ) show that the adverb group's use of SAV is significantly different from that of the question group, both at the first post-testing and at the second.

On the assumption that the first response to any sentence would represent a subject's preferred word order, the data have also been analysed looking only at each subject's initial response to each sentence, as shown in Table 3. Here the preference of all subjects for SVAX order in the pretests (49.07% of responses) is very noticeable, as is the preference of the question group for this order at both post-tests (38.03% and 43.96%). This contrasts with the control group (0% incidence of SVAO order) and the adverb group post-tests (4.22% and 2.93%); the predominant first choice of the adverb and control groups is SAV order. SAV is not totally avoided as a first response by subjects assigned to the question condition, however.

*(iv) Main study: summary of results:* To summarize, similar trends are visible in the results from all three tasks, supporting the first two hypotheses investigated in this paper, namely that French learners of



**Figure 5** Manipulation task: SAV scores

**Table 3** Manipulation task – first responses to all sentences, in percentages

|      | Adverb group |                 |                  | Question group  |                  | Controls |
|------|--------------|-----------------|------------------|-----------------|------------------|----------|
|      | Pretest      | First post-test | Second post-test | First post-test | Second post-test |          |
| ASVX | 13.66        | 42.53           | 37.13            | 20.19           | 20.77            | 10.2     |
| SAVX | 11.18        | 40.58           | 48.53            | 22.54           | 17.39            | 55.1     |
| SVAX | 49.07        | 4.22            | 2.93             | 38.03           | 43.96            | 0.0      |
| SVXA | 26.09        | 12.66           | 11.4             | 19.25           | 17.87            | 34.69    |

English would assume that English allows verb-raising past an adverb, and that negative evidence would be effective in helping them to arrive at the correct properties of English. Before instruction, SVAO is accepted by all groups as a possible English word order. Only the groups specifically instructed on adverb placement come to know that it is not possible. However, SAV is never totally rejected by any of the groups, even on pretesting. Further exposure to English was insufficient for the question group to work out the relevant properties of adverb placement, and this is so despite the fact that the grade 6 question group was the most proficient in English, scoring highest on the MEQ test of English proficiency. In other words, in this situation at least, positive evidence alone (as supplied in these intensive, communicatively-based ESL programmes) does not allow the learner to arrive at certain properties of the L2. In the period between the two post-tests, subjects in the adverb group did not forget what they had been taught. Nevertheless, it is quite possible that the knowledge

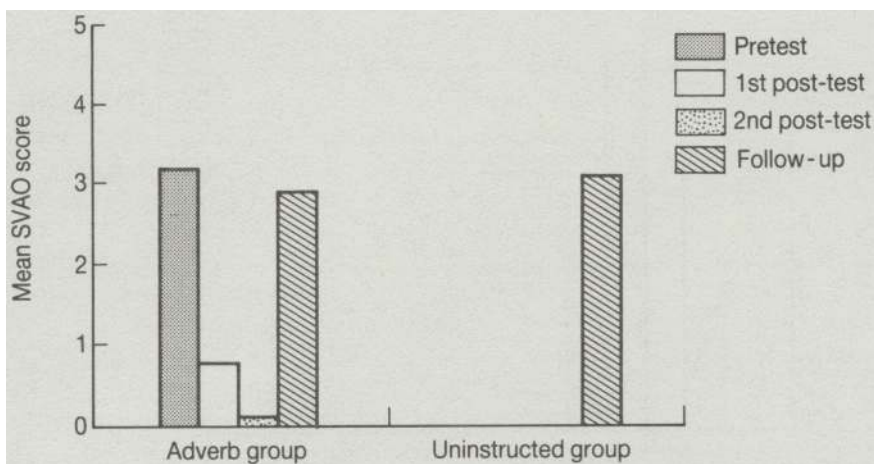
gained here was conscious rather than unconscious, and that it never became part of the learner's underlying interlanguage grammar. We had no task which would tap more spontaneous (and perhaps less conscious) use of language, largely because it is difficult to conceive of a task that will elicit spontaneous use of adverbs.

