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ABSTRACT

This evaluation report presents the details and results of an experimental, compensatory language program designed to improve the standard English language facility of young aboriginal children on the assumption that this would contribute to improvement in reading and other aspects of academic performance. The pilot program was administered during the second half of the children's first year of school. Chapters in the report describe the language competence and school achievement aspects of the testing program, psycholinguistic abilities of aboriginal school entrants, aspects of the oral language development of aboriginal school entrants, changes in psycholinguistic abilities and oral language development of aboriginal children after one year at school, and aspects of school achievement after one year at school. Tables provide statistical details on test results and comparisons between the experimental and control groups. (VM)

DEPARTMENT OF EDUCATION
QUEENSLAND
BERNARD VAN LEER FOUNDATION PROJECT

RESEARCH REPORT ON SOME EFFECTS OF AN EXPERIMENTAL LANGUAGE DEVELOPMENT PROGRAM ON THE PERFORMANCE OF ABORIGINAL CHILDREN IN THEIR FIRST YEAR AT SCHOOL

DECEMBER, 1972

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FOREWORD

The 1969 school entrants at Cherbourg and Palm Island schools participated in a standard educational program whereas the 1970 entrants undertook the pilot version of a specially devised language development program during the second half of their first year at school. This publication reports some empirical data concerning the relative effects of the two programs on the performance of young Aboriginal children.

The evaluation forms part of the research and development project being undertaken by the Department of Education in Queensland with the assistance of a grant from the Bernard Van Leer Foundation. An objective of the project is the development of a compensatory education program for use with young Aboriginal children during their first three years at school.

The experimental first year program was primarily devised by Miss J. Koppe working with the other members of the Committee supervising the project, Dr N.W. Hart, Miss E.M. Outridge and Dr B.H. Watts and other members of our field staff, consisting at present of Mrs J.V. Bennett and Miss J. Blacklock. The program has now been revised in the light of experience in the school situation and is being made available for the guidance of teachers in schools attended by Aboriginal children throughout the State.

Mrs Bennett, Miss Outridge and Dr Watts have been primarily responsible for the preparation of the present report which has been ably prepared for publication by our office staff, Miss R. Hendriksen and Mrs J. Murray. For the unfailing help of all, I am personally indebted.

Again, it is a pleasure to acknowledge the co-operation and assistance of many people and agencies, particularly the pupils, teachers and parents at Cherbourg and Palm Island, officers of the Department of Aboriginal and Island Affairs and members of the Research and Curriculum Branch.

Invaluable assistance in administering the extensive testing programs was provided by officers of the Guidance and Special Education Branch to whom we are especially grateful.

Many people have given freely and generously of their time and expertise in bringing this and other publications resulting from the project to reality. We trust that the Aboriginal youngsters of Australia may benefit from our efforts.

N.D. Alford

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BERNARD VAN LEER PROJECT RESEARCH REPORT ON SOME EFFECTS OF AN EXPERIMENTAL LANGUAGE DEVELOPMENT PROGRAM ON THE PERFORMANCE OF ABORIGINAL CHILDREN IN THEIR FIRST YEAR AT SCHOOL

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- SUMMARY -

Observation and testing have shown that many young Aboriginal children speak a non-standard form of English. It appears, moreover, that their lack of familiarity with Standard English contributes largely to their generally poor academic success.

Assisted by a grant from the Bernard Van Leer Foundation, the Department of Education in Queensland began in 1969 a research and development project at the Cherbourg and Palm Island Community schools to explore ways of promoting the children's psycholinguistic development and academic attainment.

Language characteristics of Aboriginal school entrants

Psycholinguistic testing revealed that Aboriginal school entrants tended to be relatively proficient in abilities which depend on visual skills, immediate memory and expressive skills. However they tended to be considerably less proficient in verbal abilities involving comprehension, production and meaningful association of Standard English vocabulary and language structures. More Palm Island than Cherbourg children exhibited this lack of proficiency.

These difficulties may affect the children's understanding of the language used in classroom instruction. Their expression of ideas and wishes may be restricted and their conceptual development hindered.

The experimental compensatory language program

An experimental compensatory language program was introduced at the two communities in the latter half of 1970. The aim was to improve the children's facility with Standard English, on the assumption that this would contribute to improvement in reading and other aspects of academic performance.

The 1969 school entrants at the two communities who undertook the standard Queensland program constituted comparison groups for evaluating the relative success of the experimental program.

Effects of the compensatory program

Test results obtained by the comparison group children at school entry and after one year at school showed that their psycholinguistic abilities were relatively unchanged by the year's experience with the standard Queensland program. There was a little improvement in the comprehension of Standard English, and the production of some S.E. structures, but little progress was made in closing the gap between the children's levels of performance and those of non-Aboriginal children. Additionally, only a small percentage of children made any progress in learning to read.

On the other hand, test results of experimental group children at school entry and after one year at school showed that their levels of performance had increased dramatically after experience with the short compensatory language program. Comprehension of S.E. structures improved considerably, as did the production of S.E. structures incorporated in the special program.

Most of the children in the experimental group, particularly at Cherbourg, made significant progress in learning to read despite the absence of formal instruction in reading. Levels achieved were generally lower than those attained by non-Aboriginal children in the first year at school. The fact that so many children experienced success in contrast to the failure experienced by so many of the comparison group children during their first year at school is further evidence of the success of the program.

Greater enthusiasm and confidence appeared to result from participation in a program more meaningful to Aboriginal children than the standard program had been. Such intangible but important outcomes, together with the improved performances reflected in test results, attest to the educational value derived by the children through their participation in the special program.

Chapter 1

INTRODUCTION

Considerable research* undertaken in recent years by the Department of Education in Queensland has examined the relations between the restricted language development of a wide range of handicapped children and their school achievement. Results suggest that specialized language programs are often necessary to enable such children to make satisfactory progress in learning to read.

The comparatively poor school achievement of numbers of Aboriginal children has been of concern to educators for many years. A pilot study conducted at Cherbourg Community School in 1965 examined the extent of the deficit and suggested how greatly failure to learn to read affects children's progress in many aspects of an ordinary school curriculum.

While many Aboriginal children learn to speak English before beginning school, it has been observed that the form of English spoken by them is often different from the Standard English (S.E.) spoken by other Queensland children of the same age. Accordingly, it is hypothesized that the form of English used by the children contributes largely to their poor academic success.

In 1968, the Department of Education applied successfully to the Bernard Van Leer Foundation (The Hague, Holland) for assistance to finance a research and development project with Aboriginal children. Aided by a substantial grant from the Foundation, work was begun in 1969.

The project was conducted in the primary schools at Cherbourg and Palm Island Communities. These are two sizeable Government reserves comprised of relatively permanent residents who retain few traditional customs. While some vernacular language is spoken among the people of each community, English is the predominant method of communication and is the language acquired by most preschool children.

Cherbourg Community has a population of approximately 1200 people and is stiuated 3½ miles from a country town, and about 170 road miles north west of Brisbane, the capital of the State. The surrounding district is predominantly farming and grazing land.

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* Department of Education, Queensland, Research and Curriculum Branch. *Psycholinguistic Research in Queensland Schools, 1961 - 1966.* Brisbane: Department of Education, Research and Curriculum Branch Bulletin No. 34, 1968.

Many people have l ..anent residence for at least a generation. The people visit relatives in other areas, and visits to Brisbane are fairly frequent. There is a Government primary school in the community, and older children attend secondary school in the neighbouring country town.

Palm Island Community is situated 20 miles off the North Queensland coast. It also has a population of approximately 1200 people who were either born on the Island or are drawn from the Aboriginal people of North Queensland. Currently the majority of men are engaged in labouring or grazing work, and the women in domestic work.

Townsville, a major provincial city with a population of some 71,000, is 40 miles away from the Island, and is accessible by both air and sea. A new Government primary school was recently erected in the community, with facilities to Grade 8 which is the first year of secondary schooling. There is also a convent primary school, which is attended by approximately one-third of the Island children. Older children attend secondary schools on the mainland.

One of the major differences between the Cherbourg and Palm Island Communities is the relative degree of contact which the people have had with the Standard English patterns spoken by the majority of Queensland people. Cherbourg people generally have much closer contact than do Palm Island people. This was a major reason for the selection of the two communities for the project.

Research and development objectives

The primary goal of the project was to improve the overall academic performance of the children. It was realized that there are many determinants of this performance, including general health and motivational factors as well as cognitive and language abilities. It was decided, however, to concentrate specifically on increasing the language competencies of the children, while maintaining general concern with other factors.

A special compensatory language program was planned for children in their first three years at school. Program development was guided by research into the differences between the psycholinguistic abilities and oral language usage of Aboriginal and non-Aboriginal Queensland children.

An extensive research project involving the recording and subsequent analysis by computer of the oral language of non-Aboriginal preschool children aged two, three and four years was undertaken.* A further study investigated the oral language used by Cherbourg and Palm Island children approaching school entry age.+ The findings of these two studies provided a basis for selecting S.E. language patterns to be incorporated in the experimental compensatory program.

Testing children on entry to school provided baseline information concerning the psycholinguistic abilities and aspects of the oral language development of Aboriginal children at 5 years of age. Retesting the children at yearly intervals provided measures of the effectiveness of the standard and special compensatory programs in changing levels and patterns of abilities.

Comparison of the test results obtained by children undertaking the standard program and the special compensatory program constituted an aspect of the evaluation of the effectiveness of the two programs. The test results were also used to assist in the revision of the experimental version of the program.

The comparison and experimental groups

Because of the widely diversified environmental conditions operating in the various Aboriginal communities in Queensland, it was unrealistic to consider establishing strictly constituted control groups of children drawn from communities other than the two from which the experimental groups were drawn.

Therefore, it was decided to use as comparison groups the complete 1969 intakes of children at each experimental school. These groups began school in the year preceding the implementation of the first experimental program, and undertook the standard program.

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* For details of the procedures used and results obtained, see *Research Report on Some Aspects of the Language Development of Preschool Children.* Brisbane: Department of Education, Queensland, Bernard Van Leer Project, 1970.

\+ The results of the analysis of the language of Aboriginal children and comparison with the Brisbane samples, form the subject of a forthcoming publication.

Since comparison and experimental groups were drawn from the same schools in two relatively small, integrated communities it was impossible to prevent overflow of new ideas, techniques and enthusiasm from the teachers and children of the experimental groups to the teachers and children of the comparison groups.

Accordingly an attempt was made to create an enthusiastic learning and teaching environment for the comparison as well as experimental group children. A week's residential conference was held early in 1969 in which all teachers from both Palm Island and Cherbourg schools participated. Seminars were held to discuss the special problems experienced by Aboriginal children in learning at school. New techniques and teaching materials were discussed, and subsequently provided for use in the schools.

The complete 1970 intakes of children at the two schools constituted the experimental groups who participated in the preliminary version of the compensatory language program, which was developed during the first half of 1970.

The program was planned as an integrated approach, and occupied the entire school day. Four strands of (a) oral language, (b) reading and writing skills, (c) perceptual skills (listening, looking and touching) and (d) problem solving skills were incorporated around the previously determined language patterns.*

The 26-week experimental version was introduced into the experimental classrooms in mid-1970. Prior to this, the teachers who were to implement the program were given special orientation towards the program.+

Continuous evaluation of the implementation of activities and the children's progress was maintained through teachers' daily records. Support and advice to assist the teachers were continuously available.

The composition of the experimental and comparison groups is shown in Table 1. Because of the size of enrolments, only one experimental group was necessary at Palm Island. Two classes were created with each of the other groups.

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* For details of the aims and methods of the program, see revised version of the first year program: *Handbook for First Year Experimental Language Development Program.* Brisbane: Department of Education, Queensland, Van Leer Project, 1971.

\+ The two teachers at Cherbourg had each taught a comparison group in 1969. This measure of control was not possible at Palm Island.

TABLE 1: COMPOSITION OF COMPARISON AND EXPERIMENTAL GROUPS

	Boys	Girls	Total
Palm Island			
Comparison	22	10	32
Experimental	9	14	23*
Cherbourg			
Comparison	18	13	31
Experimental	17	18	35

This publication reports on:-

1. the language performance of Aboriginal school entrants;

2. changes which occurred in the language performances of Aboriginal children undertaking the standard and experimental programs after their first year at school;

3. aspects of the school achievement of these groups of Aboriginal children at the end of their first year at school.

A subsequent publication will report the results of later testing in relation to the development of the program for the second and third years of schooling.

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* This group is smaller than expected, since more children than usual enrolled at the convent school in 1970.

Chapter 2

THE TESTING PROGRAM

In each year of the project, language testing was conducted within the first six weeks of the school year, and school achievement testing in the last two weeks of the school year. All testing was individual with the exception of the number and concept testing, which was conducted with groups of four to six children. Although different testers participated in the testing program from year to year, efforts were made to ensure consistent presentation and scoring of test items.

This report concerns the testing of both the experimental and comparison groups at the start of their school careers and after one year at school. The tests included in this testing program are shown in Table 2.

Since two oral language tests were specially devised for use in the project, comparative data to indicate the performance of non-Aboriginal school entrants on each test were obtained from 31 children enrolled at a school in a lower socioeconomic area in Brisbane. Additionally, a comparative analysis was made of the psycholinguistic test performances of 33 average non-Aboriginal five-year olds from the same socioeconomic area.*

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* These children, whose ITPA sum of scaled scores were within 60 points above and below the mean of 360, formed part of the sample described in *Research Report on some Aspects of the Language Development of Preschool Children*. Brisbane: Department of Education, Queensland, Van Leer Project, 1970.

TABLE 2: TESTS ADMINISTERED TO COMPARISON AND EXPERIMENTAL GROUPS AT SCHOOL ENTRY AND AFTER ONE YEAR AT SCHOOL

Test	Comparison Groups (1969 intakes)		Experimental Groups (1970 intakes)	
	At school entry	After one year at school	At school entry	After one year at school
Illinois Test of Psycholinguistic Abilities (ITPA)	X	X	X	X
Peabody Picture Vocabulary Test (PPVT)	X	X	X	X
Enticknap Picture Vocabulary Test (EPV)		X	X	X
Sentence Reproduction Test		X	X	X
Oral Completion Test		X	X	X
Hull Word Recognition Test		X		X
Number Test		X		X
Program Word Recognition Test				x
Program Sentence Recognition Test				X
Boehm Basic Concept Test				X

The following is a description of the tests used.

Aspects of language competence

The most comprehensive test of psycholinguistic abilities at present available is the Illinois Test of Psycholinguistic Abilities (ITPA).+ This test assists in the diagnosis of specific abilities and disabilities in the language development of young children. The ITPA postulates three major dimensions of psycholinguistic abilities. These are: level of organization, psycholinguistic processes and channels of communication.

The two levels of organization seen to be involved in language acquisition and use are:

a) the representational level, requiring manipulation of the meaning of symbols;

b) the automatic-sequential level, concerned with memory of sequences.

The three psycholinguistic processes tested at the representational level are:

a) reception, by which information input is decoded;

b) association, by which new input is related to previous experiences, thus consolidating previously-formed concepts or establishing new ones;

c) expression, by which concepts resulting from the interaction of the preceding two processes are encoded into either verbal or gesture output.

The two processes tested at the automatic-sequential level are:

a) closure, which requires completion of pictures or sentences by supplying missing elements;

b) sequential memory, requiring the reproduction of sequences of digits and visual symbols.

The two channels of communication assessed in the test are the auditory-vocal channel (auditory input and verbal output) and the visual-motor channel (visual input and manualoutput).

+ Kirk, S.A., McCarthy, J.J., & Kirk, W.D. *Illinois Test of Psycholinguistic Abilities.* Illinois: University of Illinois, 1968.

The test is standardized so that each subtest has a mean of 36 and standard deviation of 6. Therefore the mean score on the total test is 360. The standardization enables comparisons to be made across age groups, and provides norms for children aged 2 years 4 months to 10 years 3 months. Results on the ten subtests when expressed as standard scores give a profile of performance, indicating strengths and weaknesses of either an individual child or a group of children.

The ITPA does not yield information on children's understanding of discrete words. Consequently two picture tests were selected to provide measures of the children's word knowledge. Information from these two tests supplements the information about receptive and expressive vocabulary obtained from the Auditory Reception and Verbal Expression subtests of the ITPA. It is important to consider these different aspects of vocabulary development in relation to the children's syntactic development, to give a more complete understanding of overall language competence.

The Peabody Picture Vocabulary Test (PPVT)* was selected to examine the children's listening vocabulary. Each item of the test consists of a set of four pictures from which the child selects the most appropriate picture to match the word spoken by the tester. Most of the pictures depict singular and collective nouns, while a few gerunds, adjectives and adverbs are also included. The test manual provides norms for American children aged 2½ to 18 years.

The Entick̲nap Picture Vocabulary Test (EPV)+ was selected to examine the children's naming vocabulary. The test consists of a set of pictures of objects which are presented singly to the child who is asked to name the object. The test is intended for use with preschool and early primary school children. The test manual provides norms for Australian children from 2 years to 7 years 7 months.

Changes in further aspects of the oral language patterns of both experimental and comparison children were assessed through use of two specially constructed tests.

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* Dunn, Lloyd M. *Peabody Picture Vocabulary Test.* Minnesota; American Guidance Service Inc., 1959.

\+ Entic̲knap, L.E. *A Picture Vocabulary Test for Preschool Children.* Unpublished B.A. (hons) thesis, University of Queensland, Queensland, 1956.

One of these was a Sentence Reproduction Test which contained language structures whose usage by Aboriginal children differed from that of S.E. speakers.* The children were required to repeat after the tester each of 15 sentences whose content was meaningful to them. Three of the sentences were easy items from the Sentence Repetition subtest of the Wechsler Preschool and Primary Scale of Intelligence.+ The remaining 12 sentences contained vocabulary and linguistic structures used by non-Aboriginal preschool children.**

The second test was an Oral Completion Test in which the children examined a set of 7 large coloured pictures one at a time, while the tester asked a question about the picture.‡ Each picture depicted children of different ethnic origins engaged in some activity. The tester provided the initial word or words of a sentence to cue the child's answer.

This test was also designed to elicit certain Standard English structures. Some of these were not characteristic of the language of 5 year old Aboriginal children while others were typically used by Aboriginal speakers in a manner different from that of speakers of Standard English. The children's responses were subsequently examined to assess the extent of interference which their own linguistic structures may have exercised in their performance of this task.

Aspects of school achievement

A major difference between the first year of the compensatory program and the standard Queensland first year program lay in the relative emphasis placed on oral language development. The assumption underlying the development of the special program was that improvement in reading and other aspects of school achievement would result from the children's increasing facility with the language structures and vocabulary of S.E. Thus while recognition of printed words and numbers received considerable emphasis in the standard program, this tended to receive only minor emphasis in the experimental program.

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* The list of sentences is given in Appendix 1.

\+ Wechsler, D. *Wechsler Preschool and Primary Scale of Intelligence.* New York: The Psychological Corporation, 1967.

** *Research Report of Some Aspects of the Language Development of Preschool Children.* Brisbane: Department of Education, Bernard Van Leer Project, Queensland, 1970.

‡ A description of the pictures, and a list of the questions, is given in Appendix 1.

However, it was considered desirable for comparative purposes that assessment of some traditional aspects of school achievement should be made at the end of the first school year.

Since the Hull Word Recognition Test* had been administered to the 1969 Cherbourg intake at the end of that year, it was decided to use this test also with the experimental groups to provide at least a partial index of reading achievement.

A short Number Test comprising 10 items had also been administered to the Cherbourg first year children at the end of 1969.+ This test was also used with the experimental groups in 1970.**

Two additional Recognition Tests were devised from units selected from the compensatory program. One comprised 10 discrete words and the other comprised 7 sentences.# The results of testing were used to assist in the revision of the first experimental version of the program, as well as in the evaluation of the children's progress.

The Boehm Test of Basic Concepts became available during 1970.‡ Using picture stimuli, it examines children's competence with 50 spatial, quantitative, temporal and other concepts. The test manual provides normative information about the performance of American kindergarten to second year children of differing socioeconomic status.

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* Reed, G.F. A Reading Test for Hull. *Hull University Studies in Education*, 1953, 2, 46-56.

\+ The items comprising this test are given in Appendix 1.

** Owing to practical difficulties, a similar assessment of the Palm Island comparison group children at the end of 1969 was not possible.

\# The words and sentences are given in Appendix 1.

‡ Boehm, Ann E. *Boehm Test of Basic Concepts*. New York: The Psychological Corporation, 1970.

Chapter 3

PSYCHOLINGUISTIC ABILITIES OF ABORIGINAL SCHOOL ENTRANTS

Results on the Illinois Test of Psycholinguistic Abilities (ITPA) are available for all children who commenced school at Cherbourg and Palm Island in 1969 and 1970. These results may be considered to give a general indication of the psycholinguistic abilities of Aboriginal school entrants.

Table 3 shows the mean scaled scores for each group of school entrants on each subtest as well as on the test as a whole.

TABLE 3: MEANS AND STANDARD DEVIATIONS OF ITPA SCALED SCORES OBTAINED BY ABORIGINAL SCHOOL ENTRANTS

	Cherbourg				Palm Island			
	1969 intake (n=31)		1970 intake (n=35)		1969 intake (n=32)		1970 intake (n=23)	
	mean	sd	mean	sd	mean	sd	mean	sd
Reception:								
Auditory*	27.9	5.7	26.9	5.6	25.4	5.8	23.6	5.5
Visual	31.5	5.7	31.0	6.1	29.6	5.8	29.8	5.6
Association:								
Auditory*	20.1	7.9	21.0	7.5	17.7	7.0	14.1	6.2
Visual	27.1	7.5	25.3	6.7	24.5	7.5	23.3	7.3
Expression:								
Verbal*	30.9	5.1	33.2	6.0	29.5	5.0	27.7	6.2
Motor	33.2	5.8	34.7	3.4	34.6	4.0	32.7	4.6
Closure:								
Grammatic*	20.3	3.9	19.0	4.3	17.3	4.9	16.3	3.3
Visual#	33.1	6.0	33.1	5.0	34.8	4.8	36.6	6.2
Sequencing:								
Auditory	34.9	6.3	32.8	5.0	33.7	6.9	33.9	6.2
Visual*	31.3	6.2	30.5	7.3	27.2	7.1	28.0	8.8
Sum of Scaled Scores*	291.3	43.4	287.3	34.6	274.3	38.6	265.8	38.2

* Combined Cherbourg mean scores significantly greater than combined Palm Island mean scores, $p < .01$

\# Combined Palm Island mean scores significantly greater than combined Cherbourg mean scores, $p < .01$

Statistical tests were applied to the data to test whether there were any significant differences between the mean scores of the various groups of children, either on the ITPA as a whole, or on the ten subtests.* Significant differences between communities were found in overall ITPA scores, as well as in scores on 6 of the 10 subtests. These six subtests were: Auditory Reception, Auditory Association, Verbal Expression, Grammatic Closure, Visual Closure, and Visual Sequencing. The Visual Closure subtest was the only one of these for which the means for the Palm Island groups were significantly higher than for the Cherbourg groups.

