A School/Community Library "Book Flood" Experiment in Western Samoa[1]

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Introduction

During the last decade or so, research in Fiji into the acquisition of English as a Second Language (ESL) has determined that: (1), a quarter of Class 6 school children were unable to read simple English with functional understanding (Elley and Mangubhai, 1979; Elley and Achal, 1980); and (2), large numbers of primary school children were unable to read the textbooks and other school materials designed specifically to aid them in their school studies (Stamp, 1979; Elley, 1980).

What these studies drew attention to was a serious deficiency in the way that English as a second language was being taught in Fiji schools. The widespread use of the Oral English Syllabus model of language instruction (Tate, 1971) has been identified as a major contributing factor to the poor performance of Fiji pupils in English language tests (Elley and Mangubhai, 1983). In the latter's view: "The oral drills practised by the pupils have little justification as a form of genuine communication..." (p.55). Serious though this is for Fiji, what should be realised is that the Tate model for ESL teaching is still being widely used throughout the central Pacific.

There is, however, increasing evidence which points to better ways for children to learn communication skills, especially in a second language. It appears, from

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[1] This paper is based upon information contained in a report by Graham Wagner, Dick Bishop and Mataina Te'o for the IOE/USP entitled *The Fagamalo School/Community Library Research Project*, Studies in South Pacific Education No. 5, NZCER/IOE-USP, December 1987 (Revised July 1991).

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research on language development that providing children with regular opportunities to read for pleasure (Smith, 1978; Lado, 1977), along with hearing their parents and teachers reading aloud (Moore,1986), exposes these learners to "a rich range of stories" which has the consequent and significant effect of improving their language skills (Chomsky, 1979; Lado, 1977).

We know too from research on the Shared Book Method of learning English in Niue (Elley, 1980; De'Ath, 1980) and a study of a comparison between the Shared Book method and Silent Reading method in Fiji (Elley and Mangubhai, 1981) that these methods of improving first language learners' language skills also apply to ESL primary school children in some Pacific cultures. The necessary requirement for improvement to take place is a generous source of interesting books and a process by which children can interact with these books in a natural and conducive fashion (Elley, 1991).

Unfortunately, in most Fiji primary schools (Ragni, 1979), and in the experience of the authors who have both travelled and worked extensively in South Pacific island nations, there are very few English language story books in the USP region's schools. Nevertheless, following on from the Elley-initiated research into teaching ESL in the early 1980's there has been a strong interest in exploring the possibility that if any school in the region was flooded with interesting books[3], there was a good chance that its children would significantly improve their English skills.

Given that English story books are often expensive, hard-to-come-by, and usually appeal to adults as well as children, it made good sense to undertake a study that looked at sharing a flood of books through a school/community library placed in a Pacific Island school where there would be the likelihood of cooperation between a local school and the community in the use of these resources. With this plan in mind, the then Director of the Institute of Education initiated a research proposal

[3] Approximately 250 were used in the Elley and Mangubhai (1981) study.

through the USP to UNESCO for funding[4]. The application was successful, a contract was entered into and the research commenced in 1984.[5]

Aim, Objective and Hypotheses

Aim

Under the terms of a contract between UNESCO and the University of the South Pacific (USP), the Institute of Education, in conjunction with the Western Samoa Public Library Service[6], was commissioned to investigate whether the introduction of a library into a school, with few such story books, would make a significant difference over a period of time to the reading comprehension skills of its pupils.

The Research Objective/Hypotheses

Given the nature of the contract, there were three principal objectives: (1) a language study, (2) a school/community library feasibility survey and (3) an investigation of the procedures for establishing a joint-use library in a rural community. This paper reports on the first objective regarding "the relevance of library and information resources in developing and improving school children's reading levels".

To this end, and for this part of the study, it was hypothesised that the introduction and use of a school/community library in a small rural community would improve the ESL skills of the pupils at a local junior high school (experimental school) compared with a junior high school without such a library

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[4] Francis Mangubhai, the Director of the IOE/USP at the time told the first author that the idea for Book Flooding a school through a library came up during a regional conference for librarians run by the South Pacific Commission in Fiji in 1983. At the same time it was decided to seek a site for the Book Flood outside Fiji. Western Samoa was selected for the reasons mentioned later in this paper.

