

THE LONG-TERM EFFECTS OF A BOOK FLOOD ON CHILDREN'S LANGUAGE GROWTH

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INTRODUCTION

During 1980, the authors demonstrated striking positive effects on the English language growth of pupils in 16 rural primary school classrooms, following a Book Flood programme in south-eastern Fiji (Elley and Mangubhai, 1981).

The project was funded by the Suva Institute for Educational Research, which raised the finance for over 4,000 children's books, from grants provided by the IYC Telethon Trust (NZ), the N.Z. Council for Educational Research, and the Fiji Gas Company.

The idea for the investigation arose from a demonstrated need to increase the exposure to English of primary school pupils in rural areas. Earlier surveys had shown that many such pupils were struggling to cope with the English language demands of their school work (Elley & Mangubhai, 1979), and there was enough evidence to suggest that a book-based approach to enriching children's exposure to English might produce a general improvement.

Thus, after a pre-testing survey of 15 primary schools in south-eastern Viti Levu, eight schools of medium size were selected, and matched in English attainments and ethnic ratios with 4 similar control group schools in the same area. In each of the Book Flood schools, the Class 4 and 5 teachers were given a supply of 250 carefully selected, high-interest, illustrated story books, and the pupils were encouraged to read them every day. Half the 16 teachers followed a "Shared Book Experience" method of reading, following a 3-day workshop and demonstration; the other half used a "Sustained Silent Reading" approach, in which pupils merely read silently from books of their own choice for 20-30 minutes each day. When compared with control groups of children in nearby schools, of comparable ability, the pupils in both Book Flood groups showed twice the expected level of progress in reading comprehension, listening comprehension and grammatical structures after a period of eight and a half months. On other tests of writing, word recognition and oral language, the gains were smaller, but considerable.

The impact of the greater exposure was clear-cut. Moreover, it entailed no extra time on English in timetable, and was obviously popular with pupils and teachers. However, it was also clear that some teachers produced much greater gains than others. Those who did not follow the recommended procedures diligently, or where the pupils read only spasmodically, found little improvement. Having the books in the classrooms was not enough. They had to be used regularly.

FOLLOW-UP STUDY 1981

Many short-term improvements in the history of educational research have shown a tendency to fade after a follow-up survey. Sometimes the pleasing results are due to an artificial spurt, produced by novelty, or unusually high levels of stimulation. In order to examine the possibility that the positive effects of the Fiji Book Flood might have been only temporary, it was decided to continue the project for a second year, through 1981. Furthermore, it was decided to investigate whether the extra year of reading would produce significant gains in writing skills also. Little improvement had been found amongst Book Flood schools in writing skills in 1980.

Thus, the pupils — who had moved on to Classes 5 and 6 levels — were given an extra set of approximately 100 books over the year, the new teachers were briefed on the methods to be used, and the pupils in both Book Flood and Control groups were retested at the end of 1981, on a variety of English language tests. As in 1980, all teachers were told well beforehand about the assessments, but none know their precise nature.

The tests used in this second assessment survey measured a number of different language skills, by means of a variety of formats. Their main features are outlined below.

(A) Class 6

1. Reading Comprehension

A multiple-choice test of 36 items prepared and trialled by the authors for another survey, and standardized on a national sample of Fiji Class 6 pupils in November 1977.

2. Vocabulary

A multiple-choice test of 35 synonym items prepared and trialled by the

authors in Suva schools. Some items were adapted from an Australian test; others from a Fijian standardized test, while others were original.

3. English Structures

An open-ended test of items, in which pupils had to complete given sentence beginning in their own words. The sentences were designed in such a way that pupils had to show mastery of given tenses, pronouns, comparative forms, etc., all of which are deliberately taught before the end of Class 6 in the SPC/Tate programme.

4. Written Composition

Pupils were given a series of four pictures, depicting a fire in a village, and asked to write the story told by the pictures in their own words.

(B) Class 5

1. Reading Comprehension

A cloze test of 40 items prepared and trialled by the authors in Suva schools. Blanks were to be filled by the pupils after approximately seven words of text.

2. Listening Comprehension

A multiple-choice test of 29 items based on six short passages read aloud by the test administrator. The test was prepared and trialled for another project, and adapted after further trials in local schools.