Thus on their entry to school the Cherbourg children tended to be clearly more competent psycholinguistically than were their Palm Island counterparts. No significant differences were however revealed between the two groups of school entrants within each community. Thus within each of the communities the psycholinguistic abilities of the school entrants in each year were equivalent.

Figure 1 indicates the performance of the four groups on each of the 10 subtests as well as on the test as a whole.

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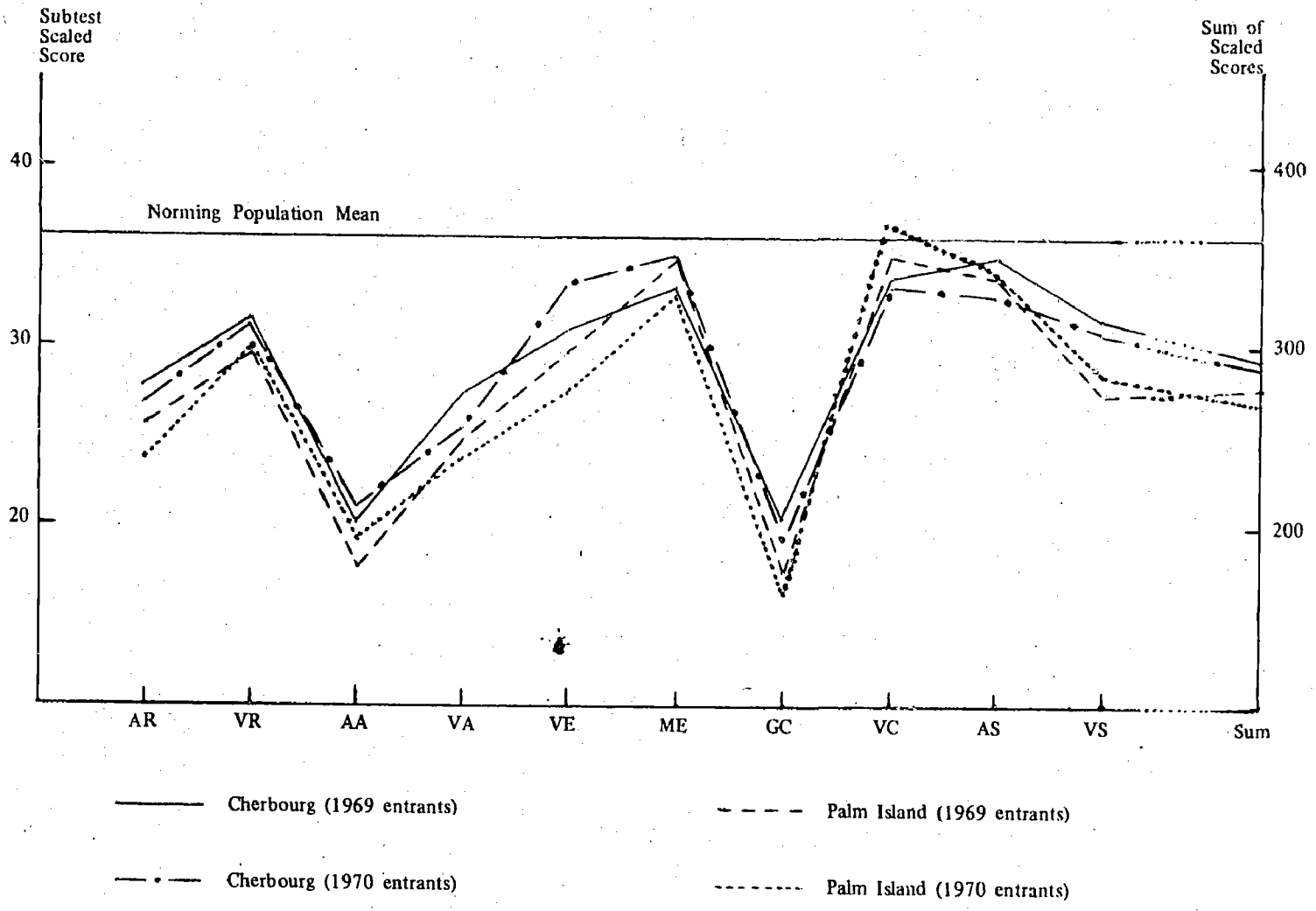
* Throughout this report, the results of all statistical analyses applied to the data, and the significance levels of the resulting statistics, are shown in tables in Appendix 2. The results of the 11 two-way analyses of variance conducted on this data, in which *Community* (Cherbourg/Palm Island) and *Group* (1969/1970) were the two factors, are given in Table 1 of Appendix 2.

FIGURE 1: MEAN ITPA SCALED SCORES OBTAINED BY ABORIGINAL SCHOOL ENTRANTS



The similarity of the profiles for the four groups can be clearly seen. While the pattern reveals disabilities similar to those found in studies of Aboriginal children in other parts of Australia*, the extent of Cherbourg and Palm Island children's disabilities on the Auditory Association and Grammatic Closure subtests is perhaps more pronounced.

The mean scores for each group approached the norming population mean on three subtests: Manual Expression, Visual Closure and Auditory Sequencing. There were markedly low scores on the Auditory Association and Grammatic Closure subtests. Additionally, where both visual and auditory aspects of a particular psycholinguistic function were tested, the scores for the visual aspect tended to be higher than for the auditory aspect. A reverse pattern however was revealed for the sequencing subtests.#

It will be recalled that no significant differences were found between the performances of the two intakes within each community. Therefore, it is possible to discuss "average" performances by children at the one community. Table 4 presents a comparison of the "average" performances of Cherbourg and Palm Island children.

In this summary table, subtests of "least difficulty" are those for which the "average" mean scores at each community were one half a standard deviation from the norming mean or less, that is, 33.0 or greater. Subtests of "greatest difficulty" are those for which the "average" mean scores at each community were 2½ standard deviations or more from the norming mean, that is, 21.0 or less.

The remaining 5 subtests were termed "moderate difficulty". The "average" mean scores for both communities on these subtests ranged between ½ and 2 standard deviations from the norming mean, that is between 32.9 and 24.1. In general the "average" scores for Cherbourg children tended to be higher than the corresponding "average" scores for Palm Island children.

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* Teasdale, G.R. & Katz, R.M. Psycholinguistic Abilities of Children from different Ethnic and Socioeconomic backgrounds. *Australian Journal of Psychology*, 1968, 20, 155-160.
Moffit, P., Nurcombe, B., Passmore, M., & McNeilly, A. Intervention in Cultural Deprivation: The comparative success of preschool techniques for rural Aborigines and Europeans. *Australian Psychologist*, 1971, 6, 51 - 61.
Bruce, D.W. Hengeveld, M., & Radford, W.C. *Some cognitive skills in Aboriginal children in Victorian primary schools.* Victoria: A.C.E.R. Progress Report 2, 1971.

\# This result may have been a function of the validity of the Visual Sequencing subtest. Whereas repetition of digits (Auditory Sequencing) appears to involve only auditory sequential memory, the abstract shapes used in the Visual Sequencing subtest seem to require decoding and encoding in addition to visual sequential memory. Some ITPA validity studies have indicated that the visual sequencing subtest appears to correlate more strongly with symbolic rather than non-symbolic functions.

TABLE 4: COMPARISON OF "AVERAGE" PERFORMANCE BY SCHOOL ENTRANTS AT CHERBOURG AND PALM ISLAND ON ITPA SUBTESTS

Subtests on which:	Subtests which were of:		
	Least difficulty*	Moderate difficulty	Greatest difficulty
Palm Island scored higher than Cherbourg	Visual Closure		
There were no differences between communities	Manual Expression Auditory Sequencing	Visual Reception Visual Association	
Palm Island scored lower than Cherbourg		Visual Sequencing Auditory Reception Verbal Expression	Auditory Association Grammatic Closure

* Difficulty is defined in terms of difference between the "average" Aboriginal mean score and that obtained by the norming population.

Least difficulty = mean score of less than ½ sd from norming mean, i.e. 33.0 or greater

Moderate difficulty = mean score of ½sd to 2 sd from norming mean, i.e. 24.1 - 32.9

Greatest difficulty = mean score of more than 2½ sd from norming mean, i.e. 21.0 or less

The table shows that the greater the difficulty experienced by children at both communities the more likely were Cherbourg children to score higher than Palm Island children.

The table also shows that Palm Island children performed at least comparably with the Cherbourg children on visual tests, whether these were of least or moderate difficulty, the only exception being the moderately difficult Visual Sequencing test. In contrast, moderate or high difficulty auditory tests showed the Palm Island children to be less competent than the Cherbourg children.

The children's different preschool experiences may have influenced some of their responses. For example, some low scores may have resulted from lack of experience with materials common in other preschool children's environments, such as sophisticated kitchen appliances and commercially produced kindergarten games. This lack of familiarity could affect the children's ability to make correct responses to some items of the Visual Reception, Visual Association and Visual Sequencing subtests.

Additionally, numbers of children completed Auditory Association subtest items with responses more familiar to their experiences. For example, in response to the item *I sit on a chair; I sleep on a ...*, some children responded *floor*, *blanket* or *table*. Similarly, some children responded to the item *I eat from a plate; I drink from a ...*, with *bottle*. None of these responses was accepted as correct.

On the other hand, some children's low scores appeared to be related directly to difficulties with Standard English structures. For example the Auditory Association item: *Ears are to hear with; eyes are to ...*, uses the copula *are* followed by an infinitive verb. This construction appeared to be unfamiliar to many children, some of whom responded as though they understood *eyes are to ...* as *eyes are two*, by nodding in agreement. Other children responded with *big* or *small*, apparently since they interpreted *eyes are to...*, as *eyes are too....*

In addition, some low scores on the Auditory Reception subtest may have resulted from unfamiliarity with the particular form of question used in each item. This form uses an inverted sequence in which the *do* auxiliary is followed by a plural noun and verb. For example, *Do bees sting?* and *Do bananas telephone?* are two of the questions. This form of questioning is unfamiliar to Aboriginal children. More appropriate question-forms for them would be *bee sting?* and *banana telephone eh?* spoken with a rising inflection.

Performance on the *Grammatic Closure* subtest revealed the greatest differences between Aboriginal children's oral language patterns and those of Standard English. The subtest requires children to look at a picture and supply the missing word to complete a sentence spoken by the tester. It is the grammatical form of the children's responses rather than the content which is assessed.

Twelve of the first 16 items examine the production of words which indicate grammatical changes. In 8 of these a syntactic marker* is applied to regular noun, verb or adjective. For example *dress* becomes *dresses*, *big* becomes *bigger*. In 4 items the change requires the production of a different word. Thus *wrote* is required for *is writing*, and *his* for *hers*. The other 4 items involve the formation of phrases. Three items require prepositional phrases, while the fourth requires the omission of a preposition.

The percentages of Cherbourg and Palm Island school entrants passing each item on this subtest as well as the percentages of children in the Brisbane group who passed the items, are shown in Tables 5, 6, and 7. Items in each of these tables have been arranged in descending order of difficulty for the Brisbane children.

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* A syntactic marker is a morpheme (the smallest meaningful grammatical unit) applied to a word to indicate a grammatical change, e.g. singular to plural, present to past tense, objective to possessive case.

TABLE 5: PERCENTAGES OF SCHOOL ENTRANTS GIVING CORRECT RESPONSES TO ITPA GRAMMATIC CLOSURE SUBTEST ITEMS WHICH REQUIRE THE USE OF REGULAR MARKERS

Item no.	Syntactic Form	Example	Bris.	Cherbourg		Palm Island	
			(n=33)	1969 intake (n=31)	1970 intake (n=35)	1969 intake (n=32)	1970 intake (n=23)
			%	%	%	%	%
1	plural noun	dog - dogs	94	36	40	16	9
5	plural noun	dress - dresses	94	10	26	0	0
4	present continuous tense	to bark - is barking	85	42	49	22	26
8	possessive noun	belongs to John - is John's	79	19	12	6	4
6	past passive tense	is opening - has been opened	70	32	12	25	13
16	superlative adjective	big - bigger - biggest	68	19	12	19	0
12	noun	is painting - a painter	48	6	0	3	0
15	comparative adjective	big - bigger	35	10	0	9	0

Table 5 shows that in general, most of the Brisbane 5 year olds were able to produce the correct markers for regular words. The exceptions to this were the items requiring the morpheme *-er*, in one case to form a noun and in the other to form a comparative adjective. More children were able to produce the superlative *-est* ending than the comparative *-er* ending, which may suggest the order in which these relational terms are acquired.*

* See comments by Margaret Donaldson and Roger Wales. On the acquisition of some relational terms. In John R. Hayes (Ed.), *Cognition and the Development of Language*. New York: Wiley & Sons, 1970.

It is clear that most Aboriginal children were not able to apply the appropriate endings for regular words. However, more children from Cherbourg than Palm Island were able to produce the plural *-s* and *-es*, possessive *-'s*, and present continuous *-ing* endings. Only small percentages of children at the two communities could apply the past tense *-ed* ending. Very few children could apply either the *-er* or *-est* morpheme.

Table 6 shows results regarding the use of *irregular words*.

TABLE 6: PERCENTAGES OF SCHOOL ENTRANTS GIVING CORRECT RESPONSES TO ITPA GRAMMATIC CLOSURE SUBTEST ITEMS WHICH REQUIRE THE USE OF IRREGULAR WORDS

Item no.	Syntactic Form	Example	Bris.	Cherbourg		Palm Island	
			(n=33)	1969 intake (n=31)	1970 intake (n=35)	1969 intake (n=32)	1970 intake (n=23)
3	possessive pronoun	hers - his	76	42	9	28	4
14	indefinite quantifier	another - weren't any	56	3	6	0	0
13	past passive tense	to eat - has been eaten	15	6	3	6	0
9	past tense	is writing - wrote	9	10	3	3	0

The table shows that most of the Brisbane group were competent with the change in gender of the third person singular possessive pronoun. However, only half of these children were able to contrast the indefinite quantifiers *another* and *not any*, while very few were able to produce the correct past tense forms of the two irregular verbs. This contrasted with the ability of most children to produce the correct past tense inflection of the regular verb *open*.

The table also shows that very few Aboriginal children at either community were able to produce correct responses to any of the 4 items.*

* Discussion of the difference between the 1969 and 1970 intakes on Item 3 is presented in Chapter 5, p.46.

Table 7 gives the percentages of children producing *phrases* correctly.

TABLE 7: PERCENTAGES OF SCHOOL ENTRANTS GIVING CORRECT RESPONSES TO ITPA GRAMMATIC CLOSURE SUBTEST ITEMS WHICH REQUIRE THE USE OF PHRASES

Item no.	Grammatical Class	Example	Bris.	Cherbourg		Palm Island	
			(n=33)	1969 intake (n=31)	1970 intake (n=35)	1969 intake (n=32)	1970 intake (n=23)
2	preposition	under - on/up	100	97	99	78	87
10	omitted preposition	going to work - going home	85	74	58	44	44
7	preposition	in it - for/of milk	73	33	3	6	4
11	preposition	in the morning - at night	9	0	0	3	0

The table shows that almost all children in each group were able to produce the appropriate preposition to form the spatial contrast *under* with *on*. Most Brisbane children were able to form the phrase *going home* correctly by omitting the preposition *to*, as were significant numbers of children at both Cherbourg and Palm Island.

Most Brisbane children were able to form the qualifying phrase *of milk* while very few Aboriginal children could do so. However, children in all groups were unable to form the appropriate phrase to contrast *in the morning* with *at night*.

An analysis of the *incorrect responses given to the items of the Grammatic Closure subtest* was made, to examine whether the non-standard grammatical structures used by children at the two communities were similar both to each other or to those of the Brisbane children. The percentages of children in each group who made the same errors are given in Table 1, Appendix 3.

In general, the few errors made by children in the Brisbane group tended to involve the application of regular syntactic rules in irregular situations. This was apparent in the production of *ate/aten/eated/ated* for *eaten*, and *writed/writ* for *wrote*. Similarly, the production of *in the night* for *at night* showed unawareness of the appropriate grammatical constraints involved in the contrast.

However, errors made by Aboriginal school entrants at both communities tended to consist primarily of omissions of appropriate syntactic markers e.g. *dog* was given for *dogs*, *dress* for *dresses*, *John* for *John's*, *open* for *opened*. In addition, some children tended to produce single noun labels when they were unfamiliar with the structure required by the items. For example, *dog* was produced for *is barking*, *gate* for *has been opened*, *paper/letter* for *wrote*, *milk* for *of milk* and *dark/night* for *at night*.

Other errors appeared to result from Aboriginal children's use of vocabulary characteristic of their communities. For example, *working man* was substituted for *painter*, and *gone* or *finished* for *has been eaten*.

In summary, most of the Brisbane children from lower socioeconomic homes had mastered the range of linguistic structures included in the first 16 items of the Grammatic Closure subtest by the time they were 5 years old. The items which presented most difficulty to them involved the formation of a regular comparative adjective, the past tense of two irregular verbs, and a prepositional phrase to make a time contrast.

On the other hand, the Aboriginal children did not exhibit the same degree of mastery. They experienced difficulty with virtually all items. However Cherbourg children tended to experience fewer difficulties with the language structures examined than did the Palm Island children.

The differences between non-Aboriginal and Aboriginal groups of children lay mainly in their competence in the use of syntactical markers, and in the formation of grammatical contrasts. Since few Aboriginal preschool children are exposed to the morphemes which signal these changes in Standard English, it seems reasonable to conclude that their omission of syntactical markers reflects acquisition of the oral language patterns of their communities. It does not necessarily imply, as it might in a sample of non-Aboriginal children, retarded language development.

Development of vocabulary

Results are also available for all children who commenced school at Cherbourg and Palm Island in 1969 and 1970, on the Peabody Picture Vocabulary Test (PPVT) Form A. Results on the Enticknap Picture Vocabulary Test (EPV) however are available only for 1970 school entrants.

Raw scores were used in the analyses. The means and standard deviations of the scores obtained are given in Table 8.

TABLE 8: MEANS AND STANDARD DEVIATIONS OBTAINED BY ABORIGINAL SCHOOL ENTRANTS ON THE PPVT AND EPV TESTS

		Cherbourg		Palm Island	
		1969 intake (n=31)	1970 intake (n=35)	1969 intake (n=32)	1970 intake (n=23)
PPVT	Mean	33.9	36.1	31.3	32.9
	sd	10.6	8.4	8.4	9.9
EPV	Mean	N.A.*	23.1	N.A.*	23.1
	sd		5.4		4.9

N.A.* = not administered

The PPVT means correspond to mental ages of 3 years 2 months to 3 years 6 months, while the EPV means correspond to a mental age of 4 years. The PPVT means are of similar magnitude to those obtained by groups of Aboriginal children of similar age and circumstances in other parts of Australia.**

Statistical tests were applied to the data to examine the significance of differences between the mean scores obtained by the various groups on the two tests.+ No significant differences were found between the mean scores obtained by groups within each community on the PPVT. Considering this information in conjunction with the lack of significant differences on ITPA it can be considered likely that there were also no differences between groups at the same community on the EPV. Thus entrants to school in the two years may be considered equivalent in ability to identify pictures which depict words, and to label pictures which depict objects.

** Teasdale G.R., & Katz, F.M. Psycholinguistic Abilities of Children from Different Ethnic and Socioeconomic Backgrounds. *Australian Journal of Psychology*, 1968, 20, 155-160.
De Lacey, P.R. Verbal Intelligence, Operational Thinking and Environment in part-Aboriginal children. *Australian Journal of Psychology*, 1971, 23, 145-150.

+ The results of the two-way analysis of variance applied to the PPVT data are shown in Appendix 2, Table 1. A non-significant t-value of 0.02 with 58df was obtained in comparison of EPV scores of the two 1970 intakes.

The statistical testing also showed that in contrast to the significant differences between communities in mean scores on the ITPA Auditory Reception and Verbal Expression subtests which were discussed earlier, no significant differences between communities were found in scores obtained on either the PPVT or the EPV.

The finding probably reflects differences in the demands made by the two types of tests. The ITPA Auditory Reception subtest would appear to involve comprehension of sentence structure in addition to comprehension of vocabulary. However the PPVT requires comprehension of discrete words uncomplicated by incorporation in a sentence structure.

Similarly the differences between the results obtained on the verbal expression subtest of ITPA and the EPV, both tests of expressive vocabulary, seem to depend on the additional component of verbal fluency which is involved in the former but not the latter. The EPV requires simply the naming of single objects.

The evidence presented here indicates that in the areas of both receptive and expressive language, the Aboriginal school entrants at Palm Island performed as well as those at Cherbourg on tests involving vocabulary only. On tests which involved comprehension and use of language structures in addition to knowledge of vocabulary, the performance of the Cherbourg children was significantly more advanced.

Chapter 4

FURTHER ASPECTS OF THE ORAL LANGUAGE DEVELOPMENT OF ABORIGINAL SCHOOL ENTRANTS

The computer analyses of the spontaneous language of preschool Aboriginal children provided a comprehensive description of the children's language usage prior to their commencing school. While it would be desirable to repeat such analyses at regular intervals to enable comparisons at different stages of development to be made, the method is both time consuming and costly.

A less demanding method of collecting language samples is to provide a controlled stimulus situation in which the response may be structured to a greater or lesser degree. The Auditory Association and Grammatic Closure subtests of the ITPA are examples of the use of highly controlled stimulus situations to which single word responses are required. Data from such tests are readily obtained and analyzed, but provide only limited information about specific aspects of language development.