Although subjects did learn that SVAO is not a possible English order, they did not acquire the difference between VO and VPP structures, or between manner and frequency adverbs in the VPP case. These properties were not specifically included in the teaching materials, but we had expected that subjects might make certain unconscious distinctions without the benefit of explicit input. Instead, they appeared to make a very conscious overgeneralization: adverbs must not appear between the verb and other categories. On the other hand, many of them did acquire the distinction between SAV as the preferred position for frequency adverbs and SVOA as the preferred position for manner adverbs, without specific instruction on this point, and this is a distinction which cannot simply be attributed to the mother tongue, since SAV is not a possible adverb position in French.

*(b) Results from the follow-up study:* The results from the follow-up study, conducted exactly one year after the original teaching, suggest that most of what these children learned about English adverb placement is not retained in the long-term, i.e., that the instruction did not have lasting effects on their internalized competence. The follow-up involved one of the classes originally in the adverb condition, together with an additional class that had been in the intensive programme in grade 5 but had not been instructed in either adverbs or questions (uninstructed group). The adverb class retook all three tests (judgement, preference and manipulation); due to time restrictions, the uninstructed group was only able to take two of the tests (the judgement and preference tasks).

SVAO error scores from the cartoon grammaticality judgement task are presented in Figure 6. As before, children who failed to correct at least three distractor sentences have been eliminated from the analysis. Ten children passed the distractor criterion each time they took this test (i.e., at the pretest, first post-test, second post-test, and follow-up).

This group's mean SVAO error score was 3.2 on the pretest, 0.8 on the first post-test, 0.1 on the second post-test, and 2.9 on the follow-up. Analysis of variance (repeated measures) shows that the difference between mean SVAO error scores is significant,  $F(3,30) = 10.07$ ,  $p = 0.0001$ . Post-hoc Scheffé procedures ( $p < 0.05$ ) show that the difference between the mean pretest and follow up scores is not



**Figure 6** Follow-up study. Judgement task: SVAO error scores

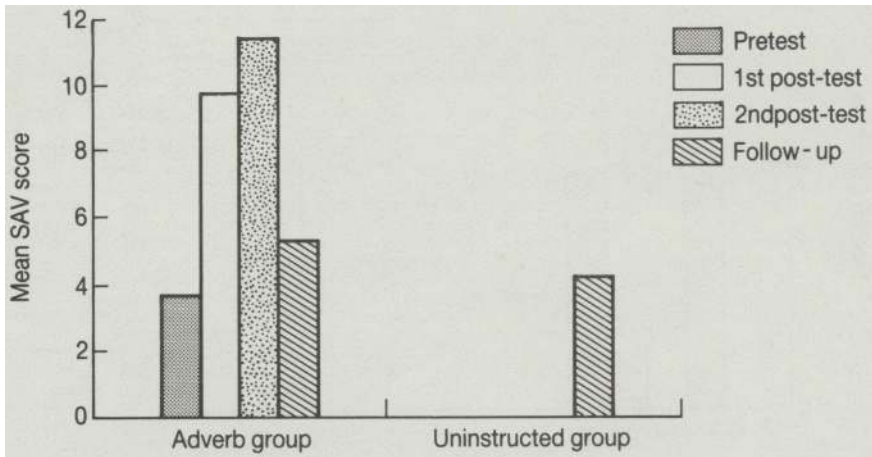
significant, while the difference between the pretest and the first and second post-tests is significant, as well as between the first and second post-tests and the follow-up testing, suggesting that these children have reverted to the state of knowledge that they revealed prior to instruction. Furthermore, a comparison of the two classes that participated in the follow-up testing shows that there is no significant difference in the mean SVAO error scores of the children in the adverb group compared with those in the uninstructed group,  $F(1,44) = 0.061$ ,  $p = 0.8057$ . These results suggest that the negative evidence (specific information as to the ungrammaticality of SVAO in English), while very effective in the short-term, did not have lasting effects.