[5] This paper covers only one section from a larger study on the impact of a Book Flood through the agency of a school/community library in Western Samoa (Wagner, Bishop and Te'o, 1991). To better see the implications of this paper, with reference to the success of the school/community library model used in Western Samoa, recourse should be made to the entire study available through the Institute of Education, USP, Suva, Fiji.

[6] See contract details mentioned in the Wagner, Bishop and Te'o (1991) report.

(control school). A subsidiary hypothesis was that third form pupils in the top English class at the experimental school would improve their ESL skills to a higher level of competence if exposed to regular "formal" Silent Reading sessions than those pupils in the other English class at the same school, or any English class at the control school, where no such systematic and regular silent reading took place.

Method

Design

A "before" and "after" experimental design was employed, with pre-and post-tests administered to experimental and control groups (ie., schools and classes). Using a control group made it possible to more reliably measure gain given the absence of reliable standardised test results (i.e., IQ tests) to control for initial differences in reading achievement.

Because of time and financial constraints at the beginning of the project, a monitoring period of 12 months was allowed. During this period, it was planned that all third form pupils at the experimental and control schools would be given 'inferential' reading comprehension "cloze" tests. In addition, the top class at the experimental school (3A) was to receive a Silent Reading intervention treatment.

The reason for this study within a study, was to see if the 3A Silent Reading experimental group gained more in reading comprehension achievement, by being exposed on a regular basis to organised Silent Reading periods, than those who were not. This was to provide further confirmation for the "Book Flood" effect reported by Elley and Mangubhai (1981) in Fiji schools.

This notwithstanding, a necessary pre-requisite for the present study was the establishment and maintenance of a school/community library together with the introduction of a wide selection of interesting fiction and non-fiction books,

primarily in English[7]. Such a library was provided by UNESCO funding at the beginning of the study by arrangement with the school, the Western Samoa Department of Education and the National Library of Western Samoa.

Samples: Country and Schools

Western Samoa was chosen as the venue of the research for a number of reasons. First, it was outside Fiji where much of the IOE's research efforts had been directed up to that time. Second, it extended the studies on Book Flooding to a country where the mother tongue was not English and yet where English was crucial for academic studies in the secondary school. Third, there were good educational support agencies such as an extensive and well run national library service and on-the-spot coordination of the research with the library service by one of the researchers (an ex-IOE Fellow, Dick Bishop). Fourth, the Western Samoa Department of Education was prepared to give advice and provide human resources for the project. Finally, Savaii (a big island separated from the main population centres on Upolu) provided an ideal rural location where two schools, using the same curriculum, were sufficiently isolated by geography and family groupings to make regular contact between pupils and teachers unlikely.

On the advice of the Department of Education a school library was established in the junior high school in the village of Fagamalo on the island of Savaii. Once this was done, the main consideration was the question of whether the physical presence of a library in a school made a difference to the reading comprehension skill levels of the pupils exposed to such a significant language resource as a new library.

Because the village of Fagamalo was about as rural a setting as one could find on the two main islands of Western Samoa, and situated well away from the main population centre of Apia, it was expected that pupils at Itu-o-Tane JHS No.1 would have had minimum exposure to the English language, even though the secondary school curriculum in Western Samoa at the time required the pupils to

[7] Both were supplied prior to starting the study. The school provided the library (the staff gave up their staff room) and the researchers and the Western Samoa National Library provided more than 500 books. Specific details are contained in the full-scale report mentioned earlier.

be able to use the English language competently enough to sit the New Zealand School Certificate and New Zealand University Entrance examinations in the fifth and sixth forms.

Itu-o-Tane JHS No.1 was chosen as the experimental school and Savaii Sisifo (a school on the other side of the island) was chosen as the control. The fact that the schools were not the same in terms of their reading pretest scores meant that a statistical adjustment had to be employed to equate the schools on entry levels for reading comprehension. How this was done is outlined below.