To provide information about some language structures not assessed by the ITPA, the Sentence Reproduction and Oral Completion Tests were used. These tests allowed the children more scope to produce certain language structures than did the ITPA subtests, and yet provided a manageable quantity of data for analysis.

Sentence Reproduction and Oral Completion Tests

Some research* suggests that before children can be expected to use language structures in the course of their oral communication, they need to be competent in reproducing these structures presented, for example, as stimuli in a sentence reproduction test. Other evidence# suggests moreover that competence in such reproduction is influenced by comprehension of the particular structures.

Analysis of the modifications made by children in their attempts to reproduce sentences within their immediate memory spans may therefore provide information about their comprehension of certain language structures. If the modifications do not preserve the meaning of the sentence then it is likely that the structures have not been understood.

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* e.g. Fraser, C.U. Bellugi and R. Brown. Control of grammar in imitation, comprehension and production. *Journal of Verbal Learning and Verbal Behavior*, 1963,2,121-135.

\# e.g. Menyuk, P. *Sentences Children Use*. Cambridge: MIT Press, 1969.

However, if the modifications preserve the meaning of the sentence, information is provided about the types of structures actually used by children in their spontaneous language. Similarly the Oral Completion Test provides valuable information about the actual structures used by children in their production of language.

Both the Sentence Reproduction and Oral Completion Tests were administered to school entrants at the two communities in 1970 as well as to the group of children from a lower socioeconomic area in Brisbane described previously.

The words and phrases produced by the children were examined for correspondence with the grammatical rules of Standard English. The scoring criteria for classifying the errors were based on the principles of structural analysis of language employed by Menyuk.*

There are two levels at which the responses may differ from Standard English. At one level, they may contravene rules which relate to various grammatical classes in the structure of sentences. At the other level, they may contravene morphological rules which relate to the application of markers to words to indicate grammatical changes.

At each level, the errors may be of three kinds. Firstly, the grammatical class or marker may simply be omitted. Omissions are shown in Table 9 by the symbol ϕ. Secondly, a substitution error may occur if a grammatical class or marker is used in conflict with other criteria which restrict the selection of that particular class or marker. Thirdly, an error of redundancy may occur when an additional grammatical class or marker is used, after the appropriate class or marker has already been applied. Substitutions and redundancies are underlined in Table 9.

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* Menyuk, P. *Sentences Children Use*. Cambridge: MIT Press, 1969.

Menyuk. P. *The Acquisition and Development of Language*. Englewood Cliffs: Prentice Hall, 1971.

TABLE 9: EXAMPLES OF CRITERIA FOR SCORING INCORRECT RESPCNSES TO SENTENCE REPRODUCTION AND ORAL COMPLETION TESTS

	Omission	Substitution	Redundancy
Sentence Structure Rules relating to			
Noun	She took the bigger ϕ	She took the coat	She took it the
Verb	He ϕ shaving	He takes a shave	He'll might shave
Preposition	I shop ϕ town	I shop at town	I shop in over there
Determiner	I want ϕ milk	I want a milk	I want some lots of milk
Particle	He put ϕ the hat	He put in the hat	He put on the hat
Pronoun	That's ϕ book	He's a good book	That's mine my book
Morphological Rules			
Plural noun	They are child ϕ	They are childs	They are childrenses
Verb	He come ϕ now	He comed yesterday	He camed yesterday
Possessive	That's he ϕ car	That's hims car	That's hisses car
Contraction	I ϕ going	I'se going	I'm am going

In examining the children's responses to the *Sentence Reproduction Test*, allowance was made for certain known phonemic* differences between Standard English and the form of English spoken by many Aboriginal adults. Many of these differences involve simplification of sound clusters, which has little effect on the grammatical correctness of sentences when the simplification occurs in the initial position of words, as in the substitution of *d* for *th* in *that*.

Examples of phonemic differences which were not scored as errors included *'as* for *has*, *da* and *dat's* for *the* and *that's*, *t'ing* for *thing*, *oba* and *gib* for *over* and *give*, *tha's* for *that's*, *don'* for *don't*, *wanna* and *gonna/gunta* for *want to* and *going to*, and *gimme* for *give me*.

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* A phoneme is a distinct sound and phonology is concerned with the conditions under which phonemes can combine.

On the other hand, some reductions which occur in the final position of words may seriously affect the meaning being conveyed since they preclude the use of syntactical markers. Among these are reductions in the following cases;

final *r* so that *we're* becomes *we*
final *l* so that *I'll* and *we'll* become *I* and *we*,
final *s,z,t,l* and *d* which affect formation of plural possessive and past tense markers.

These reductions were scored as errors.

As well as descriptions of the kinds of modifications made by the children, the analysis provided information about the number of sentences reproduced without error.

The children's responses to the *Oral Completion Test* were scored twice. One analysis focussed on the single words following the cue words. Of the 21 items, one required a regular plural noun, and two required either an adverb, prepositional phrase, or infinitive verb. The remaining 18 items required a verb to be produced, to follow the pronouns *he, she, they* or *it*. Seven of these verbs were most likely to be the present progressive tense *(is/are v + ing)*, seven the present tense of the copula *(is/are)*, two the present tense form *has (has got)*, one an irregular past tense *(fell)*, and one a future tense verb *(will + verb)*. The second analysis examined the remaining words in the responses.

Each analysis provided information about the number of correct words or phrases produced by the children, as well as descriptions of the kinds of structures used in their incorrect responses.

Performance on Sentence Reproduction Test

The mean numbers of sentences reproduced without error were 13.2 for the Brisbane group, 8.9 for the Cherbourg group, and 7.9 for the Palm Island group. Statistical testing indicated that the Brisbane children reproduced significantly more sentences correctly than children at either community.* However, there was no significant difference between the mean scores obtained by children at Cherbourg and Palm Island. The percentages of children reproducing each sentence correctly are shown in Table 10. The fifteen sentences are arranged to display the increasing order of difficulty for the Brisbane children.

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* The results of the analysis are shown in Appendix 2, Table 2.

TABLE 10: PERCENTAGES OF SCHOOL ENTRANTS PASSING EACH ITEM IN THE SENTENCE REPRODUCTION TEST

Item no.	Sentence	Number of words	Bris. (n=29)	Cherb. (n=35)	Palm Island (n=23)
			%	%	%
1	We sleep at night	4	100	92	91
9	What is that thing?	4	100	89	78
11	He might be over there	5	100	86	83
8	They don't know my name	5	100	92	61
12	Look at that fish in the water	7	100	58	74
2	Mary has a red coat	5	97	37	44
3	I want to wear it	5	94	95	87
6	I'm going to have a drink	6	94	72	35
7	He has planted a tree	5	94	49	35
5	That's a little bit	4	91	43	44
10	I saw her with Jean's apple	6	91	26	13
15	Johnny would like to have a cowboy suit	8	87	23	13
14	Will you give me one of these?	7	73	81	65
4	The bad dog ran after the cat	7	69	48	48
13	I found three turtle eggs near his house	8	38	3	9

Sentences 14 and 4 were difficult for at least a quarter of the Brisbane children, while only Sentence 13, one of the longest sentences, was difficult for more than half the group. This was mainly because some children tended to substitute *two* for *three*.

Clearly, the language structures and vocabulary of the sentences appeared to be within the competence of most of these Brisbane children. In contrast, only a few of the sentences presented little difficulty to most of the children at the two communities.

Results on several shorter sentences were relatively low (Sentences 2, 7 and 5), while those on several longer sentences were relatively high (Sentences 12 and 14). Length of sentences up to 9 words has been found not to influence successful reproduction even for 3 year old children acquiring Standard English.* It is therefore likely that the children's non-successful reproductions were dependent on lack of experience with the particular rules used to generate the sentences rather than the sentence lengths.

Examination of the errors made by children at the two communities tended to support this conclusion.# Errors comprised predominantly omissions of syntactical markers and substitutions of familiar structures from the children's own grammar rather than omission of parts of the sentences. More errors were made through modification of morphological rules than through modification of sentence structure rules.

The major examples of modification of morphological rules were the omission of a final *s* marking plural and possessive nouns and contractions of the copula *is*, and the substitutions of the verbs *'ad/'ab* for *has*, and *sawn* for *saw* (Cherbourg particularly).

Modification of sentence structure rules involved mainly pronouns, prepositions and determiners. Major examples of these modifications were the omission of the determiners *the* and *a*, and the substitution of *'e* for *his*, *in* for *near* and *da* for *a*. Additionally, parts of the compound verb *would like to have* were omitted, so that Cherbourg children tended to simplify the verb to *like* or *like to have*, and Palm Island children tended to reproduce the verb as *would like* or *would have*.

Performance on the Oral Completion Test

The mean numbers of correct single words following the cue words were 19.7 for the Brisbane group, 5.9 for the Cherbourg group and 2.1 for the Palm Island group. The differences between the means were statistically significant.** The Brisbane children made significantly more correct responses than did children from either community. In addition, Cherbourg children made significantly more correct responses than did Palm Island children. The percentages of children producing correct responses in each grammatical class are shown in Table 11.

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* Menyuk, P. *Sentences children use*. Cambridge: MIT Press, 1969, p.114

\# A detailed listing of the percentages of children making omission, substitution and redundancy errors in the various grammatical classes is shown in Appendix 3, Table 2.

** The results of the analysis are shown in Appendix 2, Table 2.

TABLE 11: PERCENTAGES OF SCHOOL ENTRANTS PRODUCING CORRECT RESPONSES TO FOLLOW CUE WORDS IN ORAL COMPLETION TEST

Grammatical Class	Syntactical Form	No.of items	Bris. (n=31)	Cherb. (n=35)	Palm Island (n=24)
			%	%	%
Regular noun	Plural s	1	100	60	17
Prepositional phrase	Preposition	2	90	66	54
Verb	Present continuous is v + ing	7	95	18	4
	Copula is/are	7	87	25	7
	Present has/has got	2	84	9	0
	Past fell/has fallen	1	68	84	4
	Future will + verb	1	90	3	0

All the Brisbane children were able to produce the regular plural noun form, and most were successful in producing the appropriate prepositions. Most of these children experienced no difficulty in producing the correct present and future tense verb forms. However, some children were not able to produce the past tense of the irregular verb. In contrast, few Aboriginal children were able to produce the correct responses.

Differences between Palm Island and Cherbourg children that were found previously in performance on the Grammatic Closure subtest of the ITPA were again apparent. More Cherbourg than Palm Island children were able to produce the regular plural noun form and the appropriate prepositions. Additionally, most Cherbourg children were able to produce the past tense of the irregular verb *fell.** However, only a few of these children were successful in using the present tense forms of verbs involving *is/are.*

In contrast, Palm Island children were unsuccessful in producing the correct forms for any verbs. Only 21 correct responses were given out of a possible total of 432.

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* The greater success of the Cherbourg children than the Brisbane children on this item is noted, but no explanation can be proferred.

The most difficult verb forms for children at both communities were the *has (got)* construction and the future tense verb using the auxiliary *will + verb*.

Over 60 percent of verb form responses made by children at both communities involved omissions of words and of grammatical markers. The percentages of children making these errors are shown in Table 12.

TABLE 12: PERCENTAGES OF SCHOOL ENTRANTS OMITTING VERB FORMS IN ORAL COMPLETION TEST

Verb form required	Number of items	Omission of	Example	Bris. (n=31)	Cherb. (n=35)	Palm Island (n=24)
				%	%	%
Present continuous is v + ing	7	Auxiliary is/are	He ϕ eating	3	76	84
		Auxiliary is/are + ing	He ϕ eat	1	1	9
Copula is/are	7	is/are	She ϕ sick	1	53	35
Present has/ has got	2	Auxil. has	She ϕ got four	5	46	46
		has/has got	She ϕ four	0	23	48
Irregular past fell	1	Past tense marker	She fall	3	6	71
Future will + verb	1	Auxiliary will	He ϕ drink it	3	43	71

An additional difficulty was experienced by some children in attempting to complete a sentence beginning with the impersonal pronoun *it*. One quarter of the Palm Island children either made no response, or altered the structure begun by the tester. For example, in response to the question, *Tell me about the fork. It....*, some children responded *The boy got it*. Apparently they were unable to reverse the usual sequence of actor, verb, object.

The second analysis was concerned with those of the 21 items of the test which were intended to elicit phrases in addition to the single word following the cue word. The mean numbers of completions produced and the mean numbers of correct completions are shown in Table 13.

TABLE 13: MEAN NUMBERS OF COMPLETIONS GIVEN TO ORAL COMPLETION TEST ITEMS BY SCHOOL ENTRANTS

		Bris. (n=31)	Cherb. (n=35)	Palm Island (n=24)
Mean number of completions		18.6	18.7	14.7
Mean number of correct completions		17.2	12.7	8.7
Mean number of correct completions containing:	Noun phrase	4.1	3.2	2.3
	Prepositional phrase	7.6	3.4	1.7
	Subtotal for phrases	11.7	6.6	4.0
	Particle*	2.5	1.6	1.8
	Pronoun	0.2	0.7	0.0
	Adverb	0.1	1.8	0.5
	Adjective	1.6	1.5	1.3
	Impersonal pronoun	0.9	0.4	0.9
	Subtotal for words	5.4	6.0	4.6

It can be seen that whereas Cherbourg children produced as many completions as did the Brisbane children, fewer of these were grammatically correct. The Palm Island children were not as fluent as the other children, and the mean number of correct completions produced by them was considerably less. Statistical testing showed that the differences between the groups in the mean number of correct completions produced were significant.#

Table 13 also shows details of different types of words and phrases produced by the children to complete the sentences. Noun and prepositional phrases were scored as correct only if there was no error in the phrase. This meant that if a determiner or pronoun was inappropriately used, the phrase was not scored as correct. For example, the response *in his hand* was scored as correct, but the response *in 'e hand* was scored as having one pronoun substitution error. In the response *on 'e hand*, an additional error of prepositional substitution was scored.

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* A particle is a grammatical class defined by position, not form. Included in this class are words traditionally classed as adverbs or prepositions e.g. over, in, at.

\# The results of the analysis are shown in Appendix 2, Table 2.

The table shows that 11.7 out of 18.6 of the Brisbane children's completions (63 percent) were correct noun and prepositional phrases. This contrasts with only 6.6 out of 18.7 of the Cherbourg children's completions (35 percent) and 4.0 out of 14.7 of the Palm Island children's completions (27 percent).

This difference between the correctness of the Brisbane and Aboriginal children's responses reflected a tendency on the part of the latter to make errors in the use of pronouns, prepositions and determiners.

Substitution of inappropriate pronouns accounted for one third of all errors made by children at both communities. The most common of these errors was the substitution of *he/'e* for *his* in phrases such as *in 'e hand*. The next most frequent error was the substitution of *he/'e* for *her* in sentences such as *'e pickin' 'e up*.

Errors in the use of prepositions and determiners tended to be omissions rather than substitutions. Such omissions resulted in sentences such as *She is taking books ϕ the girl* and *It ϕ on ϕ table*. Frequently both preposition and determiner were omitted, resulting in sentences such as *It ϕ table* and *It ϕ hand*. These single word completions were indicative of the difficulties mentioned previously which the children experienced with sentences beginning with the impersonal pronoun.

Summary of performance on the two tests

The results of the analysis of the children's performance in both reproduction and controlled production contexts clearly indicated that most of the Brisbane children were competent with the Standard English structures and vocabulary incorporated in the test stimuli. In contrast most Aboriginal children were significantly less competent in both contexts.

The evidence presented here suggests that *reproduction* of certain standard English language structures was certainly an easier task for these Aboriginal children at both communities than was the *production* of those structures. For example, whereas a very high percentage of children at each community could accurately reproduce the sentence *What is that thing?* very few at either community could construct sentences which incorporated the copula *is*. Similarly, whereas many children at the two communities could accurately reproduce the sentence *Will you give me one of these?* only 1 child out of 59 could construct a sentence which incorporated the auxiliary *will + verb*.

However, the influence of some frequently used non-standard structures clearly interfered with successful reproduction of Standard English. These included the omission of the final *s* marking plural and possessive nouns and contracted forms of the copula *is*, the substitution of commonly used verbs, prepositions and pronouns, and the omission and interchange of the articles *a* and *the*.

These non-standard usages were also given frequently in the production situation. In addition, auxiliary verbs and past tense markers tended to be omitted. Again it was clear that more Palm Island than Cherbourg children produced these non-standard structures.

Although many of the non-standard English forms used by these Aboriginal children were similar to those used by young Brisbane children who were in the process of acquiring the patterns of Standard English*, they also generally occur in the language of Aboriginal adults. Consequently the evidence again suggests that the occurrence of such language usage amongst Aboriginal school entrants indicates acquisition of the language used by the adults with whom they are in close contact during their early years. It does not necessarily imply retarded language development.

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* *Research Report on some Aspects of the Language Development of Preschool Children*. Brisbane: Department of Education, Queensland, Bernard Van Leer Project, 1970.

Chapter 5

CHANGES IN PSYCHOLINGUISTIC ABILITIES OF ABORIGINAL CHILDREN AFTER ONE YEAR AT SCHOOL

It will be recalled that the comparison and experimental groups within each community did not differ significantly in terms of psycholinguistic test scores at entry to school. Since the groups participated in different first year programs, changes in test scores by the end of the first year can be considered to reflect substantially the influences of the two types of programs.

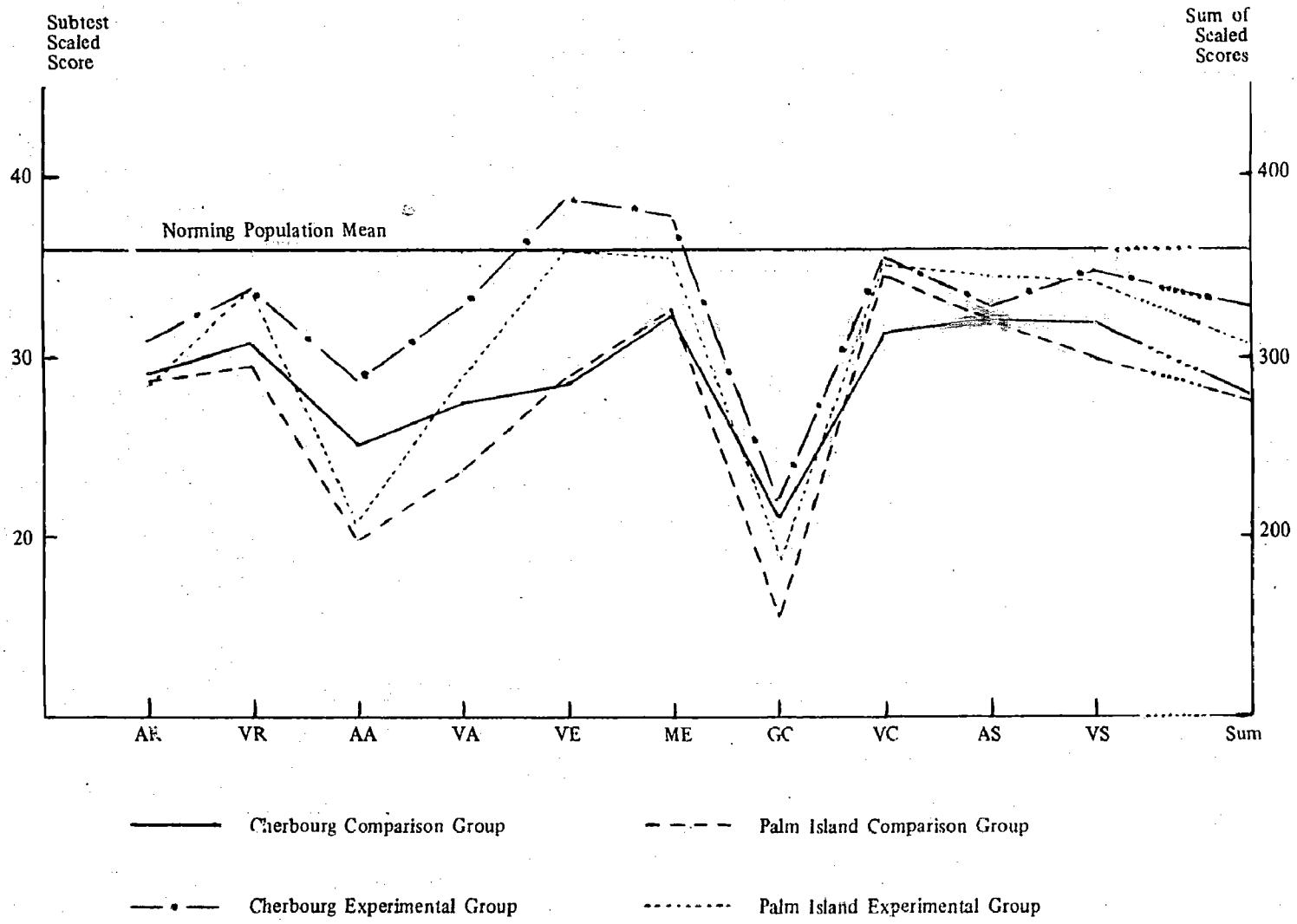
Table 14 shows the mean and standard deviations of the ITPA scaled scores obtained by each group of children after one year at school.

TABLE 14: MEANS AND STANDARD DEVIATIONS OF ITPA SCALED SCORES OBTAINED BY COMPARISON AND EXPERIMENTAL GROUPS AFTER ONE YEAR AT SCHOOL

	Cherbourg				Palm Island			
	Comparison Group (n=31)		Exptl. Group (n=35)		Comparison Group (n=32)		Exptl. Group (n=23)	
	mean	sd	mean	sd	mean	sd	mean	sd
Reception:								
Auditory	28.7	4.0	30.5	4.3	28.2	5.8	28.1	4.0
Visual	30.4	5.7	33.5	5.1	29.1	4.6	33.5	5.2
Association:								
Auditory	24.9	10.4	28.4	7.4	19.8	10.5	20.5	7.6
Visual	27.1	7.2	32.7	6.7	23.6	8.6	28.7	7.1
Expression:								
Verbal	28.3	4.3	38.5	5.5	28.5	3.4	36.0	6.7
Manual	32.0	3.8	37.1	4.2	32.2	4.6	35.7	4.0
Closure:								
Grammatic	20.8	7.5	21.9	4.7	15.4	5.2	18.2	3.2
Visual	31.1	5.5	35.6	5.2	34.1	5.2	35.4	6.0
Sequencing:								
Auditory	31.8	6.0	32.9	5.6	31.8	7.0	34.0	6.8
Visual	31.7	7.4	34.5	8.1	29.4	6.9	33.7	8.1
Sum of Scaled Scores	286.8	37.9	325.2	33.9	271.8	38.8	303.8	32.4

Profiles for these scores are presented in Figure 2.