SAV scores for this task are presented in Figure 7. Analysis of the SAV scores also suggests that the positive evidence received in the classroom as to the possibility of SAV order in English did not have lasting effects.

The mean SAV score of the 10 children reported above was 3.7 on the pretest, 9.8 on the first post-test, 11.5 on the second post-test, and 5.3 on the follow-up. Analysis of variance (repeated measures) shows that the difference between mean SAV scores is significant,  $F(3,30) = 34.997$ ,  $p = 0.0001$ . As before, post-hoc Scheffé tests ( $p < 0.05$ ) show that the difference between the pretest and follow-up scores is not significant. Comparing the two classes that participated in the follow-up testing reveals no significant difference in the mean SAV scores of the children in the adverb group versus those in the uninstructed group,  $F(1,44) = 0.227$ ,  $p = 0.6359$ .

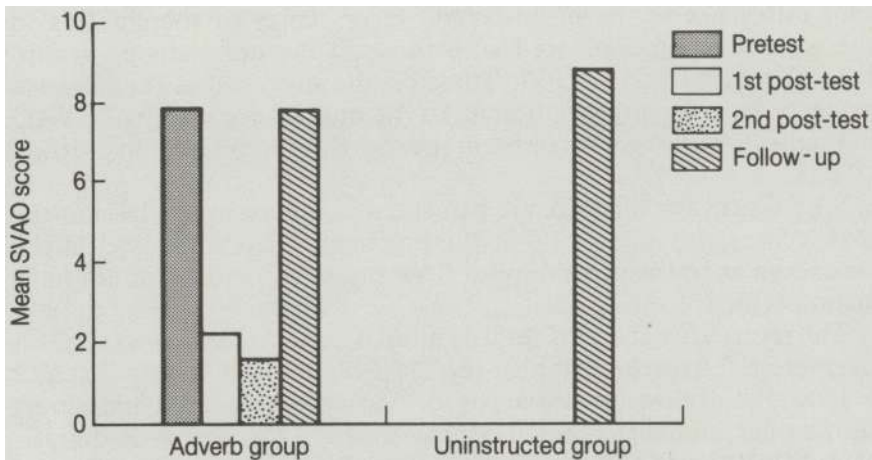


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**Figure 7** Follow-up study. Judgement task: SAV error scores

Results on SVAO errors from the other tasks are similar. In the case of the preference task, 24 children took this task on all four testing occasions. As shown in Figure 8, mean SVAO error scores were 7.86 on the pretest, 2.29 on the first post-test, 1.58 on the second post-test, and 7.86 on the follow-up.