Test Instruments

Third form pupils in the experimental and control schools were given a reading comprehension test made up of four graded cloze extracts (See Appendix A). The use of cloze tests for this purpose is well documented in the literature (Taylor, 1953; Bormuth, 1967; Elley, 1977). A good account of the validity, reliability and procedure for administering cloze tests is contained in Gilmore and Wagner (1985). The interpretation of the ensuing scores when used to determine literacy levels is explained in Wagner (1986).

Administration

The cloze tests were administered to all third formers in both the control and the experimental schools as parallel pre- and post-tests, initially after six months (Post-Test I). Later, when the project was extended from 12 to 18 months[8], the cloze tests were once again administered to the same pupils at both schools after 18 months (Post-Test II). In all cases the pupils at both schools were unaware that they were going to be tested until the researchers actually arrived at the schools.

Unlike the other third formers at both schools, 3A at Itu-o-Tane JHS No.1 were required to do 15 minutes of Silent Reading every day, gradually increasing to 30

[8] This is explained in Wagner, Bishop and Te'o (1991). In brief it is related to the need for longer periods in which to allow the "effects" of experimental treatments of this kind to become conspicuous. As mentioned above, the library did not open to the public until the beginning of 1985 which effectively set the study back by six months.

minutes daily. Selected reading books were to be taken into the classroom for these reading sessions. New books were to be added to this selection at the discretion of the classroom teacher and the teacher/librarian. The "Rest" of the Itu-o-Tane JHS No.1 third formers were to have access to the library through teacher-initiated visits or they were able to use the library, when it was open, as recreational readers.

On 10 May 1984, the second author visited both the experimental and control schools in Savaii to administer the cloze tests. On 12-13 November 1984 another visit was made to the two schools to administer the first retests (Post-Test I) in reading, and one year later a third visit was made to both schools to administer the second retests (Post-Test II). On the latter occasion, the silent reading intervention was dropped from the study for the reasons mentioned elsewhere in this paper.

Data Analysis

Cloze tests were marked as either "right" or "wrong" with the "right" answer being the exact replacement of the deleted words. A student's total score on the four cloze sub-tests was the number of correct replacements. When classifying the pupils' actual performances in terms of their literacy levels the following categories were used (Wagner, 1986): Frustrational = 0-34%; Instructional = 35-49%; Independent = 50% and above.

The method for measuring gain scores (technically 'residual gain' scores) is the same as the method reported and used in Elley and Mangubhai (1981, p.16). Each student's gain score was the difference between his/her predicted score (based on the pre-test cloze score) and his/her actual results in the two spaced post-tests. Again, as in the case of the aforementioned research, a constant was added to each pupil's score to eliminate negative scores during calculations.

Dropouts during the test period: In determining gain over a long period of time (i.e. 18 months), consideration had to be given to school dropouts and absences from testing sessions. A check was made on these kinds of changes in the composition of the sample over time. In terms of dropouts as a percentage of original numbers, Itu-o-Tane JHS No.1 had 16.7 percent and Savaii Sisifo 13.9 percent. In other words, slightly more pupils dropped out of Itu-o-Tane JHS No.1

than from Savaii Sisifo. The difference between the two schools was equivalent to almost two pupils; a figure of little overall significance.

A further check on the November 1984 cloze scores of the dropouts from both schools compared to the scores of the ones who remained at school until the end of 1985, showed that there was again very little difference between the "stayers" and the "leavers" (mean=16.85, sd=9.77 versus mean=16.82, sd=7.59 for Itu-o-Tane JHS No.1 and mean=22.48, sd=9.13 versus mean=23.64, sd=9.41 for Savaii Sisifo). To all intents and purposes the two schools were almost the same in terms of dropout.

Absentees at Itu-o-tane JHS No.1 - November 1985: Disciplinary action over the breaking of a school rule the day before final cloze retesting led to temporary suspensions from classes by the principal of the experimental school. This meant that a number of test subjects were absent on the day of Post-Test II. As indicated above, 14 pupils (19.4%) were missing from Itu-o-Tane JHS No.1 when post-testing took place in November 1985. This was a definite set-back to the testing programme and could have had an adverse affect upon the results. Nevertheless, as demonstrated below, the overall effect of absenteeism was considered to have had a minimal effect upon the final results.