FIGURE 2: MEAN ITPA SCALED SCORES OBTAINED BY COMPARISON AND EXPERIMENTAL GROUPS AFTER ONE YEAR AT SCHOOL



With only one exception, all experimental group mean scores were higher than the corresponding mean scores obtained by the comparison group at the same community. In addition, although at school entry the two Cherbourg groups were superior to the two Palm Island groups, after one year at school the Palm Island experimental group obtained generally higher scores than the Cherbourg comparison group. In terms of total scores the rank orderings of the four groups at school entry, and after one year at school were:

At school entry	*After one year at school*
1. Cherbourg Comparison	1. Cherbourg Experimental
2. Cherbourg Experimental	2. Palm Island Experimental
3. Palm Island Comparison	3. Cherbourg Comparison
4. Palm Island Experimental	4. Palm Island Comparison

The changes in mean scores for the four groups after one year at school are shown in Table 15.

TABLE 15: CHANGES IN MEAN ITPA SCALED SCORES OF COMPARISON AND EXPERIMENTAL GROUPS AFTER ONE YEAR AT SCHOOL

	Cherbourg		Palm Island	
	Comp. Group (n=31)	Exptl Group (n=35)	Comp. Group (n=32)	Exptl Group (n=23)
Reception:				
Auditory	0.8	3.6	2.8	4.5
Visual	-1.1	2.5	-0.5	3.7
Association:				
Auditory	4.8	7.4	2.1	6.4
Visual	0.0	7.4	-0.9	5.4
Expression:				
Verbal	-2.6	5.3	-1.0	8.3
Manual	-1.2	2.4	-2.4	3.0
Closure:				
Grammatic	0.5	2.9	-1.9	1.9
Visual	-2.0	2.5	-0.7	-1.2
Sequencing:				
Auditory	-3.1	0.1	-1.9	0.1
Visual	0.4	4.0	2.2	5.7
Sum of Scaled Scores	-4.5	37.9	-2.5	38.0

The table shows clearly that there was a general pattern of improved performances by the experimental groups. Considerable gains were made by children in both experimental groups in almost every subtest, as well as on the test as a whole. The similarity of the changes at the two communities are apparent. For both groups areas of greatest gains included Auditory and Visual Association, Verbal Expression and Visual Sequencing.

In contrast, the two comparison groups made few gains, and losses were recorded on several of the subtests, as well as on the test as a whole.

Statistical analyses* indicated that with the exception of Visual Closure scores the two experimental groups did not differ significantly in the degree of improvement recorded. This provided grounds for pooling the scores of these two groups for the purposes of further reference. Similarly, statistical analyses indicated that the pooling of the scores for the two comparison groups was justified. Consequently the discussion during the remainder of this chapter focusses on two groups of scores rather than four - the combined experimental group scores and the combined comparison group scores.

The mean scores obtained at school entry and after one year at school by the combined groups are shown in Table 16. Differences between the mean scores are also shown.

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* Summarized results of the 11 analyses are shown in Appendix 1, Table 3. A discussion of the interpretation of the statistical results is also included in the Appendix.

TABLE 16: MEANS AND DIFFERENCES BETWEEN ITPA SCORES OBTAINED AT SCHOOL ENTRY AND AFTER ONE YEAR AT SCHOOL BY EXPERIMENTAL AND COMPARISON GROUPS

	Comparison Group		Experimental Group		Differences (After one year - At entry)	
	At school entry	After one year	At school entry	After one year	Comp. Group	Exptl Group
Reception:						
Auditory	26.7	28.5	25.3	29.3	1.8*	4.0**
Visual	30.5	28.7	30.4	33.5	-1.5	3.1**
Association:						
Auditory	18.9	22.3	17.6	24.5	3.4*	6.9**
Visual	25.8	25.3	24.3	30.7	-0.5	6.9**
Expression:						
Verbal	30.2	28.4	30.5	37.3	-1.8*	6.8**
Manual	33.9	32.1	33.7	36.4	-1.8*	2.7**
Closure:						
Grammatic	18.8	18.1	17.6	20.1	-0.7	2.5**
Visual	34.0	32.6	34.8	35.5	-1.4	0.7
Sequencing:						
Auditory	34.3	31.8	33.4	33.5	-2.5**	0.1
Visual	29.2	30.5	29.2	24.1	1.3	4.9**
Sum of Scaled Scores	282.8	279.3	276.6	314.5	-3.5	37.9**

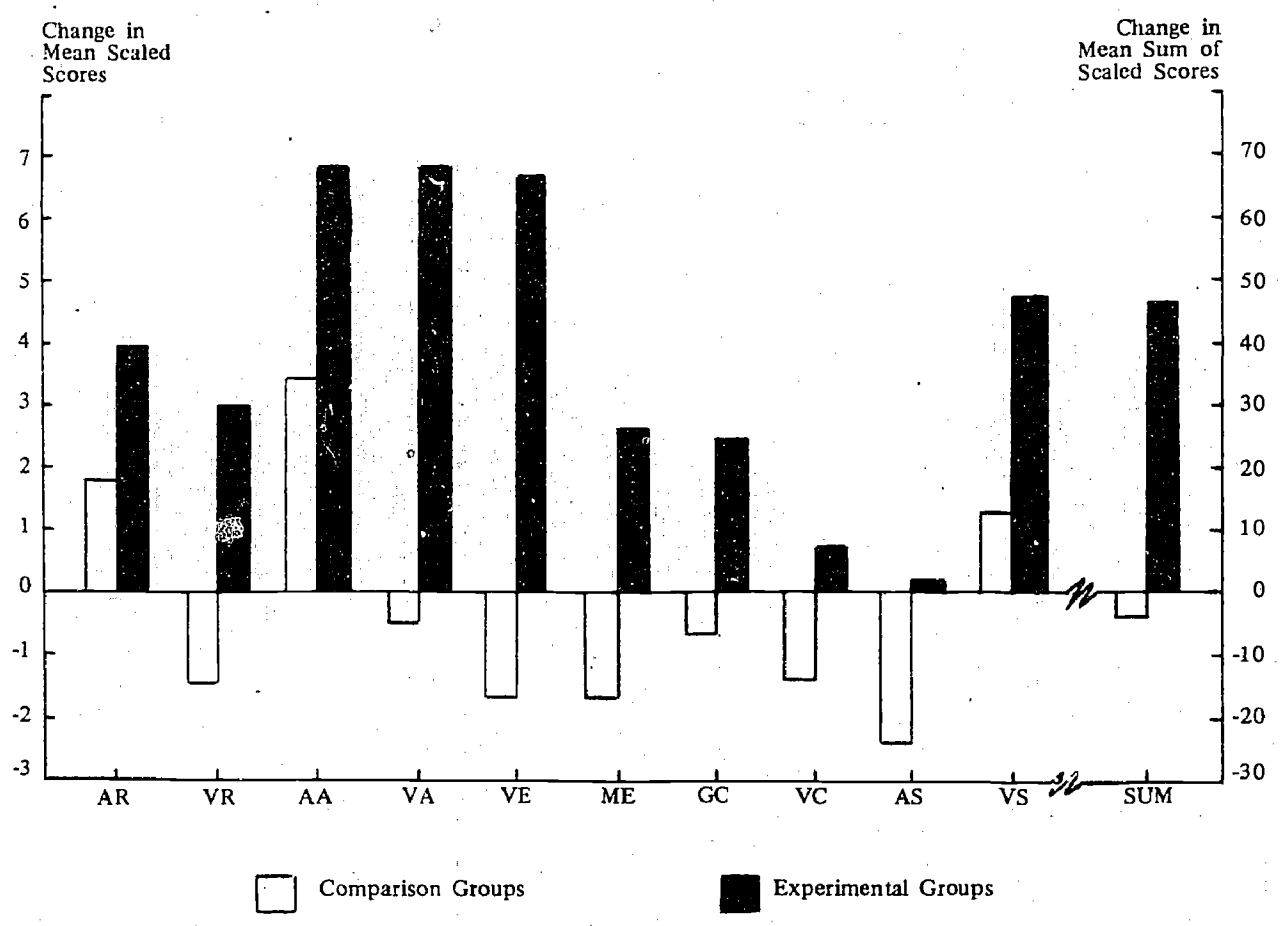
* $p < .05$
** $p < .01$

Analysis of the results for the comparison groups showed that there were gains on three subtests; these were significant for Auditory Reception and Auditory Association. Although the results showed losses on seven of the subtests, only three were significant - Verbal and Manual Expression and Auditory Sequencing.

By contrast the experimental group at the end of the year scored significant gains on eight of the ten subtests. Greatest gains were made in Auditory and Visual Association, and Verbal Expression. The only areas in which significant improvement did not occur were Visual Closure and Auditory Sequencing. These were two of the three subtests on which the children's performances at school entry were already equivalent to those of the norming population.

The general pattern of gains made by the experimental group in contrast to the general pattern of losses made by the comparison group is shown in Figure 3.

FIGURE 3: THE EXTENT OF DIFFERENCES BETWEEN CHANGES IN COMBINED COMPARISON AND EXPERIMENTAL GROUPS MEAN ITPA SCALED SCORES AFTER ONE YEAR AT SCHOOL



Clearly, the specially designed compensatory program, which emphasized experience in the language patterns of Standard English, and provided an enriched learning environment, enabled the experimental group children to make great improvements in the psycholinguistic abilities assessed by the ITPA.

In general, the comparison group failed to make progress in most psycholinguistic abilities during their first year at school. The small gains in Auditory Reception and Association indicated that the standard Queensland program effected a small improvement in the children's *comprehension*. The unchanged scores on the Grammatic Closure subtest suggested that there was no improvement in the children's *production* of standard English patterns. In addition, the gap was widened between the children's ability to express themselves in word and in gesture, and the ability of the norming population to do so.

Since both groups made greater gains on the Reception and Association subtests than on the Grammatic Closure subtest, it seems likely that it is easier within a twelve month's period to improve comprehension than production.

Table 17 compares the differences between scores obtained by the comparison and experimental groups at school entry and again, after one year at school.

TABLE 17: MEANS AND DIFFERENCES BETWEEN ITPA SCORES OBTAINED BY COMPARISON AND EXPERIMENTAL GROUPS AT SCHOOL ENTRY AND AFTER ONE YEAR AT SCHOOL

	At School Entry		After One Year at School		Differences Between Groups (Exptl - Comp)	
	Comp Group	Exptl Group	Comp Group	Exptl Group	At school entry	After one year
Reception:						
Auditory	26.7	25.3	28.5	29.3	-1.4	.8
Visual	30.5	30.4	28.7	33.5	-0.1	4.8**
Association:						
Auditory	18.9	17.6	22.3	24.5	-1.3	2.2*
Visual	25.8	24.3	25.3	30.7	-1.5	5.4**
Expression:						
Verbal	30.2	30.5	28.4	37.3	-0.3	8.9**
Manual	33.9	33.7	32.1	36.4	-0.2	4.3**
Closure:						
Grammatic	18.8	17.6	18.1	20.1	-1.2	2.0**
Visual	34.0	34.8	32.6	35.5	-0.8	2.9**
Sequencing:						
Auditory	34.3	33.4	31.8	33.5	-0.9	1.7**
Visual	29.2	29.2	30.5	34.1	-0.0	3.6**
Sum of Scaled Scores	282.8	276.6	279.3	314.5	-6.2*	35.2**

* $p < .05$
** $p < .01$

At school entry there were no statistically significant differences between the two groups on any subtest. If anything, the experimental group tended to obtain slightly lower scores than the comparison group. A marked contrast was, however, evident by the end of the first year. The experimental group obtained significantly higher scores on 9 of the 10 subtests as well as on the test as a whole. The exception was the Auditory Reception subtest. It will be recalled that this was one of the 3 subtests on which the comparison group also made gains during their first year at school.

The greatest difference between the groups was in Verbal Expression. This subtest required the children to examine a small object and "tell" all about it. It is the content of the descriptions which is assessed, rather than the grammatical correctness of the sentences. High scores indicate that many different and accurate descriptions were produced.

Clearly, the experimental children were more able to describe their observations than the comparison children. This may be attributed to the emphasis throughout the special compensatory program on encouraging the children to talk about their experiences.

Other large differences between the groups were found in 4 of the 5 visual-motor abilities assessed by the ITPA: Visual Reception, Visual Association, Visual Sequencing and Manual Expression. It appears likely that these differences reflect the greater stimulation provided by the enriched program.

Although the experimental group recorded a significant gain in a statistical sense on the Grammatic Closure subtest, this score was still well below the mean for the norming population. It would appear that Aboriginal school entrants have already firmly established certain language patterns which prove resistant to change, at least over a short period of time. Greater improvement in the production of Standard English structures may result from a longer exposure to the special compensatory program.

Analysis of the changes in percentages of children passing the first 16 items of the Grammatic Closure subtest was again made, to indicate those structures with which each group was now competent. The percentages of children giving correct responses to each item are shown in Table 18. The percentages of the Brisbane school entrants passing each item, which were reported previously in Chapter 3, are also shown again for comparative purposes.

TABLE 18: PERCENTAGES OF COMPARISON AND EXPERIMENTAL CHILDREN GIVING CORRECT RESPONSES TO ITPA GRAMMATIC CLOSURE SUBTEST ITEMS AFTER ONE YEAR AT SCHOOL, COMPARED WITH PERCENTAGES OF BRISBANE SCHOOL ENTRANTS

Item no.	Grammatical Class	Example	At school entry	After one year at school			
			Bris.	Cherbourg		Palm Island	
			(n=33)	Comp. (n=31)	Exptl (n=35)	Comp. (n=32)	Exptl (n=23)
Regular Markers			%	%	%	%	%
1	plural**	dog - dogs	94	74	96	48	75
5	plural**	dress-dresses	94	45	49	3	9
4	present**	to bark - is barking	85	68	93	45	79
8	possessive *	belongs to John -John's	79	48	35	12	21
6	past**	is opening - has been opened	70	58	30	12	17
16	superlative**	big - bigger - biggest	68	29	71	9	37
12	noun	is painting - a painter	48	26	25	21	0
15	comparative**	big - bigger	35	39	30	3	0
Irregular Words							
3	possessive	hers - his	76	58(6) #	0(90)	48(0)	17(50)
14	quantifier	another - weren't any	56	7	3	3	0
13	past	to eat - has been eaten	15	17	3	6	4
9	past*	is writing - wrote	9	26	3	9	0
Use of phrases							
2	preposition	under - on/up	100	100	100	100	100
10	omitted** preposition	going to work -going home	85	71	98	92	100
7	preposition	in it - for/of milk	73	42	52	56	42
11	preposition	in the morning-at night	9	6	8	3	4

* $p < .05$, Aboriginal groups ** $p < .01$, Aboriginal groups

Brackets indicate the percentage of responses which were the incorrect *he's*.

Inspection of the table shows that after one year at school each group of Aboriginal children was as competent as the Brisbane non-Aboriginal school entrants on only one item: the spatial phrase contrast *under* with *on/up*. All groups except the Cherbourg comparison group were also as competent with the phrase contrast *going to work* with *going home*. In addition all 5 groups of children showed similar lack of competence with the two irregular past tense constructions *has been eaten* and *wrote*, as well as the time contrast *in the morning* with *at night*.

However, as many Cherbourg experimental children as Brisbane school entrants were competent with the plural *-s* in *dogs*, the present continuous *is barking*, and the superlative adjective *biggest*. Moreover, more Palm Island experimental than Cherbourg comparison children were competent with these syntactic changes. Statistical analyses showed that the greater numbers of experimental children passing each of these 3 items were significant.*

It is likely that these improved performances by experimental children at both communities resulted from extensive experience in listening to, and using, the three constructions, which were all introduced in the early weeks of the compensatory program.

The statistical analyses also showed that there were significant differences between the 4 groups of Aboriginal children on 7 other items. Only 2 of these differences were between comparison and experimental groups across communities. On the one hand, more experimental than comparison children were competent with the phrase *going home*. However, more comparison than experimental children produced the pronoun *his* in contrast with *hers*. It will be recalled that this difference between groups was observed at school entry.#

Table 18 shows that only 6 and 0 percent of comparison children tested in 1970 were recorded as producing *he's*, in contrast with 90 and 50 percent of experimental children tested in 1971. Different testers assessed the various groups of children in different years. It appears likely, therefore, that the variation in responses scored as correct could be a function of the sophistication of the tester in Aboriginal pronunciation of English, rather than an indication of real differences between groups. In addition, it is uncertain whether the word which sounds like *eez* should be recorded as *his* or *he's*.

---

* The results of the statistical analyses are shown in Appendix 1, Table 5.

\# See Chapter 3, Table 6.

Four of the remaining 5 differences between groups occurred in items to which more Cherbourg than Palm Island children produced the appropriate regular syntactic markers: plural *-es* in *dresses*, possessive *-'s* in *John's*, past tense *-ed* in *opened* and comparative *-er* in *bigger*. These differences between communities were consistent with previous findings that, at school entry, more Cherbourg than Palm Island children were familiar with S.E. structures.

An analysis of the *incorrect responses* given to the subtest items was again made, to examine changes which may have occurred in the non-standard structures produced by the children.* In examining the changes, it must be remembered that all children attempted all items after one year at school, while some children did not attempt later items at school entry.

Consequently, more children at both communities produced *painting man* rather than *painter*. Additionally, more Cherbourg children used *weren't none* for *weren't any* while more Palm Island children used *weren't nothing*. Such double negatives involving quantifiers are common in the language of younger children acquiring S.E.# However, these non-standard patterns also occur commonly in the adult language at the communities, and therefore the children may fail to acquire the appropriate standard form through lack of experience with it.

Similarly, more children at both communities used *gone* to complete the sentence *"Now the biscuits have been ....."* In addition, more Palm Island children tended to use *finish(-ed)*. Research suggests that the past perfect tense may not be comprehended by average children acquiring S.E. until they are 6 years old.+ Since the construction is passive voice as well, this would seem to make the item even more difficult, and indeed it seems that many Aboriginal children did not take account of the passive marker. In producing *gone* or *finish(ed)* they seemed to be completing an active voice construction *now the biscuits are gone*, in which the passive *have been* is replaced by the active *are*.

---

* The percentages of children in each group who made the same errors after one year at school are shown in Appendix 3, Table 3. Changes are obtained by comparison of these percentages with those shown in Table 1 of the Appendix.

\# e.g. Menyuk, P. *Sentences children use*. Cambridge: MIT Press, 1969, p.83.

\+ Carrow, Sister Mary. The development of auditory comprehension of language structure in children. *Journal of Speech and Hearing Disorders*, 1968, 33, 99-111.

However, since the non-standard structures are commonly used by adults at the communities, it cannot be assumed that the children will later acquire the appropriate S.E. form in the absence of experience with it.

All children's greater familiarity with the requirements of the subtest is shown in part by the smaller numbers of children who responded with single nouns in their attempts to avoid constructions which were unfamiliar a year earlier. There were only 6 children out of 121 who substituted a noun for a qualifying phrase in item 7, and no child substituted a noun in response to items 4 and 6.

In summary, the analysis showed that many Aboriginal children still experienced difficulty with many S.E. structures after one year at school. However, the compensatory language program was more effective than the standard Queensland program in improving the children's competence with plural -s, present tense -ing and the superlative form -est.

Development of vocabulary

The performances of all children at the two communities on the Peabody Picture Vocabulary Test (PPVT) and the Enticknap Picture Vocabulary Test (EPV) were measured after one year at school. Mean scores and standard deviations obtained by each group on both tests are shown in Table 19.

TABLE 19: MEANS AND STANDARD DEVIATIONS OBTAINED BY COMPARISON AND EXPERIMENTAL GROUPS ON THE PPVT AND EPV TESTS AFTER ONE YEAR AT SCHOOL

	Cherbourg		Palm Island	
	Comp. (n=30)	Exptl (n=35)	Comp. (n=32)	Exptl (n=24)
PPVT				
Mean	45.1	46.0	45.0	42.5
sd	5.7	4.8	6.3	6.0
EPV				
Mean	35.6	36.8	30.9	31.9
sd	5.2	5.6	5.8	5.0

The PPVT mean scores obtained by the 4 groups of children corresponded to mental ages of 4 years 0 months to 4 years 7 months, while the EPV means corresponded to mental ages of 4 years 10 months to 6 years. These results may indicate that naming vocabulary development is in advance of listening vocabulary development. This is consistent with each group obtaining higher scores on the Verbal Expression subtest than on the Auditory Reception subtest of the ITPA.

Comparison of the mean scores obtained on both the PPVT and EPV tests shown in Table 19 and Table 8 indicates that significant gains were made by each group in both expressive and receptive vocabulary during the first year at school. Nevertheless since the mean chronological age of each group was 6 years 6 months, it is clear that vocabulary development still lagged behind that of the norming groups.

Statistical testing showed that there were no significant differences between the mean scores obtained by the different groups on the PPVT after one year at school.* This may be partly due to the unusually high mean score obtained by the Palm Island comparison group children. Since Form B of the test had accidentally been administered to these children only a few days prior to the administration of Form A, it is possible that this mean score is spuriously inflated, thus obscuring the true relation existing between the different groups.

Statistically significant differences between communities were found on the EPV test, although there were no differences between groups within communities.*

If the inflated mean score of the Palm Island comparison group on the PPVT is set aside, *it appears that there was no differential effect by the standard and compensatory language programs in improving the children's expressive and receptive vocabularies. This is not surprising, since neither test involved the use of the language structures emphasized in the compensatory program. However, it appears that both first year programs were able to effect a greater improvement with Cherbourg than with Palm Island children.*

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* The results of the analysis of variance are shown in Appendix 2 Table 6.