3. English Structures

An open-ended test of 20 items, similar to that used in Class 6, but including only those SPC/Tate structures taught by the end of Class 5.

The tests were all standardized for time, instructions, questions, and marking schemes, and the open-ended tests and written compositions were marked "blind," so that the markers did not know which group the pupils belonged to. The authors undertook all the marking with some help from a paid research assistant, but they were assisted by colleagues in the extensive testing programme.

In addition to these standardized language tests, given in November 1981, it was possible to gain access to the results of the Fijian pupils (i.e. those in 6 of the 12 schools) who took the Fiji Intermediate Examination for Class 6 pupils in July 1981. This Examination provided marks in English (2 papers), Mathematics, General Studies, and Fijian. The papers were marked anonymously by staff from the Ministry of Education, who did not know of the participation of the pupils in a Book Flood. Each of these examination papers required approximately one and a half to two hours of examining time.

All the assessments referred to above are concerned with achievement. Pupil preferences were also tapped during the November testing programme. They were asked to list their five favourite books on the back of their Answer Sheets, in order to guide the authors in planning of future projects.

RESULTS

Although 500 pupils were tested for the project in February 1980, only 457 were available for testing in November 1981, and some of these had not been involved throughout the two years. In order to make fair comparisons between the Shared Book, Silent Reading and Control Groups, it was necessary then, to equate all groups on the pupils' pre-test scores. This meant omitting 30 pupils from the low end of the Class 5 control group, and 1 or 2 pupils from the other groups. In case these omissions distorted the results, the comparisons were made a second time by means of a regression analysis, which retained all pupils in all groups, and adjusted the pupils' final test scores according to their pretest scores. As in the 1980 comparisons, both analyses produced very similar findings.

CLASS 6 RESULTS

Table 1 shows the percentage marks for Class 6 pupils on their four post-tests and the total post-test scores. As the correlations between all these tests was high (0.64 to 0.92), it was considered justifiable to add the raw scores, despite some minor differences in their distributions.

TABLE 1
Mean Post-Test Percentage Scores for Class 6 Pupils on All Tests Nov. 1981.

Test	Shared Book		Silent Reading		Control Group	
	N	Mean%	N	Mean%	N	Mean%
Reading Comp.	84	49.47	64	49.61	81	39.03
Word Knowledge	84	46.23	64	46.83	81	36.89
Gram. Structures	84	43.90	64	42.13	81	30.37
Written Comp.	84	50.10	64	51.70	81	35.60
Total	84	47.43	64	47.57	81	35.47

Bearing in mind that all groups were equal on their pre-test mean scores in February 1980, it can be seen from Table 1 that, on all Class 6 tests, the Shared Book and Silent Reading groups had made significantly more progress than the Control group pupils. The difference was 10-12% in all cases. In case these mean percentages seem low to the reader, it should be stressed that the tests were designed to be sufficiently difficult that the better pupils did not score near full marks. Otherwise their actual performance level might be underestimated because of a "ceiling effect" on the tests. Nobody can score above the ceiling (= 100%) regardless of their ability. A score of 50% on any of these tests denoted very good performance for rural pupils. For instance the national mean score on the Class 6 Reading Test in 1977 (including city children) was 50.1%

There was no significant difference between the two Book Flood groups in any test, (as was also the case in 1980). However, it will be shown that some teachers in the Shared Book group did not follow the method conscientiously, and this appeared to lower their pupils' marks.

CLASS 5 RESULTS

Table 2 shows the mean percentage scores for Class 5 pupils on all post-tests and on the Totals.

TABLE 2
Mean Post-Test Percentage Scores for Class 5 Pupils on all Tests

Test	Shared Book		Silent Reading		Control Group	
	N	Mean%	N	Mean%	N	Mean%
Reading Comp.	65	39.00	68	40.53	62	22.95
Listening Comp.	65	41.96	68	40.28	62	28.92
Gram. Structures	65	38.60	68	40.80	62	25.25
Total	65	39.85	68	40.54	62	25.71

It is plain that the results for Class 5 are similar to those of Class 6. The means for the Book Flood groups are consistently ahead of those of the Control Groups, by 12%-17%, and once again, the differences between the Shared Book and Silent Reading groups are only very slight.