Results

A visit to Fagamalo during the early part of 1985 confirmed an earlier suspicion that the Silent Reading study at Itu-o-Tane JHS No.1 JHS may have been corrupted. Upon investigation it transpired that the Form 3A English language teacher responsible for the Silent Reading intervention, had not fully complied with the wishes of the researchers, certainly during the period May 1984 to Nov 1984. Consequently, the results of the Silent Reading study were judged unreliable and have been dropped from this study.

While there was little raw score gain in cloze score results for the experimental school during the period May 1984 to November 1984, a raw score analysis of the Post-Test II (May 1984 - November 1985) results indicated that the top class in the experimental school (now 4A) showed an increase in the number of pupils moving to the Instructional level from 4 out of 26 on the Pre-Test to 10 out of 19

on Post-Test II. Apart from the top class at the Control school (now also 4A) which showed a smaller increase in number at the Instructional level (from 10 out of 25 to 13 out of 25) over the same period, **all other classes at both schools showed no further gains.**

Although the analysis of raw scores is one way to measure gain in reading comprehension during the test period, it is a coarse and inaccurate method which does not take into account the different levels of initial student ability which in this study were very different. A "residual" gain measure is a relatively simple technique for use in studies of this kind.

Using gain scores over the longer period of time - May 84 to November 85 - the experimental school showed a significant gain in reading comprehension levels as can be seen from Table 1.

Table 1
Cloze Mean Residual Gain Scores
for May 1984/Nov 1985 Period[9]

School	Class	N	Mean	SD
Itu-o-Tane	4A	19	25.29	5.57
Itu-o-Tane	4-Rest	27	19.45	4.96
Itu-o-Tane	**Total**	**46**	**21.86**	**5.96**
Savaii Sisifo	3A	25	19.79	5.76
Savaii Sisifo	3B	23	18.53	6.34
Savaii Sisifo	3C	20	17.66	4.38
Savaii Sisifo	**Total**	**68**	**18.74**	**5.67**

[School Total: t=2.8, df=112, p<.005]

[9] In all the cloze test results, reported scores are out of a possible total of 87 items spread over four sub-tests.

The Totals difference between the two schools is quite clearly in favour of Itu-o-Tane JHS No.1 and that difference is significant to a marked degree ($p<.005$). Furthermore, comparing the top experimental school class (Itu-o-Tane 4A) indicated that there was a significant difference greater than chance in favour of the experimental school [$t=2.21$, $df=42$, $p<.025$].

It should be noted from Table 1 that while the top class in the experimental school is markedly ahead of the top class in the control school, the Rest at the experimental school also made substantial gains by comparison with the control school. The following figure illustrates the differences between the two schools particularly well.

Note that drawing a line across both graphs at the 20 mean cloze score level will highlight the differences between the two schools.

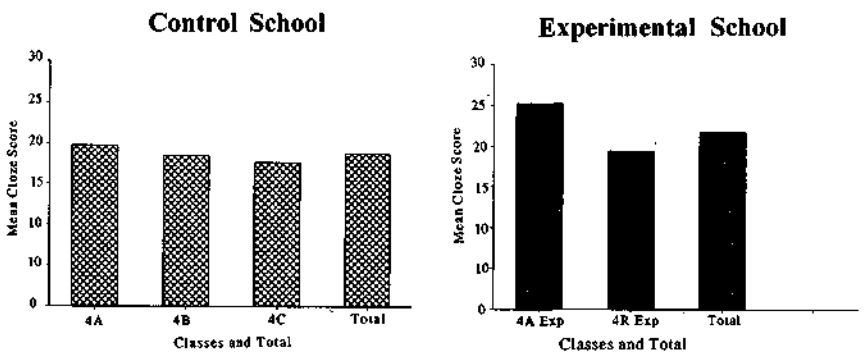

Figure 1: Cloze Mean Gain Differences for Period May 1984/Nov 1985

These findings notwithstanding, there still remained the suspicion that the rather

large number of absentees from the November 1985 testing session at Itu-o-Tane JHS No.1 may have had a bearing upon the results. To check this possibility, the November 1984 gain scores, of those who were absent in November 1985, were compared with those who remained. As indicated in the full report of this study, it was determined that the number of absentees from Itu-o-Tane JHS No.1, while not having had a significant influence upon the school's Post-Test II mean gain score results, could have had a small influence in the hypothesised direction. Thus, it was not unreasonable to speculate that if there had been no absentees from the experimental school, the experimental school's overall total, as well as those of the individual classes at the same school, would probably have increased the mean gain scores over 18 months to produce a slightly higher significant difference than the one reported here.