Chapter 6

CHANGES IN FURTHER ASPECTS OF ORAL LANGUAGE DEVELOPMENT AFTER ONE YEAR AT SCHOOL

Evaluation of the effectiveness of the compensatory program required examination of changes in those aspects of language competence assessed at school entry by the Sentence Reproduction and Oral Completion Tests. Accordingly, these tests were readministered to the experimental groups after one year at school. The comparison groups had also been tested at the end of their first year at school.

Since no results were available for the comparison groups at school entry, a direct assessment of the effectiveness of the standard Queensland program in producing changes in the comparison children's language structures was not possible.

Basic difficulties inherent in oral language testing of young Aboriginal children

It will be recalled that the Sentence Reproduction and Oral Completion tests were specially devised to test childrens' proficiency in selected grammatical structures which are characteristic of Standard English but tend to be used differently in the language of many Aboriginal speakers. Such structures include morphemes which are used in S.E. to mark grammatical changes, such as a final *-s* to indicate plural and possessive nouns, and final *-d* to indicate past tense of verbs.

It is arguable that many of these morphological differences are closely connected to phonological differences in the sound systems of Aboriginal speakers of English. For example, some people display a tendency not to make a phonological distinction between the vowel sounds *a* in *hat* and the *e* in *pet*. Therefore, no sound distinction can be made in the pronunciation of the singular *man* and the plural *men*.

Consequently, unless the Aboriginal speaker indicates whether he intends the singular or plural of the noun by using some other grammatical indicator such as an adjective or plural verb form, it is difficult for a Standard English listener to determine precisely the speaker's intention. In other words, unless there are other modifying factors which give the listener additional clues, there may be difficulties in communication of meaning between the speaker and the listener.

Such comprehension difficulties may also result from the reductions in consonant clusters which are frequently made by Aboriginal speakers of English. As stated before*, these omissions do not affect the grammatical correctness of language when they occur in the initial positions of words.

* See Chapter 4, p.27

However, in addition to affecting grammatical accuracy seriously when they occur in the final positions of words, such omissions may make comprehension of the Aboriginal speaker's intentions difficult for the Standard English listener, unless the speaker includes qualifiers to give the listener additional clues.

In addition to aspects of the phonological system which appear to influence morphological aspects of the language, there are other phonological differences between the speech of many Aborigines and speakers of Standard English. These include rate of utterance, rhythm, pitch and intonation patterns.** The meaning of Aboriginal speech to Standard English listeners may be greatly influenced by these phonological differences in addition to the ones described previously. The most important aspects appear to be that apart from speaking more rapidly, Aboriginal speakers tend to use a different stress pattern in which approximately equal time is given to all syllables uttered; in contrast, speakers of S.E. lengthen some and shorten others.

In addition to affecting comprehension of meaning, it appears that these sound and pattern features of the speech flow also affect even an experienced listener's ability to detect phonemic differences which are closely related to morphological aspects of the speaker's grammatical system.

The converse is also true. Phonological differences in the rate, rhythm, pitch and intonation patterns of S.E. speakers may affect the comprehension of Standard English by Aboriginal listeners.

In the Oral Completion Test situation, the Aboriginal child's ability to comprehend the tester's S.E. stress and intonation patterns does not appear to affect his performance on the test greatly. A picture is provided, and the child is free to produce his own language structures and rhythms, being constrained only by the content of the pictures and the cue words.

In contrast, in the Sentence Reproduction Test situation there is an additional speaking and listening step. The tester speaks the S.E. structures using S.E. stress, pitch and intonation patterns. These are heard by the child who must decode and encode the sentence using his own linguistic system. His actual spoken reproduction is therefore the result of a listening as well as a production process.

It will be realised that although the words of the test sentences are the same if they are spoken by different speakers, there are usually differences between people in the rates, rhythms, pitches and intonation patterns of their speech. This introduces undesirable variations into the stimulus situation.

** Flint, E.H. Aboriginal English: Linguistic description as an aid to teaching. *English in Australia*, 1968, 6, 3-21.

Since the reproductions made by different groups of children were to be compared, it was desirable to ensure that the sound patterns as well as the words presented would be identical for each child on each occasion. Accordingly, consideration was given to pre-recording the sentences.

This was however considered to be not feasible in the light of the need for close rapport between tester and child and the presence of distracting stimuli in the school setting. Additionally, since the method used in the test required that each sentence be presented only once, it was essential that the children be attending when the sentences were spoken. This was particularly important for those children with a hearing loss, however mild.

Therefore it was felt that face-to-face involvement with the tester was necessary to ensure that the children were listening carefully when the sentences were spoken.

It was necessary therefore to train the testers to standardize the rate, rhythm, pitch and intonation patterns in their presentations of the sentences. It was realised that different testers had different voice sound patterns of the sentences from time to time. However, it was felt that in the circumstances, this method in which each sentence was presented afresh for each child, was the only one available.

In addition to problems with standardizing the stimuli in both the Oral Completion and particularly the Sentence Reproduction Test situations, there were problems in insuring accurate recording of the childrens' responses.

In the Oral Completion Test the child is producing free language using his own syntactical and sound patterns. An experienced tester who is trained in the phonological and structural differences between Aboriginal and standard usage of English usually has little difficulty in recording the childrens' responses accurately, since the *meaning* of the response assists in determining its grammatical structure. In addition if the tester has not heard the response properly, it is possible to ask the child to repeat it.

However, in the Sentence Reproduction Test, reproduction of sentence sound patterns is required in addition to reproduction of the words and grammatical structures. Even the most experienced tester may find great difficulty in recording accurately the precise words used by the children, if indeed they have actually formulated proper words at all. Furthermore, the test precludes asking the children to repeat their responses.

Performance on the Sentence Reproduction Test

The mean numbers of sentences reproduced by each group without error were 10.3 and 10.4 for the Cherbourg comparison and experimental groups respectively, and 9.3 and 9.5 for the Palm Island groups. Statistical testing indicated that there were no significant differences between these mean scores.+

Thus the results showed that after one year at school there was no overall difference in the ability of children undertaking the standard and compensatory programs to reproduce sentences expressed in Standard English. Similarly, there was no difference between the two communities in the ability of children to reproduce the sentences.

The mean scores obtained by experimental groups after one year at school were higher than those obtained by them at school entry. Examination of Table 20 indicates that the gains were of similar magnitude for each group, and although small, statistically significant.

TABLE 20: MEAN SCORES ON THE SENTENCE REPRODUCTION TEST OBTAINED BY EXPERIMENTAL GROUPS AT SCHOOL ENTRY AND AFTER ONE YEAR AT SCHOOL

Community	At school entry		After one year at school		Gain
	mean	sd	mean	sd	
Cherbourg	8.9	2.7	10.4	2.1	1.5**
Palm Island	7.9	2.8	9.5	1.9	1.6**

** $p < .01$

The mean score for each group after one year at school was however still significantly lower than the mean score of 13.2 obtained by the Brisbane school entrants who were one year younger.* Clearly, each group of Aboriginal children still experienced difficulty in the reproduction of many sentences.

The percentages of children reproducing each sentence correctly, are shown in Table 21.#

+ The results of the analysis are shown in Appendix 2, Table 7.

* The t-values of 5.36 with 57df and 6.31 with 62df for the Cherbourg analyses and 6.80 with 59df and 8.39 with 50df for the Palm Island analyses were all significant at the 0.01 level.

The percentages of Brisbane school entrants passing each item, which were reported previously in Chapter 4, are shown again for comparative purposes.

TABLE 21: PERCENTAGES OF ABORIGINAL CHILDREN PASSING EACH ITEM IN THE SENTENCE REPRODUCTION TEST AFTER ONE YEAR AT SCHOOL, COMPARED WITH PERCENTAGES OF BRISBANE SCHOOL ENTRANTS

Item no.	Sentence	At school entry	After one year at school			
		Bris.	Cherbourg		Palm Island	
		(n=29)	Comp. (n=35)	Exptl (n=31)	Comp. (n=32)	Exptl (n=23)
		%	%	%	%	%
1	We sleep at night	100	97	98	90	100
9	What is that thing?	100	83	86	90	87
11	He might be over there	100	97	95	83	96
8	They don't know my name	100	94	95	90	96
12	Look at that fish in the water	100	59	46	63	44
2	Mary has a red coat	97	63	72	53	78
3	I want to wear it	94	97	95	93	100
6	I'm going to have a drink	94	73	69	57	78
7	He has planted the tree	94	59	40	57	26
5	That's a little bit	91	66	92	57	87
10	I saw her with Jean's apple	91	38	52	30	35
15	Johnny would like to have a cowboy suit	87	49	43	27	9
14	Will you give me one of these?	73	69	89	80	91
4	The bad dog ran after the cat	69	43	40	53	13
13	I found three turtle eggs near his house	38	14	20	7	9

The table indicates that the majority of Aboriginal children correctly reproduced Sentences 1, 9, 11, 8, 3 and 14 only. Sentence 13 was still the most difficult sentence for each group at both communities. It was also the most difficult sentence for Brisbane school entrants.

Considerable variation between groups was however apparent on the remaining 8 sentences (12, 2, 6, 7, 5, 10, 15 and 4), with the performance of each Aboriginal group being generally still well below that of the Brisbane school entrants.

An examination of errors in the reproductions was made to identify any changes which may have occurred in the kinds of modifications made by children in the various groups.* There were no major changes in the *types* of errors produced after one year at school. The most frequent modifications by all groups were still omissions of syntactical markers and substitutions of familiar structures from the children's own grammar. Thus modifications of morphological rules were still more frequent sources of errors than modifications of sentence structure rules.

The major examples of morphological differences were still the omission of the final *-s* marking plural and possessive nouns and contractions of the copula *is*. Some omissions of verb tense markers also occurred. In addition, substitutions of the verbs *'ad/'ab* for *has*, *planten* for *planted* and *sawn* for *saw* occurred. More of these errors were made by comparison than experimental children at both communities.

One of the modifications of sentence structure rules involved omissions of parts of the compound verb *would like to have* in Sentence 15. Children in comparison groups at both communities tended to omit *would, to have* or *would like to*, thus simplifying the verb to *like* or *have*. In contrast, most experimental children tended to omit *like to* thus simplifying the verb to *would have*.

However, as was the case at school entry, the majority of modifications of sentence structure rules involved mainly prepositions, pronouns and determiners. Major examples of these modifications included the omission of *with* in Sentence 10, substitution of *in* for *near* and *'e* for *his* in Sentence 13, omission of the determiners *a* and *the* and the substitution of *a* for *the* and *da* for *a* in Sentence 12, 6, 7, 5, 15 and 4.

As was mentioned previously, several testers were used to assess the children. One team tested the experimental groups at school entry and the comparison groups after one year at school; another team tested the experimental groups after their first year at school. Inspection of Table 2 in Appendix 2 shows that different patterns of errors were recorded by the two testing teams.

Analysis of the errors recorded in connexion with reproduction of Sentences 12, 7, 4, 13, 10, and 15 makes this point clear. Table 22 shows the relevant data.

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* A detailed listing of the percentages of omission, substitution and redundancy errors made in the various grammatical classes is shown in Appendix 3, Table 2.

TABLE 22: PERCENTAGES OF COMPARISON AND EXPERIMENTAL CHILDREN MAKING PARTICULAR ERRORS IN SELECTED ITEMS OF THE SENTENCE REPRODUCTION TEST

Sent. no.	Error	Cherbourg			Palm Island		
		At school entry	After one year at school		At school entry	After one year at school	
		Exptl Group	Comp. Group	*Exptl* Group*	Exptl Group	Comp. Group	*Exptl* Group*
12	da subst for that	23	31	*26*	4	7	*26*
	a subst. for that	7	0	*14*	0	0	*17*
	a subst. for the	3	0	*26*	0	7	*26*
7	a subst. for the	23	14	*49*	0	13	*61*
4	first the omitted	20	21	*20*	35	7	*39*
	run subst. for ran	0	0	*29*	4	7	*52*
13	'e' subst. for his	20	35	*66*	44	57	*83*
10	with omitted	12	3	*20*	20	17	*26*
15	like to omitted	0	3	*32*	22	10	*61*

* Tested by second team of testers

The table shows that in almost every case the percentages of experimental children recorded as making each error after one year at school exceeded the percentages of those same groups at school entry, as well as the percentages of comparison children making the error after their first year. Thus the overall numbers of errors made by the experimental children greatly exceeded the numbers of errors made both by themselves at school entry, and by the comparison children after one year at school.

Unless one is prepared to accept that the experimental program led to an increase in errors of these types by the children, one is forced to conclude that the results are a reflection of variations introduced by different testers.

Consideration of two of the sentences illustrates the problems involved in recording responses to a Sentence Reproduction Test. Sentence 4 reads: *The bad dog ran after the cat.* A Standard English speaker would tend to say the sentence with short and long stresses, whereas an Aboriginal speaker may reproduce it as *ϕ Bad dog ran(run) af' ϕ ta cat* in which each syllable occupies approximately the same time.

The tester may experience difficulty in deciding whether the child has said *ran* or *run*. This may be partly because the verb occurs in an unstressed syllable in the presentation of the stimulus. As it may be difficult for the child to interpret whether the tester said *ran* or *run*, he may produce a compromise sound half-way between the two vowel sounds. Alternatively, there may be no difference between the two vowel sounds in the child's phonological system, and so for a different reason he may produce a sound which is half-way between *ran* and *run*. In either case one tester may decide the child said *ran* and another may decide the response was *run*.

Similarly the recorded omission of the first article *the* may result from different causes. Again, the article occurs as an unstressed syllable and the child may be unsure what the tester said. Some children tend to precede their response with an almost imperceptible neutral vowel. This may not have been heard by the tester, or may not have been thought to be part of the child's response.

Additionally in the child's reproduction of *after the cat* as *af' ϕ ta cat*, the listener has to decide whether indeed the second syllable in *after* has been reproduced correctly and the article omitted or whether the article has been reproduced correctly and the second syllable of *after* omitted.

In Sentence 12: *Look at that fish in the water* the problems are slightly different. The children tend to reproduce this sentence as *Lookeda fish ina water*. Since the children tend to run the words together, and the tongue positions for articulating *t* and *th* in *at that*, and *n* and *th* in *in the* tend not to change, it is again almost impossible to distinguish whether the children have reproduced the phrases correctly or not.

Although statistical results on this test have been reported both for performance at school entry as well as after one year at school, it seems apparent that the scores obtained by the children depended partly on the particular tester who conducted the test.

The results have been included in the report because it was only after different testers had been used, that the pervasive influence of the S.E. testers' own linguistic systems were realised.

As described in the introduction to this chapter, at least two major sources of variation may be introduced by the tester. On the one hand variation in the sound patterns of the stimulus sentences was possible. Therefore, in spite of attempts to train all testers in their presentation of the sentences, it may be that the second team of testers introduced some systematic change in rate, rhythm, pitch or intonation which influenced the children's hearing of the sentences and consequently affected their reproductions.

In addition, variation in interpretation of the children's responses was possible. That is, the responses may not have changed but the second team of testers may have recorded the responses differently.

It may be that the rhythm and intonation patterns of the children's reproductions were some composite of the original S.E. with Aboriginal patterns superimposed or intermingled. This composite may add to the testers' already difficult task of determining from the sentence sound pattern precisely what the words produced by the children actually were.

In this study it was not possible to ascertain whether the differences found between the groups resulted from variation in the testers' presentations of the sentences, thereby changing the test requirements for the children, or whether the differences resulted from differences in the listening skills of the testers.

This situation clearly raises basic problems which attend research into the oral language of Aboriginal children. Other research* has indicated previously the importance of differences in listening and production competence for communication between speakers of standard and non-standard forms of English. The results reported in this study also contain a warning for research workers who are using a sentence reproduction technique to examine grammatical differences with different groups; such workers need to be alert to real and apparent differences. Unless persons undertaking testing are sensitive to the various characteristics of the types of language typically used by the children, as well as to characteristics of their own language usage, they may be unaware of the subtle, but nevertheless fundamental, differences which phonological as well as grammatical features make. This situation would also be true for teachers and other S.E. speakers communicating with Aboriginal children in various circumstances.

Performance on the Oral Completion Test

The Oral Completion Test examines the children's ability to *produce* language in contrast to the ability to *reproduce* language. It will be recalled that the phonological problems discussed in the previous section do not appear to influence the tester's recording of the children's free productions to any marked degree. In fact, examination of the records of the two teams of testers who assessed the comparison and experimental children indicated that the variations in errors found on the Sentence Reproduction Test did not occur. It was considered that confidence may be placed in the results, and consequently analyses of these results on the Oral Completion Test are presented without qualification.

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* Halle, M and Stevens, K. Speech recognition: a model and program for research. *In* J.A. Fodor and J.J. Katz, *The Structure of Language: Readings in the Philosophy of Language*. Inglewood N.J.: Prentice-Hall, 1964.

Troike, R.C. Receptive Competence, Productive Competence and Performance. *Monograph Series on Language and Linguistics*, 1969, 22, 62-73.

The mean number of correct single words following the cue words given by each group were 10.4 and 17.1 for the Cherbourg comparison and experimental groups respectively, and 8.3 and 10.9 for the two Palm Island groups.

Statistical analysis showed that these means were significantly different, both between communities as well as between groups within communities.* The differences were primarily the result of the remarkably high scores obtained by the Cherbourg experimental children after one year at school. The mean score obtained by this group was statistically different from the mean scores obtained by all other groups. The other means did not differ significantly from each other.#

Statistical analysis also showed that each experimental group recorded significant gains after one year at school. These are shown in Table 23.

TABLE 23: GAINS IN CORRECT RESPONSES FOLLOWING CUE WORDS IN ORAL COMPLETION TEST BY EXPERIMENTAL GROUPS AFTER ONE YEAR AT SCHOOL

Community	At school entry		After one year at school		Gain
	mean	sd	mean	sd	
Cherbourg	5.9	3.8	17.1	3.9	11.2**
Palm Island	2.1	1.3	10.9	3.7	8.8**

** $p < .01$

It is apparent from the table that the experimental groups made very substantial gains during the year, the Cherbourg gain being quite outstanding. It will be noted that the Cherbourg experimental group gained an increase of 11.2 items on a 21 item test.

It seems reasonable to conclude that the special compensatory program was largely responsible for the experimental children's markedly increased facility in the production of S.E. structures after one year at school. However, although the mean score of 17.1 by the Cherbourg experimental group had narrowed the gap considerably, it was apparent that the mean score of this group as well as the other three groups was still significantly lower than the mean score of 19.7 obtained by Brisbane school entrants.+

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* The results of the analysis are shown in Appendix 2, Table 7.

\# The results of the analyses are shown in Appendix 2, Table 8.

\+ The results of the analyses are shown in Appendix 2, Table 9.

The percentages of children producing correct responses in each grammatical class are shown in Table 24. The percentages of Brisbane school entrants correct in each class, which were reported previously in Chapter 4, are shown again for comparative purposes.

TABLE 24: PERCENTAGES OF ABORIGINAL CHILDREN PRODUCING CORRECT RESPONSES TO FOLLOW CUE WORDS IN ORAL COMPLETION TEST AFTER ONE YEAR AT SCHOOL, COMPARED WITH PERCENTAGES OF BRISBANE SCHOOL ENTRANTS

Grammatical Class	Syntactical Form	At school entry	After one year at school			
		Bris.	Cherbourg		Palm Island	
		(n=31)	Comp. (n=30)	Exptl (n=35)	Comp. (n=32)	Exptl (n=24)
		%	%	%	%	%
Regular noun	Plural s	100	87	95	23	50
Prepositional phrase	Preposition	90	70	93	77	92
Verb	Present continuous is v + ing	95	44	80	32	55
	Copula is/are	87	54	91	47	50
	Present has/has got	84	25	20	13	17
	Past fell/has fallen	68	70	72	31	37
	Future will+verb	90	7	49	16	21

The table shows that, after one year at school, the Cherbourg experimental group was as competent as the Brisbane school entrants on all items except the present tense *has/has got* and the future tense *will*+verb. The other groups were considerably less competent.

More experimental than comparison children at both communities were competent with the production of the plural *-s*, the two prepositions, and the present continuous tense *is* verb+*ing*. The results were consistent with the changes in ITPA Grammatic Closure subtests scores after one year at school which were discussed in Chapter 5 and may be largely attributed to the compensatory program.

In addition, more Cherbourg experimental children than children in the other three groups were proficient in the production of the copula *is* and the future tense *will*+verb. While the increase in facility with the copula was expected, the increased facility with the auxiliary *will* was unexpected since the structure was not emphasized in the special program.

Differences between the two communities which were present at school entry still existed after a year at school. More Cherbourg than Palm Island children in corresponding groups were competent with the plural *-s* and past tense *fell*. Significant differences between communities were also obtained in the use of the verb *is* both as an auxiliary and as the copula.

As was found at school entry, the majority of errors in verb forms made by children after one year at school involved omission of words and grammatical markers. In fact, with the exception of the Cherbourg experimental group, over 40 percent of verb form responses made by Aboriginal children were errors of this kind. Table 25 shows the percentages of children making these errors with the different verb forms after one year at school.

TABLE 25: PERCENTAGES OF COMPARISON AND EXPERIMENTAL CHILDREN OMITTING VERB FORMS IN ORAL COMPLETION TEST AFTER ONE YEAR AT SCHOOL

Verb form required	Omission of	Example	Cherbourg		Palm Island	
			Comp. (n=30)	Exptl (n=35)	Comp. (n=32)	Exptl (n=24)
Present continuous is/are v + ing	Auxiliary is/are	He ϕ eating	47	10	53	45
	Auxil. is/are + ing	He ϕ eat	2	0	15	2
Copula is/are	is/are	She ϕ sick	27	11	22	43
Present has/has got	Auxiliary has	She ϕ got four	37	33	45	58
	has/has got	She ϕ four	22	1	5	0
Irregular past fell	Past tense marker	She fall	3	3	47	33
Future will + verb	Auxiliary will	He ϕ drink it	83	11	75	33

The table shows that the only important non-standard usage by Cherbourg experimental children was *got* for *has/has got*. There is evidence that *got* may be used in place of *has/has got* even by 7 year old children who are acquiring Standard English.* However, its usage by many Aboriginal children in all groups, seems to result from the frequent usage by many Aboriginal adults of *got* alone.