FURTHER ANALYSES

Tables 1 and 2 show the results when the pre-test scores were equated, and 30 control group pupils were dropped. In case these omissions distorted the

results, a re-analysis was undertaken using residual gain scores and all pupils. As the findings were very similar they will not be repeated here. However, it is of interest to use this approach to examine the school-by-school trends during 1981. Did the pupils in the Book Flood schools improve in relation to their performance at the end of 1980?

To do this, the total scores for all pupils at both class levels were computed for 1980 and 1981 and correlated ($r = 0.81$ and 0.94 for Classes 5 and 6 respectively). Then, each pupils' total score in 1981 was predicted from his 1980 total score, and a comparison made of the residuals (discrepancies) for all pupils in each group. Table 3 lists the mean residual scores for each school, and for the total for Class 6. Each pupils' expected residual is 0. Therefore a positive mean score for a group indicates above average progress; a negative value shows below average gains.

TABLE 3
Mean Residuals for Total Scores Showing Progress by Schools during 1981:
Class 6

School No.	Shared Book		Silent Reading		Control Group	
	N	Mean	N	Mean	N	Mean
1	20	7.25	22	-1.95	16	-1.19
2	22	6.73	12	11.08	25	-1.00
3	27	-9.89	6	2.33	16	-4.37
4	12	1.92	27	3.56	28	-3.25
TOTAL	81	0.60	67	2.99	85	-2.41

In comparison with their end-of-year scores in 1980, 6 of the 8 Book Flood classes show above average improvement. There has been no slipping back in these cases. On the other hand all Control Group classes lost ground in relation to the Book Flood groups. A similar situation is found in Class 5 (See Table 4). With a few exceptions, due largely to staffing problems, or disinterested teachers, the Book Flood children have continued to develop in their English language skills faster than the Control groups. Where they have not, the majority of the pupils are still more advanced than the control groups, because of the greater progress they made in 1980.

TABLE 4
Mean Residuals for Total Scores Showing Progress by Schools
during 1981 Class 5

School No.	Shared Book		Silent Reading		Control Group	
	N	Mean%	N	Mean%	N	Mean%
1	15	-2.33	27	5.93	10	-1.70
2	15	7.73	14	-0.79	25	-5.72
3	25	2.72	14	6.36	26	-3.46
4	15	0.47	20	-0.55	36	-3.11
Total	70	2.23	75	3.03	97	-3.73

INTERMEDIATE EXAMINATION RESULTS

Even more striking than the test findings reported above are the comparisons based on results of the Fiji Intermediate Examination, taken in July by all Fijian (but not Indian) pupils in Class 6. The mean percentages for each examination are reported in Table 5. The two English papers — Comprehension and Composition — were combined and averaged for this comparison, as the correlation between them on this sample was very high ($r = 0.87$).

TABLE 5
Mean Percentage marks from Fiji Intermediate Examinations for each
Group: Class 6: July 1981.

Examination	Shared Book		Silent Reading		Control Group	
	N	Mean%	N	Mean%	N	Mean%
English	58	65.64	51	54.84	38	49.19
Maths	58	58.64	51	56.57	38	46.13
Gen. Studies	58	57.88	51	54.75	38	46.82
Fijian	58	59.21	51	58.22	38	52.82
Total	58	61.40	51	56.35	38	48.83

All pupils in the 6 Fijian schools who took the Examination were included in this analysis, whether they were present for the 1980 pre-test or not. A subsequent analysis of those pupils who did participate in the project from the start, showed only slight differences in the pre-test means of the three groups. This finding strengthened the view that there were no systematic differences between the three groups of Fijian pupils in February in 1980.

Of prime interest is the comparison in English. Clearly the Shared Book groups (65.64%) showed much greater achievement than the Silent Reading or

Control groups. The relatively better results from the Shared Book group is partly explained by the fact that these results apply only to Fijian pupils, and it was mainly non-Fijian pupils who upset the pattern of Shared Book superiority in Tables 3 and 4. Apparently, then, the book-based programmes have helped students to perform well in an examination of all the normally assessed aspects of English — reading, writing, grammar and mechanics of English. These results support the test findings reported above. Expressed another way, it was found that in the English Examinations, the Book Flood groups had a pass rate of 75%; the Control groups pass rate was only 37%, which is typical of rural schools.