Discussion

The results of the present study suggest that the Itu-o-Tane JHS No.1 school pupils' interaction with their school library had a marked effect upon the pupils' reading skills during the period under study. To be more specific, when a well-stocked and comprehensive library was made available to the pupils of Itu-o-Tane JHS No.1, in the rural village of Fagamalo, the 1984 third form cohort showed marked and statistically significant gains in English language comprehension over an eighteen-month period when compared to a third form cohort in a control school.

In terms of the hypotheses for this study, there is clear support for the first (Introducing a school/community library would improve ESL skills), but little support for the second (The top third form class would make even greater gains with a formal silent reading intervention) even though there were still impressive gains in reading comprehension by the top experimental class. When the overall performance of the top experimental class is compared to the Rest of the same school (who also made appreciable gains during the 18 month test period), one is left with the impression that these gains must have been due to some form of involvement with the school/community library. What exactly that involvement was, apart from the physical presence and use of the library , is not clear[10].

[10] The impression is that there was very little use of the library in the first six months, of its existence.

In determining what form this involvement took is not a straight-forward exercise considering the difficulties faced by the researchers in gathering valid and reliable data for this study. For example, there were difficulties in assessing pupil reading comprehension achievement (associated with longitudinal studies of this kind) and with absentees and dropouts taking their toll on the original numbers in the samples. Nevertheless, careful checks on the potential for this exodus to bias the results showed that the significant gains were genuine but probably on the conservative side. Further, the use of a control school and statistical procedures involving residual gain made it possible to equate the schools on treatment induced reading comprehension achievement by cancelling out the influence of developmental growth in ability and to control for other common forms of extraneous variance.

Elley and Mangubhai (1981) found that "the solution to faster growth requires more than the presence of books in the classroom. The teacher must take an active part in getting the pupils to read them. It is also clear that in these 12 schools, rapid progress did not occur without a greater emphasis on reading."[11] Thus, as far as the present study goes, the simple presence of school library alone could not have made the difference in the performance of the 1984 Itu-o-Tane JHS No.1 cohort. There were probably a number of factors which all combined to focus the pupils' attention on the school/community library and, as a consequence, lift the general level of the experimental school pupils' ESL skills.

As the source of a large number of interesting books, and with a lending procedure in place (especially in the school year) to give the pupils access to the library so that they could take books home to read, the physical presence and relatively easy access to a school/community library must be credited with playing a significant part in encouraging pupils in the experimental school to benefit from their library experience in a statistically significant way.

The very fact that the school had a fine library, which the teachers and the community were obviously proud of, all went towards placing a greater emphasis on, and respect for, reading. Consequently, because most of the books were in

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[11] See Elley, W.B. and Mangubhai, F. (1981) *The Impact of a Book Flood in Fiji Primary Schools.* Studies in South Pacific Education, No.1, Wellington: NZCER & IOE/USP, p.29.

English and English is the language of the upper secondary school "leaving" examinations, it would appear that it was the pupils' ESL reading comprehension skills that were enhanced by the school/community library.

Conclusion

The introduction and maintenance of a school/community library in a junior secondary school in Fagamalo, Western Samoa, appears to have had a marked positive influence upon the ESL reading comprehension skills of its pupils when tested over an 18-month period. One can only speculate about the possible benefits of the Silent Reading programme had it been systematically implemented by the teacher of 3A at Itu-o-Tane JHS No.1 in the first six months of the study, but significant progress in ESL ability was noted in spite of this setback.

The gains in reading comprehension by the experimental school, particularly the experimental top class, in this study adds more evidence to support the assertion that flooding a school with interesting books, no matter what the language, markedly improves pupils' language skills (Elley, 1991). In addition, this study showed that administering a Book Flood through a school/community library is an effective way of improving skills in reading comprehension in the long term and, in essence, gives further support for the practice of Book Flooding in a variety of different contexts.

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