The table shows that more than 40 percent of the Palm Island experimental group after one year at school still omitted *is*, both as an auxiliary and as the copula. This was in spite of the emphasis on this verb in the compensatory program. Since the omission of *is* occurred in sentence structures used very frequently by the children, usage of this form appears relatively resistant to change. It is hoped that an improvement similar to that achieved by the Cherbourg children may be evident after the children have participated in a compensatory program for a longer period.

Analysis was again made of the phrases given after the single words to complete the sentences. The mean numbers of completions and the mean numbers of correct completions are shown in Table 26. The mean numbers of completions given by Brisbane school entrants, which were reported previously in Chapter 4, are shown again for comparative purposes.

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* Menyuk, P. *Sentences Children Use*. Cambridge: MIT Press, 1969.

TABLE 26: MEAN NUMBERS OF COMPLETIONS GIVEN TO ORAL COMPLETION TEST BY ABORIGINAL CHILDREN AFTER ONE YEAR AT SCHOOL, COMPARED WITH MEAN NUMBERS GIVEN BY BRISBANE SCHOOL ENTRANTS

		At school entry	After one year at school			
		Bris.	Cherbourg		Palm Island	
		(n=31)	Comp. (n=30)	Exptl (n=35)	Comp. (n=32)	Exptl (n=24)
Mean number of completions		18.6	18.8	19.8	19.4	20.2
Mean number of correct completions		17.2	13.5	16.1	10.5	12.0
Mean number of correct completions containing:	Noun phrase	4.1	3.4	3.7	2.4	2.1
	Prepositional phrase	7.6	5.2	7.8	3.5	4.6
	Subtotal for phrases	11.7	8.6	11.5	5.9	6.7
	Particle	2.5	1.7	1.8	1.5	2.3
	Pronoun	0.2	0.3	0.9	0.3	0.1
	Adverb	0.1	0.4	0.1	0.2	0.9
	Adjective	1.6	1.8	1.6	1.6	1.8
	Impersonal pronoun	0.9	0.6	0.1	1.0	0.1
	Subtotal for words	5.4	4.8	4.5	4.6	5.2

After one year at school, each Aboriginal group was as fluent as the Brisbane school entrants. The increases in the number of completions, particularly by the Palm Island children in both groups, occurred partly because the children had overcome the difficulty shown at school entry with sentences beginning with *it*. In addition, there was a reduction in the number of children not responding at all to some items.

The table shows that Aboriginal children in all groups tended to make many errors in their responses. Statistical analyses# showed, however, that experimental children at both communities produced significantly more correct completions than children in the corresponding comparison groups. In addition Cherbourg children in both groups produced significantly more correct responses than Palm Island children. This was consistent with the results at school entry.

The results of the analyses are shown in Appendix 2, Tables 7 and 8.

Again the highest scores were obtained by the Cherbourg experimental children. Their mean score was significantly greater than those obtained by all other groups.* Additionally, the mean was not significantly different from that obtained by the Brisbane school entrants.

Table 27 shows the gains made by each group after one year at school.

TABLE 27: GAINS IN CORRECT COMPLETIONS TO ORAL COMPLETION TEST BY EXPERIMENTAL CHILDREN AFTER ONE YEAR AT SCHOOL

Community	At school entry		After one year at school		Gain
	mean	sd	mean	sd	
Cherbourg	12.7	3.6	16.1	3.1	3.4**
Palm Island	8.7	2.9	12.0	2.1	3.3**

** $p < .01$

The table shows that the gains made by the two experimental groups were of similar magnitude and statistically significant.

Details of the different types of words and phrases produced by the various groups to complete the sentences were given in Table 26. Examination of the table shows that, after one year at school, the Cherbourg experimental group produced similar proportions of the different response categories to the Brisbane school entrants, as well as a similar number of correct responses.

Comparison of Table 26 and Table 13 in Chapter 4 shows that the most remarkable improvement for all groups of children was in the increased number of correct prepositional phrases produced. For the Cherbourg children this was associated with a drop in the number of single adverbs given as completions.

Reference to Appendix 1 shows that the test contains 6 questions commenced by *where* which require a locative phrase as the response. At school entry there was a tendency for children at both communities to respond with the single adverb *there*, often accompanied by a pointing response. After one year at school most children in all groups attempted to form prepositional phrases, which allowed their use of prepositions, determiners and pronouns to be examined. For example, in response to the question *Where is the toothbrush?* the sentence *It is in 'e 'and* tended to be given after one year at school, rather than *It ϕ there*.

* The results of the analysis are shown in Appendix 2, Table 8.

This change appeared to represent an increased elaboration of the children's language systems, allowing greater specificity in their responses. It also allowed more opportunities for errors to be made.

It will be recalled that a phrase was only counted as correct if it was produced entirely without error. Consequently, the differences between the groups in the number of correct responses appear to have resulted primarily from differences in the correctness of their usage of prepositions, determiners and pronouns.

Examination of the errors indicated that, after one year at school, substitution of inappropriate pronouns accounted for half the errors made by each group of children. In fact, the substitution of *he/'e* for *his* and also for *her* accounted for one third of these errors for each group. Additionally, some Palm Island children tended to substitute *'im* for *her* while some Cherbourg children tended to use *the* for *his*.

In addition, many children in all groups interchanged the prepositions *on* and *in*, and also used both prepositions in contexts where *near* would have been more appropriate. Also some Palm Island children in both groups also tended to use the articles *a* and *the* when the indefinite quantifier *some* was required.

However, children in experimental groups at both communities tended to make fewer omissions of prepositions and determiners after one year at school, while there was no apparent change in the number of these errors made by comparison children.

Summary of performance on the two tests

It will be recalled that at school entry, *reproduction* of sentences containing S.E. structures appeared to be an easier task for Aboriginal children than the *production* of those structures. After one year at school it appeared that gains made by the experimental children in the reproduction of sentences were small. Subsequent examination of the errors recorded by different teams of testers highlighted basic difficulties in the testing of oral language reproduction by young Aboriginal children. These problems pointed to the fundamental role which *phonological* as well as *morphological* differences play in the perception of the language by speakers of different forms of English.

These difficulties did not appear to be so critical in the language production situation. Consequently confidence was placed in the testers' recordings of the childrens' controlled language productions.

All groups made significant gains after their first year at school. However, children at both communities who participated in the compensatory program made greater gains than did children who received the standard program. The structures with which significantly more experimental group children were competent included the plural *-s*, the verb *is* both as an auxiliary as well as the copula, the production of appropriate prepositions, and the auxiliary *will* in a future tense verb.

It will also be recalled that, at school entry, more Cherbourg than Palm Island children were competent in the production of S.E. structures. This relationship between the performances of children at the two communities was maintained after one year at school. Cherbourg children in both experimental and comparison groups still tended to *produce* more correct S.E. structures than did Palm Island children in corresponding groups.

In addition, the gains made by each group of experimental children were generally of similar magnitude. After one year at school the performances of many Cherbourg experimental children were indistinguishable from those of Brisbane school entrants. However, since fewer children tended to be competent with Standard English at school entry, many Palm Island children still had much to acquire before they would be as competent with some S.E. structures.

In general, for children in all groups, school experience appeared to increase their familiarity with Standard English, and lead to an increased elaboration in their use of language. However, it was clear that many children receiving the standard program continued to express themselves in the language structures spoken by the adults in their community.

In contrast, it was encouraging to find so many Cherbourg experimental children who not only gave more elaborated responses but also were accurate in their use of S.E. structures. It was also encouraging to find some Palm Island children who were also using S.E. structures competently. It is hoped that with more experience with the compensatory program, the remainder of the group will become proficient with Standard English.

Chapter 7

ASPECTS OF SCHOOL ACHIEVEMENT AFTER ONE YEAR AT SCHOOL

Unlike the standard program undertaken by the 1969 entrants to school, the special program undertaken by the 1970 entrants did not emphasize the acquisition of reading skills and other goals characteristic of a traditional first year program. These were secondary considerations. The main emphasis throughout the year was on developing competence in oral language. Concurrently, attempts were made to develop an understanding of the function of printed material in communication as well as creating a generally favourable attitude towards reading. Specific instruction in reading alone was not included. Such instruction as was included was an integral part of the child's language experiences.

It was not expected that the children, after the short 26 week program, would achieve at high levels when assessed by traditional school achievement tests. Nevertheless, assessment of some areas of school achievement was considered warranted. The school achievement tests previously described in Chapter 2 were accordingly administered to each group at the completion of their first year at school.

The mean scores obtained by various groups of children on the different tests are shown in Table 28.

TABLE 28: SCORES ON ACHIEVEMENT TESTS OBTAINED BY VARIOUS GROUPS AFTER ONE YEAR AT SCHOOL

Test	Cherbourg				Palm Island		
	Comp. (n=30)		Exptl. (n=36)		Comp.	Exptl. (n=24)	
	mean	sd	mean	sd		mean	sd
Hull Word Recognition Test	3.5	5.0	8.1	4.1		4.5	4.1
Number Test	4.3	2.4	6.7	2.6		5.1	2.3
Program Word Recognition Test	N.A.*		7.8	2.5	N.A.*	6.5	3.0
Program Sentence Recognition Test	N.A.		19.0	6.6		11.0	8.2
Boehm Test	N.A.		32.8	5.4		25.6	6.3

* N.A. = not administered

Results were available for both experimental groups on all of the tests. Comparison group results were available on only the Hull Word Recognition Test and the Number Test for the Cherbourg group.

Performance on word and sentence recognition tests

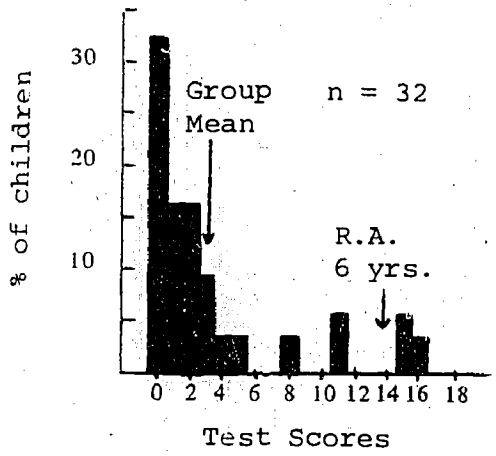
The highest mean scores on the three tests involving word and sentence recognition (Hull Word Recognition, Program Word Recognition, Program Sentence Recognition) were recorded by the Cherbourg experimental group. Both experimental groups, moreover, obtained higher mean scores on the Hull Word Recognition Test than did the only comparison group for which information is available.

Statistical testing showed that children in the Cherbourg experimental group were able to read significantly more words on the Hull Test than both the Palm Island experimental and Cherbourg comparison group children.* The difference between the mean scores of these latter two groups was not significant.

Although the compensatory program did not specifically nor primarily attempt to develop word recognition skills of children during their first year at school, it is of considerable importance that the children who had undertaken that program could recognize more words at the end of their first year at school than could the children from Cherbourg who in the previous year had undertaken a standard program.

Examination of the distribution of scores obtained by the three groups on the Hull Word Recognition Test reveals a most interesting situation. The Cherbourg comparison group after a year at school contained a large proportion of children who failed to score on the test. This is illustrated in Figure 4.

FIGURE 4: DISTRIBUTION OF SCORES ON HULL WORD RECOGNITION TEST FOR CHERBOURG COMPARISON GROUP AFTER ONE YEAR AT SCHOOL

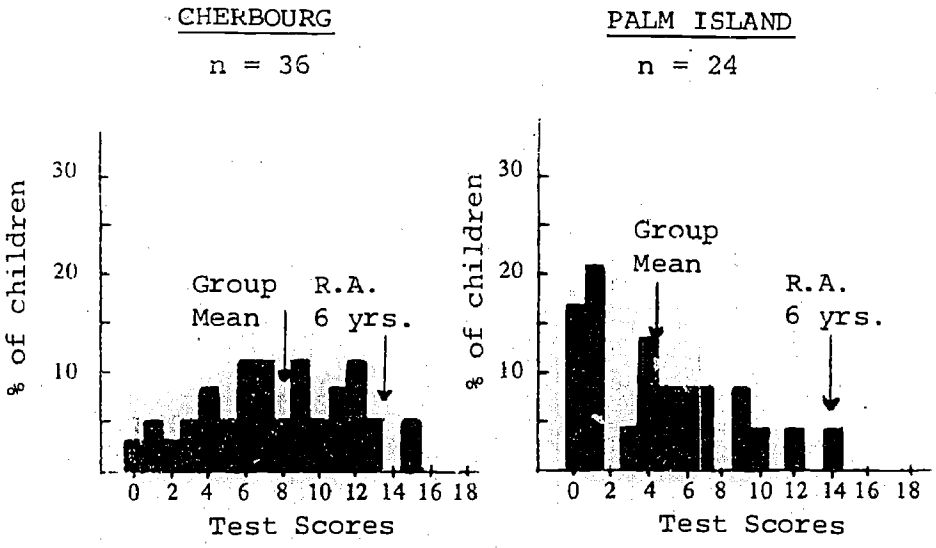


* The results of the analyses are shown in Appendix 2, Tables 10 and 11.

One-third of this group were unable to recognize one word on the test after a year at school, in spite of the fact that during that year considerable efforts were made in a formal sense to teach reading. Only one-third of the children were able to read 3 or more words.

In contrast, the distribution of results for the two experimental groups showed much greater proportions of children scoring higher results.

FIGURE 5: DISTRIBUTIONS OF SCORES ON HULL WORD RECOGNITION TEST FOR EXPERIMENTAL GROUPS AFTER ONE YEAR AT SCHOOL



Only one child at Cherbourg failed to read any word and almost 90% were able to read 3 or more words. More than 60% of the Palm Island group read 3 or more words, twice the proportion for the Cherbourg comparison group.

Statistical testing showed that there was no significant difference between the Cherbourg and Palm Island experimental groups in their recognition of the 10 program words.*

However, the difference between the two experimental groups in their reading of the program sentences was significant.* This seems to be because more Cherbourg than Palm Island children recognized the complete language units contained in the sentences.

* The results of the analysis are shown in Appendix 2, Table 11.

The children appear to have frequently recognized some part of a sentence and then constructed a sentence to include the part they had recognized. For example the sentence *Daddy is a man* may have been read as *Daddy is a working* or *Daddy is a tall* by some children.

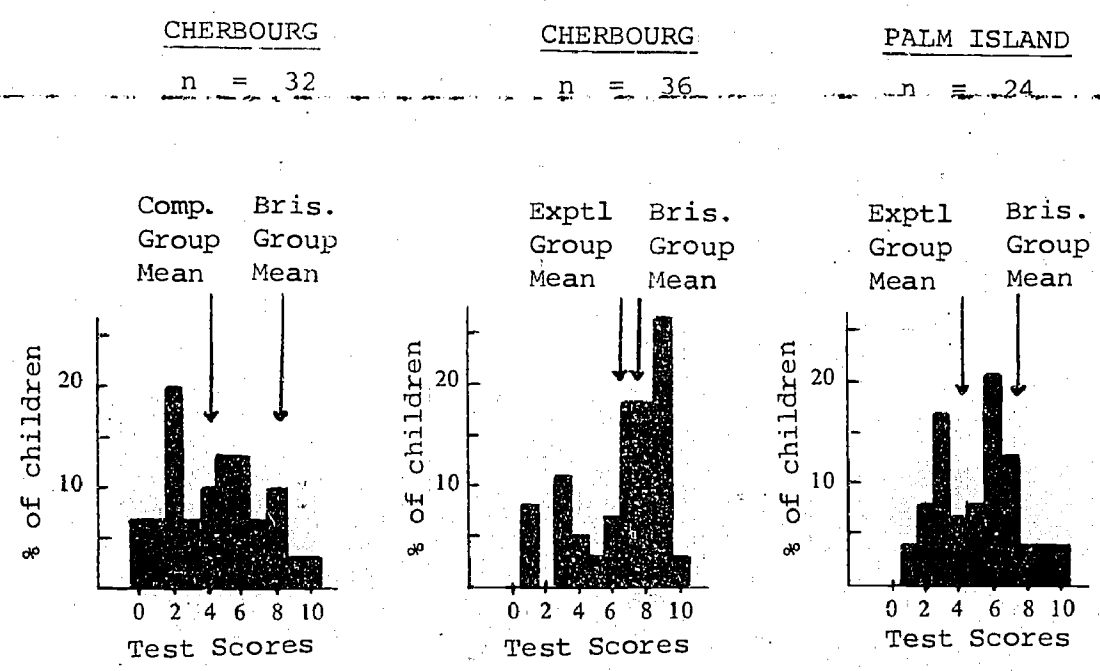
Other errors appear to have occurred through the intrusion of the children's original language structures. For example, *That's a car* may have been read as *They a car*. Alternatively, language structures acquired during the first year at school may have intruded in inappropriate contexts, so that, for example, the sentence *I'm going to school* was read as *I'm am going to school*.

Performance on the mathematical tests

Results were available for three groups on the Number Test. Statistical testing of the scores obtained on the Number Test showed again that the Cherbourg experimental group children were more proficient than children in both the Cherbourg comparison and Palm Island experimental groups.* There was no difference between the scores obtained by the latter two groups.

The distribution of the scores obtained by each group are shown in Figure 6. The mean score obtained by a group of 36 Brisbane children from a lower socioeconomic area at the end of their first year at school is also shown for comparative purposes.

FIGURE 6: DISTRIBUTIONS OF SCORES ON NUMBER TEST FOR CHERBOURG COMPARISON GROUP, COMPARED WITH THE EXPERIMENTAL GROUPS



* The results of the analyses are shown in Appendix 2, Tables 10 & 11.

While only 6 percent of the Cherbourg comparison group obtained scores of 9 or 10 on the 10 item test, approximately one third of the corresponding experimental group obtained these scores. Nevertheless the mean score for that group was significantly below that achieved by the Brisbane group.

The Boehm Test of Basic Concepts assesses children's knowledge of many of the terms commonly used in day by day communication as well as in stating mathematical relationships.

The test was administered to the two experimental groups at the end of their first year at school. The Cherbourg group was competent with significantly more* of the items than was the Palm Island group. The Cherbourg group in fact obtained a mean score similar to that obtained by the low socioeconomic Grade 1 children of similar age who comprised part of the norming population for the test.

The mean score of the Palm Island group was similar to that obtained by the corresponding low socioeconomic group aged one year younger.

An analysis was undertaken to compare the relative difficulty levels of the 50 items for both groups of Aboriginal children and for the low socioeconomic Grade 1 norming group. Difficulty was defined in terms of the percentage of children who passed the item. Least difficulty was defined at 75-100% passing, moderate difficulty as 50-74% passing and greatest, as less than 50% passing. The comparison is shown in Table 29.

* The results of the analysis are shown in Appendix 2, Table 11.

TABLE 29: COMPARISON OF DIFFICULTY LEVELS OF BOEHM BASIC CONCEPT TEST ITEMS FOR ABORIGINAL AND AMERICAN CHILDREN OF SIMILAR AGE

Difficulty level for Aboriginal children	Difficulty Level for Norming Population1		
	Least	Moderate	Greatest
Least	nearest st* inside next to (C) through corner (C) around half (gone) (C) middle over (C) top widest (C) some (not many) almost (empty) after different	above second (C) not first or last (C) zero (C) centre (P)	
Moderate	several away from* every between (C) behind farthest (C) in a row next to (P) corner (P) half (gone) (P) over (P) widest (P)	side never* separated right centre (C) few (C) other (C) second (P) not first or last (P) zero (P)	forwards (C)
Greatest	whole between (P) farthest (P)	beginning as many as* two alike few (P) matches other below (P) left always	medium-sized third* pair in order* two equal least* skip forwards (a box) (P)

1 Low socioeconomic level Grade 1 children at beginning of the year
* 20 percent more Cherbourg than Palm Island children passed item
C = Cherbourg children only
P = Palm Island children only

Those concepts shown in the cells of the table along the diagonal running from upper left to lower right were of equal difficulty for Aboriginal and norming groups as indicated. The concepts in the cells above the diagonal were those with which more Aboriginal than norming children were competent while those listed below the diagonal were those with which fewer Aboriginal children were competent.

Most children in all groups knew the spatial concepts in the test. Exceptions to this were the difficulties shown by Aboriginal children at both communities with the terms *below* and *left*. In addition, Palm Island children were not able to indicate *between*, *farthest* and *forward*.

The majority of the quantity terms in the test refer to discrete number rather than continuous quantity. Children in all groups knew most of these terms, but all had difficulty with *pair*, *two equal* and *least*. In addition, Aboriginal children at both communities experienced difficulty with the time concepts *beginning* and *always*, and the correspondence terms *matches* and *two alike*. Palm Island children also had difficulty with *other*.

However, the table shows that the experimental children at both communities performed at the same level as American children of similar age and circumstance in many conceptual areas.

Summary:

The special compensatory language program which was implemented for the latter 26 weeks of the school year emphasized the development of the individual child and his motivation prior to emphasizing achievements expected by traditional first year programs.

Nevertheless it was clear that the children had made more progress in both word recognition skills and number concepts than had children receiving the standard program. While the mean levels of achievement attained by the experimental children were still below those attained from average Queensland first grade children it was encouraging to find so many individual children, particularly in the Cherbourg group, who were performing at levels which closely approximated Queensland averages.

A corollary of this improved performance was that the majority of experimental children experienced a feeling of success in being able to read *some* words, however few, and in being able to solve *some* of the number problems. This contrasts with the frequent feelings of failure and frustrations experienced by so many of the comparison children during their first year at school. Thus the compensatory program was clearly successful in both its tangible aspects as measured by appropriate tests, as well as its intangible aspects for which no formal testing seemed applicable.

Chapter 8

REVIEW

The language competence of Aboriginal school entrants

Psycholinguistic testing of Aboriginal school entrants revealed strengths and weaknesses. In general, scores were higher on tests which involved non-symbolic stimuli than on tests which required the manipulation of words and symbols. However, the children appeared to have less difficulty with tests using visual symbols or pictures than with those using auditory symbols or words.

The children were able to express themselves relatively well in gesture, and to a lesser degree in single words. However, they experienced considerable difficulty with comprehension of either single words or words in sentences. More Palm Island than Cherbourg children experienced these difficulties.

Two major factors appeared to influence this situation. Firstly, the children's preschool environments were relatively impoverished in material terms. They had a limited experiential background in the methods and materials used in the testing procedures, and consequently tended to lack the necessary skills and concepts to perform well on the tests.