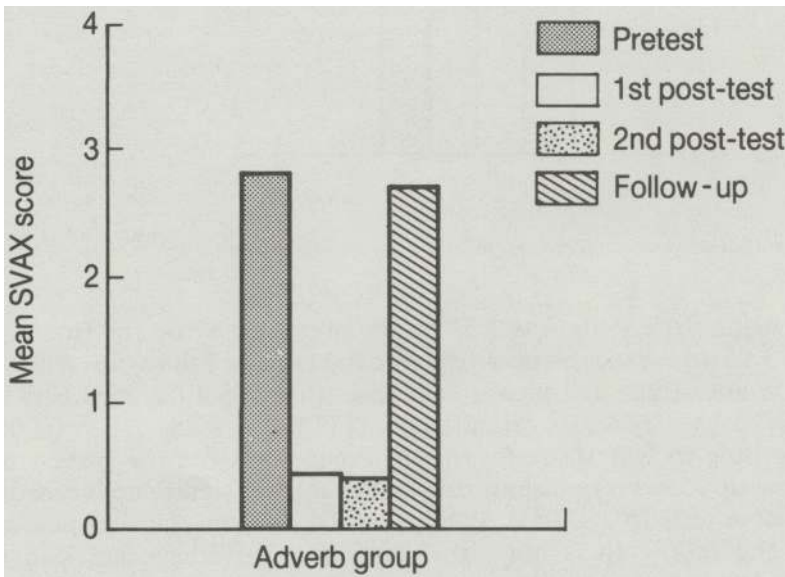


**Figure 8** Follow-up study. Preference task: SVAO error scores

Analysis of variance (repeated measures) shows that the difference between mean SVAO error scores is significant,  $F(3, 72) = 46.372$ ,  $p = 0.0001$ . Post-hoc Scheffé tests ( $p < 0.05$ ) show, once again, that

the difference between the pretest and follow-up scores is not significant, while the difference between the pretest and the first and second post-tests is significant, and also between the first and second post-tests and the follow-up testing. The two classes that participated in the follow-up testing do not differ significantly in their mean SVAO error scores, ( $F(1,50) = 6.973$ ,  $p = 0.1563$ ).

In the follow-up testing, the manipulation task was taken only by those children who had been in the adverb condition the previous year. Twenty-one subjects took this test on all four testing occasions. Their SVAX results are shown in Figure 9.

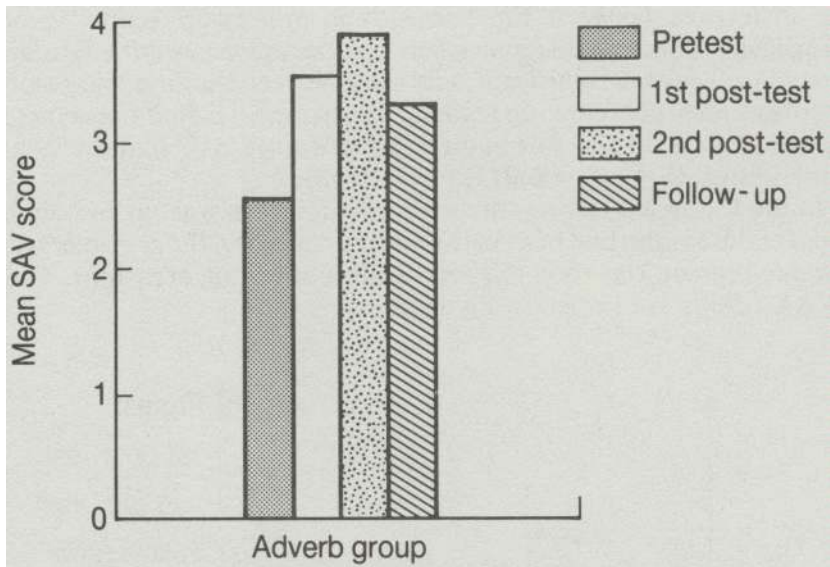


**Figure 9** Follow-up study. Manipulation task: SVAX scores

This group's mean SVAX score was 2.8 on the pretest, 0.43 on the first post-test, 0.38 on the second post-test, and 2.71 on the follow-up. Analysis of variance (repeated measures) shows that the difference between mean SVAX scores is significant,  $F(3, 63) = 30.96$ ,  $p = 0.0001$ , with Scheffé tests ( $p < 0.05$ ) revealing that the difference between the pretest and follow-up scores is not significant, while the difference between the pretest and the first and second post-tests is significant, as well as between the first and second post-tests and the follow-up testing.

As far as the grammatical SAV order on this task is concerned, there is some indication of more lasting changes as a result of the original teaching. These results are presented in Figure 10.