Of comparable interest is the clear demonstration in Table 5 that improvement in English has spread its effects to other subjects. The combined Book Flood groups performed better in Mathematics (by 11.5%), in General Studies (by 9.6%) in Total score (by 10.2%), and even in the Fijian Examination (by 5.9%). Apparently, progress in English, using a high-interest book-reading approach, is not gained at the expense of the vernacular. Whether the growth in Fijian is attributable to a more positive attitude to school work in general, or to some positive transfer of general language skills, is not clear, but it certainly provokes an interesting question.

DISCUSSION OF RESULTS

All indications point to the conclusion that the significant improvements shown in 1980 for the Book Flood groups continued during 1981. The figures of Tables 3 and 4 demonstrate that for most classes the gains increased in the second year. The effects of a rich exposure to the printed word are not short-lived.

Amongst the more interesting findings are the clear improvements in the pupils' writing and grammatical structures during 1981. The written composition test assigned to Class 5 pupils in November 1980 showed only marginal improvements over those of the control groups. In 1981, however, the Book Flood pupils showed highly significant growth in their fluency, their imagination, their range of vocabulary, and their freedom from mechanical or grammatical faults.

One way to dramatize the difference between the groups in writing style is to quote from some typical essays written by the pupils in contrasting groups. As mentioned earlier, the task assigned was to write about four pictures showing a fire in a village. The modal (most frequent) score given in the Shared Book group was 9 out of 10. Sample openings of stories which were given a score of 9 were as follows.

"One morning when Luke's mother was washing, and the men were drinking yaqona, Luke was boiling the water."

"One day, Tomasi's mother was washing clothes beside the river, Tomasi's father was drinking yaqona under a shady tree, Tomasi was cooking the food beside their house, and his brother was carrying buckets of water."

By contrast, the most frequent mark in the Control Group was 2 out of 10. These compositions usually had at least 12 grammar or spelling mistakes in first 15 lines; they showed no fluency or 'sentence-sense', and the story was often incoherent.

Some examples (given a mark of 2) from the Control Group were:

"Is ther was the women in the tree. mothe sitg
in the tree there was a looking at hes mother"

"One day there boy Seru is make the tea to drinking
his morth was the colth"

"One day morning their were a house any village by
the sea"

It is tempting to conclude that the Book Flood pupils had reached a threshold level in their language growth which enabled them to exploit their passive vocabulary and to produce more fluent interesting language of their own, an accomplishment which the Control group pupils were not ready for.

A parallel improvement was found in the open-ended completion test of the English grammatical structures taught in Class 6 in the SPC/Tate Oral programme. According to the proponents of this syllabus, pupils should progress systematically through the assigned structures in a linear sequence, and avoid attempting new structures until earlier ones have been mastered. On this assumption, pupils should not read uncontrolled material, until they have mastered orally the structures they will encounter in their books. However, the Book Flood exposed pupils to a great diversity of language items, in hapazard sequences. If a linear sequence is necessary one would expect the Book Flood pupils to make many more errors. In fact, the findings showed otherwise. At both Class 5 and 6 levels the regular readers made significantly fewer gramamtical errors, as well as writing more interesting and adventurous responses.

The findings clearly question the assumption that language learning is a "brick-by-brick" method, where pupils are exposed to one structure at a time. On the contrary, the results seem to suggest that language learning is more efficient, at Class 4 to 6, at least, if pupils are exposed to a wider range of structures and vocabulary, providing such exposure is through interesting stories that intrinsically excite the attention of children.

In this matter, it is instructive to look at how a child learns his first language. He is exposed to a wide range of the language, in different contexts, in genuinely communicative situations. It is from these many instances of language in use that the child internalises the rules of the language, so that by the time he is ready to start formal education he has built up for himself a repertoire of structures and vocabulary of his language. The present authors would like to suggest that in the Book Flood programme, pupils are likewise exposed to a wide range of language, in genuinely communicative contexts, and hence, like children learning their first language, they learn their second language at a faster pace than in the normal programme followed in Fiji primary schools.

Finally, it is an acknowledged fact that many teachers of English in primary schools in Fiji (and in the South Pacific) have an imperfect mastery over the language, and therefore frequently provide poor models of English for their pupils. Books, on the other hand, where they are properly edited, provide good models of English, thus helping pupils towards the full mastery of the language, which is the goal of language teaching in the South Pacific.

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