However, the predominant influence appeared to stem from the children's acquisition of an oral language code in which both structural and phonological patterns were different from those of Standard English. Comparative analyses of Aboriginal and Brisbane school entrants' reproductions and productions of some Standard English language structures indicated some differences between the oral language codes of the two communities and Standard English.

It is recognized that the various testing situations explored only a limited range of possible grammatical constructions and vocabulary. For example, no attempt was made to examine competence with conjunctions, However, the consistency of the differences obtained in both reproduction and production contexts enabled some important conclusions to be drawn.

Firstly, Brisbane 5 year old children have generally acquired competence with the regular features of Standard English. They can apply the appropriate morphemes which mark plural and possessive nouns and superlative adjectives. They can inflect verbs to produce the appropriate present, present continuous and past tense forms of regular verbs. They can use the auxiliary verbs *is* and *are, has, will* and *do* to produce compound verb forms. They are competent in the use of personal pronouns, definite and indefinite articles and appropriate prepositions. In general, they use adjectives and prepositional phrases to elaborate their statements.

There are no doubt many features of Standard English, such as irregular plural noun and past tense verb forms, which these children have yet to acquire. However, it is clear that at school entry they are at ease with the language of instruction and should have little difficulty in communication, both in terms of comprehension of what is said in the classroom, and in terms of making themselves understood.

Secondly, Aboriginal school entrants have also successfully acquired competence with the features of the language spoken by the adults in their community. However, while this language code is not very different from Standard English for some Aborigines, it is clear that there are many important differences which influence the language structures acquired by many of the children. Thus, while some children, particularly at Cherbourg, were familiar with a number of the Standard English structures, there were many children, particularly at Palm Island, who were not.

Characteristically, the language spoken by many Aborigines tends to be less elaborated than Standard English. It is a face-to-face language which tends to rely a great deal on contextual cues and intonational inflections to make the distinctions which are marked by morphological and structural changes in Standard English grammar. Consequently the structures used by many Aboriginal school entrants tend also to be less elaborated than Standard English structures. The predominant impression is one of omission of essential distinguishing grammatical markers. For example, morphemes which mark plural and possessive nouns and comparative and superlative adjectives are in general not applied.

In addition, verbs tend not to be inflected to form present tenses, past participles and past tenses. The auxiliary verbs *have*, *will* and *do* tend to be omitted, as well as all present tense forms of the verb *to be* both as an auxiliary and as the copula. Infinitive constructions also tend not to be used.

Prepositions and articles frequently tend to be omitted or used inappropriately. No distinction tends to be made between masculine and feminine personal pronouns, and the pronoun *he* may be used generally for nominative, possessive and object ~e cases of both genders, as well as for inanimate objects.

The children experience difficulty in reversing the usual active sentence word order of doer, verb and receiver, and thus find it difficult to begin a sentence with the impersonal pronoun. They also tend to use short sentences, with few qualifying adjectives, and to use simple adverbs rather than prepositional phrases as modifiers.

All these differences may tend to make communication difficult for the children in the classroom. Their comprehension of the language of instruction may be limited by their unfamiliarity with the Standard English spoken by the teacher. Their restricted language code may make it difficult for them to express themselves clearly to make themselves understood by the teacher.

Equally important, since the influence of the children's own grammar is so pervasive, the differences may make it difficult for them to acquire many necessary skills and concepts. For example, without the morphemes to mark comparative and superlative adjectives, they may experience difficulty in acquiring and expressing size concepts. Lack of facility with the "if... then ..." sentence structure may hinder development of logical reasoning.

Additionally, it seems reasonable to assume that young children will learn to read words and syntax already within their oral language competence more easily than patterns which are not. Moreover recent research* seems to indicate that there may be a mismatch between the written language of early books in several commonly used reading series and the level of language development of children learning to read them.

Clearly, the mismatch is much greater for Aboriginal children who are acquiring the patterns of English spoken by Aborigines rather than those of Standard English. It is not surprising, therefore, that many Aboriginal children have experienced difficulty in learning to read.

Development of the compensatory program

The major aim of the project was to help the children develop facility in the use of S.E. language structures. The assumption was that this accomplishment should facilitate the learning of reading and writing skills, as well as assist in general cognitive development.

The compensatory language program provided many meaningful situations for the children to hear the structures of Standard English spoken, before they were asked to produce them. This experience was intended to ensure that the children would absorb the structures in much the same way as they had acquired their own language code. It was hoped that the children would learn to use S.E. structures automatically in appropriate contexts, while still continuing to use their initial language code within their community.

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* e.g Evelyn Hatch *The syntax of four reading programs compared with language development of children.* Inglewood, Calif: Southwest Regional Laboratory for Education Research and Development, 1972.

Care was exercised in the selection and sequence of introduction of structures as program units. Structures were always introduced in an order determined by the computer analyses of their frequencies of occurrence in the oral language of Aboriginal and non-Aboriginal preschool children.

Inclusion of content words was also determined by the frequency indices, since words occurring with high frequency in the oral language of Aboriginal children could be expected to assist in ensuring interest and motivation. Additionally, the sequencing of sounds was determined both by structural necessities and by the consistency of sound-symbol associations in Standard English.

Development of auditory discrimination skills was considered necessary to enable accurate listening to take place. It had been shown that many Aboriginal children suffer marked hearing loss.* Therefore, care needed to be taken to compensate for any physiological defect, through the use of special equipment and teaching aids to increase motivation. Grouping practices which allowed for increased individual attention were also used extensively.

A further task was to provide enrichment activities to expand the children's experiential background. Activities needed to be meaningful to the children and therefore drew heavily on their early experiences. Concurrently, attempts were made to extend their interests and aspirations. Specific activities were carefully planned to develop classificatory, relational and problem-solving skills.

The compensatory program, in short, emphasized the use of standard grammatical units in enriching activities which were both meaningful and enjoyable to the children.

Effects of the standard Queensland program on children's progress during their first year at school

Psycholinguistic testing of the comparison group children after one year at school showed no effective changes in performance on the test as a whole. Detailed analyses of subtest results showed small but significant gains on Auditory Reception and Association, and again significant losses on Verbal and Manual Expression and Auditory Sequencing. The gap between the comparison group and the norming population was consequently not narrowed to any extent.

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* Stuart, J.E. Quayle, C.J. Lewis, A.N. & Harper J. Health, hearing and ear disease in Aboriginal school children. *Medical Journal of Australia*, 1972, 1, 855-859.
Testing the hearing of Aboriginal children. Brisbane: Department of Education, Queensland, Van Leer Foundation Project, Research Bulletin No.2 (cyclostyled), 1969.

The exception to the general situation was that some small improvement was made in the *comprehension* of Standard English patterns. It was most likely that this resulted from increased contact with Standard English in the school setting.

However *production* of S.E. structures seemed to be less amenable to improvements. While some children were able to make progress, there were many for whom no change was effected. Indeed it appeared that some of the adult Aboriginal language patterns became more firmly embedded in some children's oral language systems.

There was also no reduction in the differences between the performances of children at the two communities. More Cherbourg than Palm Island children continued to be proficient in both the comprehension and production of S.E. structures.

Significant progress in learning to read was achieved by only 20 percent of the children by the end of the year.* One third of the children were unable to decode any words, while another third could read only one or two words of the test.

Effects of the special compensatory program on children's progress during their first year at school

Psycholinguistic testing of the experimental group children after one year at school showed that, in general, the children's levels of performance had improved dramatically, particularly with regard to the abilities required in the manipulation of meaningful sounds and symbols. The compensatory program proved to be successful in assisting the children to make the additional progress necessary to reduce the gap between their levels of performance and those of the norming population.

However, it was clear that the *patterns* of abilities remained relatively unchanged by the short experience with the experimental program. While there was general improvement in almost all performances, the subtests on which the children obtained the lowest scores at the outset remained those with the lowest scores at the end of their first year at school. Successful performance on each of these subtests appeared to be closely related to structural differences between the oral language patterns of Aboriginal people and those of Standard English.

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* Cherbourg comparison group only. Informal assessment indicated that percentage of Palm Island children was perhaps lower.

The gains in the children's performances may be attributed directly to the methods and content of the special program. Enriching the learning environment and providing experience with a wide range of visual material seem to have compensated for the effects of the children's limited experiences. For example, the improvement in the children's visual sequential memory seems likely to have resulted from visual discrimination training in which reduced stimulus exposure times of line drawings were used. Additionally, the gains in both auditory and visual association abilities may be at least partly due to the provision of a wide range of concrete materials for use in matching, sorting and classification activities.

Perhaps more importantly, when implementing the program, verbalization by the children while involved in activities was continuously encouraged. Children frequently worked with one or more friends in pairs, or small groups, discussing what they were doing. Additionally, activities in which the children examined objects by touch, taste and smell as well as sight and sound, and talked about their perceptions, were provided daily. The beneficial effects of this emphasis on verbalization may be seen in the gains made by the children in verbal expression.

Gains were made in the use of certain Standard English structures. There was general improvement in the production of a plural *s* and in the contracted forms *that's, it's* and *he's.* In addition, the verb *to be* was used more frequently, particularly in the present continuous tense. Prepositional phrases were also used more frequently as well as more appropriately to elaborate sentences. Difficulties with the impersonal pronoun *it* and associated reversed sentence order were largely overcome.

The children seemed to have acquired increased confidence in producing their own ideas as well as in using S.E. structures for this communication. The increased competence was particularly marked among the Cherbourg children. It appears likely that since the Palm Island children were less competent with S.E. structures at the outset, they may need greater experience with the compensatory program before being able to reach the levels attained by the Cherbourg children.

It was not expected that improvements in traditional school achievement would necessarily be significant after such a short compensatory program administered in the first year of school. However, it was evident that 90 percent of the Cherbourg children, and 70 percent of the Palm Island children had made significant progress in decoding words. The important fact was that so many of the experimental group children experienced feelings of success, rather than the feelings of failure felt by so many of the comparison group children during their first year.

Not all of the contributions made by the special program can be measured through formal assessment. The compensatory program sought to enhance many aspects of the children's cognitive development. It was also strongly oriented towards fostering a positive self concept in each child, and establishing confidence through feelings of success. Comments by teachers, parents, and visitors to the school appear to indicate that the program was highly successful in this regard.

The children's high levels of interest and enthusiasm seemed to result from the special program's greater meaningfulness to Aboriginal children. They appeared confident of themselves as investigators, and confident of their teachers' supportive role in learning experiences for which they themselves took greater responsibility.

Moreover, it was hoped that implementation of the program might help to promote greater community involvement with the schools. Strenuous efforts were made to improve contacts between home and school and to encourage greater communication between parents and teachers in their mutual concern for the children's progress.

For example, children were encouraged to take home materials for reading and discussion with members of the family. Parents were encouraged to visit the school to observe and to participate in classroom activities. Children were taken out into the community to collect environmental materials and to observe familiar people in their occupations.

It is felt that the project has enjoyed a modest degree of success in fostering increased home-school communication.

In general, teachers have found that the children learned because learning was fun. Their increased achievement appeared to be a reflection of improved enthusiasm and confidence. The spontaneous comments of many visitors to the classrooms have attested to the success of the program in encouraging happy and talkative explorers of a rich and varied environment.

APPENDIX 1

DESCRIPTIONS OF SPECIAL TESTS

A. SENTENCE REPRODUCTION TEST

1. We sleep at night.*
2. Mary has a red coat.**
3. I want to wear it.
4. The bad dog ran after the cat.***
5. That's a little bit.
6. I'm going to have a drink.
7. He has planted the tree.
8. They don't know my name.
9. What is that thing?
10. I saw her with Jean's apple.
11. He might be over there.
12. Look at that fish in the water.
13. I found three turtle eggs near his house.
14. Will you give me one of these?
15. Johnny would like to have a cowboy suit.

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* W.P.P.S.I. Sentence C.

** W.P.P.S.I. Sentence 1

*** W.P.P.S.I. Sentence 2

Appendix 1

B. ORAL COMPLETION TEST

1. *Picture of boy sitting at a table, fork held in hand raised over plate of food. Glass of milk beside plate.*

Tester says: "a) Look at this picture. Tell me about the boy. He .....
b) Where is the fork? The fork .....
c) Tell me about the glass. The glass ....."

2. *Picture of urban street scene, with two boys running along the road.*

Tester says: "a) What do you see here? Two ....
b) What are the boys doing? They .....
c) Where are they running? They are running....."

3. *Picture of girl lying in hospital bed, nurse bending over her. Water jug and glass on tray beside bed.*

Tester says: "a) Tell me about this little girl. She .....
b) Where is the glass? It .....
c) Where the jug? It ....."

4. *Picture of girl in foreground looking at book, woman at the rear near bookcase.*

Tester says: "a) How many books has this girl got? She .....
b) The woman is standing up. The girl .....
c) Tell me something more about the woman. She is taking books ....."

5. *Picture of boy standing at bathroom basin holding open tube of toothpaste with toothbrush in other hand against teeth.*

Tester says: "a) Tell me about this boy. He .....
b) Where is the brush? It .....
c) Where is the toothpaste? It ....."

6. *Picture of girl sitting crying on ground beside overturned tricycle, boy bending over her with hands under the girl's arms.*

Tester says: "a) Tell me about the girl. She .....
b) What else? She .....
c) What is the boy doing? He ....."

Appendix 1

7. *Picture of girl and boy sitting at opposite ends of a table, in adult clothing. Girl is pouring from teapot into cup. Boy has one hand outstretched.*

Tester says: "a) Tell me about the girl. She .....
b) What will the boy do? He .....
c) Tell me about the shoes. They ....."

C. NUMBER TEST

1. We are going to write some numbers and do some drawing. (E. draws 3 apples on board)

   How many apples are there? Write the number here on your book (indicate).

2. Draw 5 beads on a string. (check)

3. Put a cross on the second bead.

4. Now listen to what I say, and write the next number. (E. counts out loud) 2, 3, 4, 5 -. Write the next number here. (indicate)

5. Draw a ball on your page. (check) Now colour in half of it.

6. (E. writes on board saying each number as it is written). 2 6 8
   Which number is missing. Write the missing number here on your page. (indicate)

7. (E. writes numbers on board without saying them) 7 9 2 4
   Find the biggest number and write it on your page here. (indicate)

8. (E. writes numbers on board without saying them) 4 6 2 8
   Find the smallest number and write it on your page here. (indicate)

   Now turn to the next page like this. (E. turns page and checks).

9. Draw a square piece of paper here. (indicate)

10. Now draw 4 apples here. (pause and check) If you had to rub out half of them, how many would you rub out? Write the number here. (indicate)

D. PROGRAM WORD RECOGNITION TEST

Mummy	cat	balls	tree	baby
boat	dogs	run	No*	boy

* "No" always occurred at the beginning of a sentence

Appendix 1

E. PROGRAM SENTENCE RECOGNITION TEST

I can run.

Daddy is a man.

They are boys.

That's a car.

I'm going to school.

She is little.

We are playing in the water.

APPENDIX 2

STATISTICAL TABLES (SIGNIFICANCE OF RESULTS)

TABLE 1: SUMMARY OF TWO-WAY ANALYSES OF VARIANCE OF ITPA SCALED SCORES AND PPVT RAW SCORES OBTAINED BY CHERBOURG AND PALM ISLAND CHILDREN AT SCHOOL ENTRY

Test	Community		Group		Interaction	
	F	Sig.	F	Sig.	F	Sig.
Reception:						
Auditory	7.93	**	1.89	NS	0.18	NS
Visual	2.10	NS	0.01	NS	0.10	NS
Association:						
Auditory	12.02	**	1.06	NS	2.76	NS
Visual	3.05	NS	1.25	NS	0.05	NS
Expression:						
Verbal	11.33	**	0.07	NS	4.27	*
Motor	0.13	NS	0.06	NS	4.34	*
Closure:						
Grammatic	13.68	**	2.09	NS	0.03	NS
Visual	7.05	**	1.05	NS	0.41	NS
Sequencing:						
Auditory	0.01	NS	0.73	NS	1.04	NS
Visual	6.16	**	0.00	NS	0.36	NS
Sum of Scaled Scores	7.25	**	0.77	NS	0.09	NS
PPVT form A	2.96	NS	2.29	NS	0.03	NS

df = 1/117 for all comparisons

* $p < .05$
** $p < .01$

TABLE 2: SUMMARY OF ONE-WAY ANALYSES OF VARIANCE FOR ORAL LANGUAGE TESTS AT SCHOOL ENTRY

Test		Group	
		F	Sig.
Sentence Reproduction Test		41.28	**
Oral Completion Test	1 Words following cue words	356.14	**
	2 Completions	55.55	**

df = 2/87 for all comparisons

TABLE 3: SUMMARY OF THREE-WAY ANALYSES OF VARIANCE OF ITPA SCALED SCORES OBTAINED BY COMPARISON AND EXPERIMENTAL CHILDREN AT SCHOOL ENTRY AND AFTER ONE YEAR AT SCHOOL

	Main Effects						Interaction Effects							
	Community		Group		Time		Comm. x Grp.		Grp x Time		Grp x Time		C xG xT	
	(1) F	Sig.	(2) F	Sig.	(3) F	Sig.	(4) F	Sig.	(5) F	Sig.	(6) F	Sig.	(7) F	Sig.
Reception:														
Auditory	7.74	**	0.14	NS	30.74	**	0.72	NS	1.90	NS	4.72	*	0.21	NS
Visual	1.46	NS	3.94	*	6.94	**	0.30	NS	1.07	NS	19.64	**	0.15	NS
Association:														
Auditory	15.81	**	0.08	NS	75.01	**	1.64	NS	2.45	NS	8.74	**	0.51	NS
Visual	6.62	*	2.75	NS	19.25	**	0.00	NS	1.06	NS	26.37	**	0.14	NS
Expression:														
Verbal	9.01	**	35.60	**	17.49	**	4.94	*	3.60	NS	51.78	**	0.43	NS
Manual	0.65	NS	11.47	**	0.71	NS	4.34	*	0.14	NS	18.70	**	0.78	NS
Closure:														
Grammatic	23.56	**	0.29	NS	3.49	NS	0.41	NS	3.35	NS	10.80	**	0.58	NS
Visual	5.28	*	4.50	*	0.56	NS	0.20	NS	1.45	NS	4.09	*	6.37	*
Sequencing:														
Auditory	.04	NS	0.11	NS	8.92	**	0.69	NS	0.65	NS	10.46	**	0.39	NS
Visual	1.22	*	2.21	NS	19.77	**	0.42	NS	1.66	NS	6.72	*	0.02	NS
Sum of Scaled Scores	8.13	**	4.86	*	65.38	**	0.17	NS	0.06	NS	94.76	**	0.02	NS

df = 1/117 for all comparisons
* $p < .05$
** $p < .01$

Appendix 2

DISCUSSION OF RESULTS OF ANALYSES OF VARIANCE OF SCORES OBTAINED AT SCHOOL ENTRY AND AFTER ONE YEAR AT SCHOOL (TABLES 3 AND 4)

Each of the analyses used a repeated measures design in which there were three factors, *Community* (Cherbourg/Palm Island), *Group* (Comparison/Experimental) and *Time* (At school entry/After one year at school).

Interest centered firstly on the significance of the *Community* x *Group* x *Time* interaction terms shown in column 7 of the table. Only one term, that for the Visual Closure analysis, reached significance. This meant that for the ITPA as a whole, as well as for each subtest other than Visual Closure, there were no significant differences between the changes in scores obtained by the comparison groups and changes in scores obtained by the experimental groups at the two communities. This was interpreted as indicating that both programs operated similarly at each community.

Therefore, because the terms were not significant, it was appropriate to examine combined scores for the various groups.

Interest next centered on the *Community* x *Group*, *Community* x *Time* and *Group* x *Time* interaction terms.

The *Community* x *Group* terms test the hypothesis that, when the scores obtained at school entry and after one year at school are combined, there are no differences in the relationship between the comparison and experimental groups at the two communities.

The table shows that on 8 of the subtests as well as on the ITPA as a whole, there were no differences in these relationships between the groups. The only significant terms were obtained on the two expression tests. The main reason for this was that, on each test, the Cherbourg experimental group tended to score comparatively higher than the corresponding Palm Island group.

The *Community* x *Time* interaction terms test the hypothesis that, when the scores for the comparison and experimental groups are taken together, there are no differences in the changes in scores at the two communities.

The table shows that none of these terms was significant. Therefore, it was concluded that the combined scores for the comparison and experimental groups on each subtest, as well as on the test as a whole, changed similarly at Cherbourg and Palm Island.

Examination of the *Group* x *Time* terms constituted the most critical test of the effectiveness of the standard and compensatory programs. The hypothesis which these terms test is that, when the scores for the two communities are taken together, there are no differences between the comparison and experimental groups in changes in scores after the first year at school.

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All of these terms were found to be significant, 9 at the 0.01 level. Therefore, it was concluded that, on each subtest, as well as on the test as a whole, the scores for the comparison and experimental groups changed differently.

These differences between groups may have arisen in several different ways, depending on whether the changes for each group were gains or losses. Therefore, further statistical testing was necessary to identify the nature of the changes in scores.

Four comparisons were made for each of the 10 subtests as well as the test as a whole. The results of the analyses are shown in Table 4. The statistical test used is shown below the table.*

One set of tests compared the scores of the comparison and experimental groups at school entry. Each of these analyses was essentially a replication of the analyses reported in Chapter 3. The results were the same as those in Chapter 3 except for the conclusion in the present analysis that the small difference between the groups' overall mean scores was significant.

The test used here was more sensitive to small differences in mean scores than that used in the preceding analysis, because of the large number of scores on which the denominator was based. However, since the difference favoured the comparison groups, gains made by experimental groups will tend to be understated in any comparisons with the comparison groups.

Another set of tests compared the scores of the groups after one year at school. The results showed that the experimental groups' mean scores were significantly higher than those for the comparison groups on 9 of the 10 subtests as well as for the test as a whole. The exception was the Auditory Reception subtest, which was one of the two subtests on which the comparison groups made significant gains after their first year at school.

Thus although there were no differences between the comparison and experimental groups at each community at school entry, after one year at school the experimental children were clearly more competent psycholinguistically.