**Figure 10** Follow-up study. Manipulation task: SAV scores

The mean SAV score was 2.57 on the pretest, 3.57 on the first post-test, 3.95 on the second post-test, and 3.33 on the follow-up. Analysis of variance (repeated measures) shows that the difference between mean SAV scores is significant,  $F(3,63) = 8.284$ ,  $P = 0.0001$ . According to Scheffé tests, the difference between the pretest and follow-up scores is not significant (although it is significant according to Fisher tests ( $p < 0.05$ )); the difference between the first post-test and the follow-up is not significant. The difference between the second post-test and follow-up is not significant according to Scheffé (but is according to Fisher procedures). These results suggest that, for this task at least, the learners use of grammatical SAV order remains significantly higher than it was prior to instruction. (However, given that there was no comparison group for this task at the follow-up testing, one cannot be certain that this result reflects the effects of instruction.)

Another lasting change is apparent if one considers only the word orders laid out as the initial response to each sentence in the manipulation task. These are presented in Table 4, where it can be seen that instruction results in changes in the first choice of word order, which are maintained even after a year.

Prior to instruction (at the pretest), this class's predominant first response (46.73%) is the ungrammatical SVAX order. Immediately after instruction, this shifts to the grammatical SAV order (55.36%).

**Table 4** Manipulation task – follow-up (adverb group)  
1st responses to all sentences, in percentages

|      | Pretest | First post-test | Follow-up |
|------|---------|-----------------|-----------|
| ASVX | 14.95   | 26.79           | 23.08     |
| SAVX | 14.95   | 55.36           | 30.77     |
| SVAX | 46.73   | 8.93            | 27.47     |
| SVXA | 23.36   | 8.93            | 18.68     |

At the follow-up, the incidence of ungrammatical SVAX as the initial order is 27.47%, i.e., lower than at the pretest but higher than at the first post-test, and the initial incidence of grammatical SAV order is 30.77%, that is, higher than at the pretest but lower than at the first post-test. While instruction did not seem, in the long-term, to affect the children's internalized unconscious knowledge of what adverb positions are permitted in English (since they still laid out SVAX orders, and there is no significant difference in the overall incidence of SVAX order at the follow-up and on pretesting, as reported above), these results suggest that at the very least instruction may have influenced the subjects' perceptions of what order is preferred in English (assuming that the initial order reflects a preference). That is, given several possible positions for adverbs, native speakers nevertheless prefer one of these. As can be seen by referring back to Table 3, native speakers of English prefer the SAV order in this task. A lasting effect of instruction, then, appears to be that the L2 learners maintain a preference for SAV over SVAX order. One might ask why this preference only shows up in the manipulation task; this may be due to the fact that sentence manipulation gives subjects considerably more flexibility than the other tasks, in that they can choose which order to lay out first.

To summarize, results from the follow up study suggest that classroom instruction of the kind tried here has only short-term effects on the learner's knowledge of language. On all three tasks, subjects reverted to an SVAO error score which was not significantly different from their score prior to instruction a year earlier. Their scores were not significantly different from a group which had been in the same intensive programme but without special instruction. However, there were some changes in their use of SAV order, as evidenced in the results from the manipulation task.

## VI Discussion

Returning to the hypotheses investigated in this study, the first hypothesis, namely that francophone learners of English would assume the L1 value of the verb-raising parameter, is supported, in that prior to

instruction all subjects assumed SVAO to be a possible English word order, in accordance with the French value of the parameter. However, they did not wholly reject SAV order, a point I shall return to below.

The second hypothesis was that specific teaching, including negative evidence, would be effective in helping francophone learners to arrive at certain adverb placement properties of the L2, and that exposure only to positive input would be insufficient to allow them to deduce the impossibility of SVAO order. Consistent with other studies that have recently reported on the effectiveness of certain kinds of negative feedback in the classroom (e.g., Tomasello and Herron, 1988), the results from the main study here suggest that negative evidence is effective in helping L2 learners to master the fact that SVAO is ungrammatical in English, while positive evidence is insufficient. However, the follow-up study suggests that the structured classroom input did not, in this case, have lasting effects, that it did not in fact result in significant changes in the learners' underlying competence. The results from the follow-up also show that further exposure to positive input is insufficient to allow the learner to arrive at the properties of English adverb placement. Thus, while the effectiveness of negative evidence turned out to be short-term in this case, the prediction that positive evidence alone would be insufficient was supported in both the short and the long-term.