A third set of analyses examined the changes in scores for the comparison groups after one year at school. The table shows that there were no significant changes in the children's performances on 5 of the 10 subtests, as well as on the test as a whole. Significant gains were made on the Auditory Reception and Auditory Association subtests while a significant loss was obtained on the Auditory Sequencing subtest. Significant losses were also obtained on the two expression subtests.

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* Winer, B.F. *Statistical Principles in Experimental Design.* New York: McGraw-Hill, 1962.

A fourth set of analyses examined similar changes in scores for the experimental groups after one year at school. The table shows that the differences, which were all gains, were significant for the ITPA as a whole as well as for all 10 subtests, except Visual Closure and Auditory Sequencing. These were two of the three subtests on which the children's performances at school entry were already equivalent to those of the norming population.

The results of the four sets of comparisons allowed the sources of the differences between the comparison and experimental groups to be defined. One major pattern of change was identified which was common to scores on six of the subtests. These were Visual Reception, Visual Association, Visual Sequencing, Verbal Expression, Manual Expression and Grammatic Closure.

For these subtests, there were no differences between the groups at school entry. While the comparison groups made no gain or indeed their scores were lower after one year at school the experimental groups made significant gains. In addition, the differences between the groups after their year at school were significant.

With the exception that the small differences between the two groups at school entry were significant using the sensitive statistical test, this pattern was also true for the overall ITPA scores.

For scores on the Visual Closure and Auditory Sequencing subtests, the pattern was different. While the differences between the two groups were not significant at school entry they were, after one year at school, even though there were no significant changes in the experimental groups' scores.

On the remaining two subtests, Auditory Reception and Auditory Association, both comparison and experimental groups made significant gains. However, after one year at school, the experimental groups obtained significantly higher scores on the Association subtest, but not on the Reception subtest.

TABLE 4: ANALYSES OF DIFFERENCES BETWEEN ITPA MEAN SCALED SCORES OBTAINED BY COMBINED COMPARISON AND EXPERIMENTAL GROUPS AT SCHOOL ENTRY AND AFTER ONE YEAR AT SCHOOL

	Differences between scores obtained at school entry and after one year at school for:						Differences between Comparison and Experimental Groups:					
	Comparison Groups			Experimental Groups			At school entry			After one year at school		
	(1) Diff.	(2)+ F	Sig.	(3) Diff.	(4) F	Sig.	(5) Diff.	(6) F	Sig.	(7) Diff.	(8) F	Sig.
Reception:												
Auditory	1.8	5.69	*	4.0	29.77	**	-1.4	3.76	NS	0.8	1.28	NS
Visual	-1.8	1.62	NS	3.1	24.97	**	-0.1	0.03	NS	4.8	36.96	**
Association:												
Auditory	3.4	16.27	**	6.9	67.48	**	-1.3	2.67	NS	2.1	6.47	*
Visual	-0.5	0.28	NS	6.4	45.34	**	-1.5	2.48	NS	5.4	32.34	**
Expression:												
Verbal	-1.8	4.54	*	6.8	64.73	**	0.3	0.10	NS	8.9	109.93	**
Manual	-1.8	6.00	*	2.7	13.34	**	-0.2	0.08	NS	4.3	34.08	**
Closure:												
Grammatic	-0.7	1.00	NS	2.5	13.29	**	-1.2	2.88	NS	2.0	8.71	**
Visual	-1.4	3.83	NS	0.7	0.81	NS	0.8	1.48	NS	2.9	16.63	**
Sequencing:												
Auditory	-2.5	19.35	**	0.1	0.03	NS	-0.9	2.83	NS	1.7	8.37	**
Visual	1.3	1.72	NS	4.9	24.42	**	-0.0	0.00	NS	3.6	13.19	**
Sum of Scaled Scores	-3.5	1.36	NS	37.9	158.78	**	-6.2	4.31	*	35.2	136.66	**

df = 1/117 for all comparisons
NS = not significant
* $p < .05$
** $p < .01$

+ $$F = \frac{(BC_1 - BC_2)^2}{MS_{CxSw.grp}\left(\frac{2}{\bar{n}_h}_p\right)}$$ where B= Group and C= Time

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TABLE 5: SUMMARY OF χ^2 ANALYSES OF NUMBERS OF CHILDREN PASSING ITPA GRAMMATIC CLOSURE ITEMS AFTER ONE YEAR AT SCHOOL

Item No.	Type of Response	Source of difference		
		Overall comparison df=3	Community (across groups) df=1	Group (across Community) df=1
	Regular Markers			
1	plural -s	19.14**	10.49**	10.82**
5	plural -es	24.95**	24.24**	1.84
4	present -ing	19.34**	6.82**	13.09**
8	possessive -'s	10.17*	6.91**	0.14
6	past -ed	18.82**	12.18**	0.85
16	superlative -est	29.23**	12.23**	19.86**
12	noun -er	7.29	--	--
15	comparative -er	21.51**	20.56**	0.10
	Irregular Words			
3	possessive pronoun	34.61**	1.09	32.01**
14	indefinite quantifier	1.88	--	--
13	past passive tense	5.21	--	--
9	past tense	13.97*	2.27	0.00
	Phrases			
2	preposition	0.00	--	--
10	omitted preposition	18.38**	0.18	18.28**
7	preposition	2.19	--	--
11	preposition	0.99	--	--

* $p < .05$
** $p < .01$

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TABLE 6: SUMMARY OF TWO-WAY ANALYSES OF VARIANCE OF PPVT AND EPV SCORES OBTAINED AFTER ONE YEAR AT SCHOOL

	Community		Group		Interaction	
	F	Sig.	F	Sig.	F	Sig.
PPVT	2.93	NS	0.57	NS	2.80	NS
EPV	22.47	**	1.28	NS	0.01	NS

NS = not significant
** $p < .01$

TABLE 7: SUMMARY OF TWO-WAY ANALYSES OF VARIANCE OF CORRECT REPRODUCTIONS, WORDS AND COMPLETIONS GIVEN TO ORAL LANGUAGE TESTS AFTER ONE YEAR AT SCHOOL

		Community		Group		Interaction	
		F	Sig.	F	Sig.	F	Sig.
Sentence Reproduction Test		3.80		0.28		0.00	
Oral Completion Test	1. Words following cue words	20.66	**	26.47	**	4.97	*
	2. Completions	32.90	**	11.15	**	0.93	

* $p < .05$
** $p < .01$

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TABLE 8: SUMMARY OF t-TESTS OF DIFFERENCES BETWEEN GROUPS ON ORAL COMPLETION TEST AFTER ONE YEAR AT SCHOOL

a) Words following cue words

Mean diff. \ t-value	Cherb. Exptl	Palm Is. Exptl	Cherb. Comp.	Palm Is. Comp.
Cherb. Exptl		5.97** (57)	5.28** (63)	7.53** (65)
Palm Is. Exptl	6.19		0.39 (52)	1.98 (54)
Cherb. Comp.	6.74	0.55		1.40 (60)
Palm Is. Comp.	8.86	2.67	2.12	

b) Completions

Mean diff. \ t-value	Cherb. Exptl	Cherb. Comp.	Palm Is. Exptl	Palm Is. Comp.
Cherb. Exptl		2.74** (63)	5.65** (57)	7.44** (65)
Cherb. Comp.	2.66		1.46 (52)	3.00** (60)
Palm Is. Exptl	4.14	1.48		2.05* (54)
Palm Is. Comp.	5.61	2.95	1.47	

df in brackets

* $p < .05$

** $p < .01$

The groups in parts a) and b) of the table are arranged so that the mean scores are in descending order of magnitude from left to right, and top to bottom.

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TABLE 9: SUMMARY OF t-TESTS OF DIFFERENCES BETWEEN GROUPS ON ORAL COMPLETION TEST AT SCHOOL ENTRY AND AFTER ONE YEAR AT SCHOOL

	Differences between Groups:		Mean diff.	df	t
	After one year at school	At school entry			
Words following cue words	Cherb. Exp.	Cherb. Exp.+	11.20	33	13.27**
	Palm Is. Exp.	Palm Is. Exp.+	8.79	23	7.03**
	Cherb. Exp.	Brisbane	-2.63	64	-3.46**
	Palm Is. Exp.	Brisbane	-8.82	53	-11.76**
Completions	Cherb. Exp.	Cherb. Exp.+	4.14	33	4.59**
	Palm Is. Exp.	Palm Is. Exp.+	3.33	23	4.79**
	Cherb. Exp.	Brisbane	-1.05	64	-1.58
	Palm Is. Exp.	Brisbane	-5.19	53	-9.16**

\+ Matched pair t-test

** $p < .01$

TABLE 10: SUMMARY OF ONE-WAY ANALYSES OF VARIANCE OF SCORES ON HULL WORD RECOGNITION AND NUMBER TEST AFTER ONE YEAR AT SCHOOL

Test	F	Sig.
Hull Word Recognition Test	9.97	**
Number Test	7.81	**

df = 2/87

** $p < .01$

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TABLE 11: SUMMARY OF t-TESTS OF DIFFERENCES BETWEEN GROUPS ON ACHIEVEMENT TESTS AFTER ONE YEAR AT SCHOOL

a) Hull Word Recognition Test

t- value

Mean diff.		Cherb. Exptl	Palm Is. Exptl	Cherb. Comp.
	Cherb. Exptl		3.32** (58)	3.48** (64)
	Palm Is. Exptl	3.6		0.81 (52)
	Cherb. Comp.	4.6	1.0	

b) Number Test

t- value

	Cherb. Exptl	Palm Is. Exptl	Cherb. Comp.
Cherb. Exptl		2.46** (58)	3.73** (62)
Palm Is. Exptl	1.6		1.25 (50)
Cherb. Comp.	2.4	0.8	

df in brackets

c) Experimental groups (Cherbourg - Palm Island)

Test	Mean diff.	df	t
Program Word Recognition	1.3	58	1.75
Program Sentence Recognition	8.0	58	4.18**
Boehm Basic Concept	7.2	58	4.75**

* $p < .05$

** $p < .01$

The groups in parts a) and b) of the table are arranged so that the mean scores are in descending order of magnitude from left to right, and top to bottom.

APPENDIX 3

FURTHER STATISTICAL TABLES (RAW SCORE DATA)

TABLE 1: PERCENTAGES OF SCHOOL ENTRANTS MAKING MAJOR ERRORS ON THE ITPA GRAMMATIC CLOSURE SUBTEST

Item No.	Syntactic Form	Error	Bris.	Cherbourg		Palm Island	
			(n=33)	1969 intake (n=31)	1970 intake (n=35)	1969 intake (n=32)	1970 intake (n=23)
	Regular Markers						
1	plural -s	-s omitted	0	65	58	75	91
5	plural -es	-es omitted	3	87	75	94	91
4	present -ing	-ing omitted	0	6	26	31	26
		dog subst.	3	26	6	19	35
8	possessive -'s	-s omitted	12	68	69	59	65
		belong to subst.	3	0	12	13	17
		N.A.*	0	3	3	19	4
6	past -ed	-ed omitted	21	50	52	45	48
		gate subst.	0	7	3	19	30
16	superlative -est	-est omitted	9	39	9	13	13
		big one subst.	18	16	23	13	13
		N.A.*	6	19	40	47	57
12	noun -er	-ing man subst.	18	23	20	38	4
		-ing subst.	9	36	17	3	13
		N.A.*	0	13	32	44	57
15	comparative -er	-er omitted	35	45	40	28	9
		small/little subst.	7	10	6	9	13
		N.A.*	6	16	40	47	57
	Irregular Words						
3	possessive pronoun	he's subst.	9	23	35	13	13
		boy subst.	3	16	6	13	26
		him's subst.	9	0	17	3	9
14	indefinite quantifier	none subst.	27	45	20	3	0
		nothing subst.	0	0	6	13	9
		N.A.*	0	16	37	47	57
13	past passive tense	gone subst.	30	23	20	6	22
		finish/finished	0	23	20	34	13
		ate/aten					
		eated/ated	39	13	6	0	0
		N.A.*	0	16	37	47	57
8	past tense	write/-(is) writing	48	42	32	31	17
		writed/writ	27	0	3	3	4
		paper/letter	3	10	12	19	0
		N.A.*	0	3	20	22	48

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TABLE 1 (contd.)

Item No.	Grammatical Class	Error	Bris. (n=33)	Cherbourg 1969 intake (n=31)	Cherbourg 1970 intake (n=35)	Palm Island 1969 intake (n=32)	Palm Island 1970 intake (n=23)
	Phrases						
2	preposition	-	-	-	-	-	-
10	noun	to home/					
		to work	3	0	12	3	0
		N.A.*	0	10	20	39	49
7	preposition	milk (in it)	0	39	26	19	22
		subst.					
		glass/tumbler	3	13	17	22	44
		N.A.*	0	3	3	19	0
11	preposition	in (the)					
		night/dark	58	6	23	13	13
		dark/night	12	36	12	6	9
		N.A.*	6	10	32	37	47

N.A.* = Not administered, since the testing of children under 6 years of age is discontinued after 6 consecutive items have been failed.

TABLE 2: PERCENTAGES OF CHILDREN MAKING MAJOR ERRORS IN THE SENTENCE REPRODUCTION TEST

a) ERRORS IN SENTENCE STRUCTURE RULES RELATING TO:

Grammatical Class	Error Type	Example	Sent. No.	At school entry			After one year at school			
							Cherbourg		Palm Island	
				Bris. (n=29)	Cherb. (n=35)	Palm Island (n=24)	Comp. (n=31)	Exptl (n=35)	Comp. (n=32)	Exptl (n=24)
Noun	Omission	turtle ϕ	13	0	9	0	3	6	0	0
		eggs ϕ	13	0	14	26	7	9	30	17
		suit ϕ	15	0	9	9	10	0	0	9
	Substitution	green for Jean's	10	0	6	13	0	3	3	0
Verb	Omission	to ϕ	6	0	6	26	3	3	13	0
		has ϕ	7	3	3	17	3	0	7	4
		would ϕ	15	0	35	14	17	12	13	13
		would like ϕ	15	0	0	0	0	0	9	0
		would like to ϕ	15	0	9	0	3	6	20	4
		to have ϕ	15	3	12	26	7	3	17	4
		like to ϕ	15	0	0	22	3	32	10	61
	Substitution	gunna for would like to	15	0	0	0	0	0	13	0
		should for would like to	15	0	3	13	0	0	10	4

ϕ indicates omission of word.

TABLE 2 (contd.)

a) ERRORS IN SENTENCE STRUCTURE RULES RELATING TO:

Grammatical Class	Error Type	Example	Sent. no.	At school entry			After one year at school			
							Cherbourg		Palm Island	
				Bris. (n=29)	Cherb. (n=35)	Palm Island (n=24)	Comp. (n=31)	Exptl (n=35)	Comp. (n=32)	Exptl (n=24)
Determiner	Omission	a ϕ	5	0	11	4	3	6	17	4
		a ϕ	6	0	9	13	3	6	3	9
		a ϕ	15	0	29	35	3	3	13	13
		first the ϕ	4	0	20	35	21	20	39	7
		second the ϕ	4	0	20	35	14	12	37	13
		the ϕ	7	0	9	13	3	0	13	0
		that ϕ	12	0	6	9	0	3	23	0
	Substitution	da for a	5	0	37	22	31	0	20	0
		a for first the	4	0	9	4	10	0	0	0
		a for second the	4	0	0	4	7	0	0	0
		a for the	7	0	23	0	14	49	13	61
		a for the	12	0	3	0	0	26	7	26
		a for that	12	0	7	0	0	14	0	17
		da for that	12	0	23	4	31	26	7	26

ϕ indicates omission of word.

TABLE 2: (contd)

a) ERRORS IN SENTENCE STRUCTURE RULES RELATING TO:

Grammatical Class	Error Type	Example	Sent. no.	At school entry			After one year at school			
							Cherbourg		Palm Island	
				Bris. (n=29)	Cherb. (n=35)	Palm Island (n=24)	Comp. (n=31)	Exptl (n=35)	Comp. (n=32)	Exptl (n=24)
Preposition	Omission	with ϕ	10	0	12	17	3	20	0	26
		near (his house) ϕ	13	0	12	9	7	0		0
	Substitution	in for near	13	10	37	48	31	20	30	17
Pronoun	Omission	he ϕ	7	0	6	13	3	0	3	0
		her ϕ	10	0	0	13	3	6	7	13
		his ϕ	13	0	6	0	7	3	20	9
	Substitution	'e' for her	10	0	0	0	0	0	0	13
		'e for his	13	0	20	44	35	66	57	83
Adjective	Substitution	two for three	13	31	12	17	17	6	13	22

b) ERRORS IN MORPHOLOGICAL RULES RELATING TO:

Plural noun	Omission of -s	egg ϕ	13	0	35	48	31	3	23	39
	Addition of -s	apples	10	0	9	17	10	12	3	4
		turtles	13	10	9	0	10	0	0	0
Possessive noun	Omission of -'s	Jean ϕ	10	3	32	52	24	12	50	9

ϕ indicates omission of word or syntactic marker.

TABLE 2 (contd.)

b) ERRORS IN MORPHOLOGICAL RULES RELATING TO: (contd.)

Grammatical Class	Error Type	Example	Sent. No.	At school entry			After one year at school			
							Cherbourg		Palm Island	
				Bris. (n=29)	Cherb. (n=35)	Palm Island (n=24)	Comp. (n=31)	Exptl (n=35)	Comp. (n=..	Exptl =24)
Contraction	Omission	that's ϕ (unit)	5	0	0	0	3	0	17	0
		that ϕ	5	0	17	22	3	0	7	4
		I ϕ	6	0	6	30	0	12	27	13
Verb tense	Omission	run ϕ	4	0	0	4	0	29	7	52
		plant ϕ	7	0	3	13	14	6	10	0
		find ϕ	13	10	0	30	0	0	17	0
	Substitution	'ad/ab for has	2	0	40	48	35	12	33	13
		zad for has	2	0	14	0	3	12	0	0
		planten for planted	7	0	9	9	7	0	10	4
		seen for saw	10	7	6	4	3	9	3	0
	Redundancy	sawn for saw	10	0	40	13	38	6	17	4
		sawed for saw	10	0	3	9	3	3	3	0

ϕ indicates omission of syntactic marker.

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TABLE 3: PERCENTAGES OF CHILDREN MAKING MAJOR ERRORS ON THE ITPA GRAMMATIC CLOSURE SUBTEST AFTER ONE YEAR AT SCHOOL

Item No.	Syntactic Form	Error	Cherbourg		Palm Island	
			Comp. (n=31)	Exptl (n=35)	Comp. (n=32)	Exptl (n=23)
	Regular Markers					
1	plural -s	-s omitted	23	0	48	25
5	plural -es	-es omitted	45	16	91	46
		elongated s	0	33	0	42
4	present -ing	-ing omitted	3	5	33	4
8	possessive -'s	-'s omitted	32	57	82	62
		belong to subst.	0	5	6	4
6	past -ed	-ed omitted	29	57	79	62
16	superlative -est	-est omitted	16	13	28	33
		big one subst.	23	14	19	25
		taller/tallest substituted	10	0	6	0
12	noun -er	-ing man subst.	45	44	19	63
		-ing subst.	3	0	9	0
		paint man subst.	13	11	0	4
15	comparative -er	-er omitted	36	46	38	50
		small/little substituted	0	11	9	29

TABLE 3 (contd.)

Item No.	Grammatical Class	Error	Cherbourg		Palm Island	
			Comp. (n=31)	Exptl (n=35)	Comp. (n=32)	Exptl (n=23)
	Irregular words					
3	possessive pronoun	he's substituted	6	90	0	50
		boy substituted	10	0	9	4
		him substituted	10	8	6	8
		him's substituted	3	0	0	4
14	indefinite quantifier	none substituted	57	82	6	13
		nothing subst.	3	0	39	33
		no more subst.	17	11	0	0
13	past tense	gone substituted	30	41	27	33
		finish(ed) subst.	17	16	27	41
		ate/aten/eated/ ated substituted	19	20	3	0
9	past tense	write (is) writing substituted	49	68	42	38
		writed/writ subst.	0	5	0	0
		paper/letter (s) sub.	0	5	18	33
	Phrases					
2	preposition	–	-	-	-	-
10	omitted preposition	to home/to work	6	3	0	0
7	preposition	milk (in it) sub.	33	30	9	30
		tumbler/mug/glass substituted	13	0	6	0
		(you) drink it sub.	3	11	3	13
11	preposition	in (the) night/ dark	32	57	27	17
		dark/night	6	27	12	42

TABLE 4: PERCENTAGES OF ABORIGINAL CHILDREN PASSING ITEMS OF THE BOEHM TEST OF BASIC CONCEPTS AFTER ONE YEAR AT SCHOOL, COMPARED WITH AMERICAN NORMING POPULATION

Type of Concept	Term	Amer. Gr.1	Cherb.	Palm Island
Space	nearest	96	100	92
	around	94	90	100
	inside	93	90	92
	through	91	97	87
	middle	89	80	87
	farthest	86	67	29
	next to	86	90	54
	top	85	73	79
	away from	84	73	54
	corner	83	87	58
	over	81	87	67
	behind	80	67	58
	widest	79	83	54
	between	77	67	37
	center	64	50	71
	side	64	60	46
	above	59	87	96
	below	58	23	33
	left	56	43	46
	separated	53	43	54
	right	50	50	46
	forward	40	43	21
Quantity (discrete)	some, not many	90	67	75
	most	89	93	71
	several	84	63	58

Type of Concept	Term	Amer. Gr.1	Cherb.	Palm Island
Quantity (discrete) cont:	every	77	63	67
	a few	73	50	37
	as many as	62	30	8
	zero	52	73	50
	pair	29	33	21
	two equal	26	10	13
	least	22	17	37
Quantity (continuous)	half (gone)	82	80	58
	whole	79	27	29
	almost empty	76	87	87
	medium-sized	40	23	33
Ordinal	in a row	80	67	54
	second	69	90	62
	not first or last	58	80	46
	third from	36	33	17
	in order (size)	32	33	17
Time	after	80	77	79
	beginning	64	30	25
	never	57	67	46
	always	55	43	37
Miscellaneous	different	80	83	92
	other	71	67	37
	two alike	63	3	0
	matches	60	33	29
	skip (a box)	45	3	4

The items in each type of concept are arranged in descending order of difficulty for the norming population.