Two caveats are in order here. The first concerns the question of whether appropriate positive evidence was in fact available to the classes who were not instructed in adverb placement. Judging from audio-tapes of the teachers and from classroom observations, there is in fact very little occasion for spontaneous use of adverbs in normal interactions in a language classroom. It is possible that the differences between the groups are simply due to the fact that the adverb group got far more exposure to adverbs, and not to the fact that this exposure included negative evidence. Thus, subjects in the question condition might have failed to learn that SVAO is ungrammatical because of lack of suitable positive input rather than lack of negative input. This issue could be tested by adding a class who are 'flooded' with appropriate positive input, but no negative input. A general lack of appropriate positive input on adverb placement in the classroom may also explain why the adverb group benefited from instruction even in the case of SAV order, an order which in principle should be found in naturalistic input. Their instruction apparently was providing them with positive input that would not otherwise have been readily available.

The second caveat concerns the duration of the teaching period, and the nature of the instruction that followed it. It must be emphasized

that the adverb classes were only instructed in adverb placement for a very short period of time (five hours of instruction in the first week and two hours of follow-up activities in the second) and that there was subsequently no follow-up instruction on this topic whatsoever, nor any further feedback on errors. At the end of their intensive programme, the children went back into more traditional language classes, two 45 minute lessons per week, with a non-native speaker of English as their teacher. Thus, it may be that those exposed to negative input might have failed to retain knowledge that SVAO is ungrammatical because of lack of suitable follow up or subsequent emphasis on this issue. Other studies have reported that effects of form-focused instruction and negative evidence are more lasting if there is continuous feedback (e.g., Lightbown, 1991).

Regarding the third hypothesis, namely that L2 learners would show a cluster of properties related to one or the other value of the parameter, the behaviour of these subjects does not bear this out. The parameter links the following properties: \*SAV, SVAO (= French value) or SAV, \*SVAO (= English value) (as well as other aspects of the two languages not considered here). There are two potential consequences of this for L2 acquisition, neither of which is supported by this study.

i) According to the parameter, SVAO and SAV should not occur together. In fact, the pretest results suggest that SVAO and SAV are co-occurring in the grammars of most subjects.

ii) If the various word order possibilities are linked by the parameter, the existence of SAV order in English should constitute positive evidence that verbs do not raise, and therefore indirect positive evidence that SVAO, an order that results from raising, is impossible. The results from the question group suggest that this does not happen. These subjects appear to know that SAV is a possible English order, but this does not lead them to conclude that SVAO is impossible. Furthermore, there is a cluster of properties of English which are attributable to the lack of verb-raising, including the use of *do*-support in negatives and questions, which indicates that the main verb does not move into INFL. Such sentences could in principle provide the learner with positive evidence that verb-raising does not apply in the L2, as pointed out by Schwartz (1987). However, it is noteworthy that the group not instructed on adverbs was in fact instructed in question formation, including *do*-support; in spite of receiving this evidence that verbs do not raise in questions, subjects did not deduce that verbs do not raise past adverbs. (The issue of clustering round the verb-raising parameter is discussed in more detail in White, 1991.)

According to Pollock (1989), verb movement in French is optional in the case of non-finite verbs. A possibility that accounts for the

co-occurrence of SAV and SVAO orders in the grammars of these francophone learners is that they incorrectly take verb-raising to the optional in English, sometimes allowing the verb to raise, and sometimes not. By being specifically instructed as to the ungrammaticality of SVAO order, then, the adverb group is effectively being shown that movement is not optional but prohibited. Such information does not appear to be available in the input received by the question group.

### *Acknowledgements*

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