"THE EDUCATION OF ABORIGINAL CHILDREN IN ADELAIDE: A COMPARATIVE STUDY."

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DECLARATION.

This thesis is based on original research carried out by the author, and contains no material accepted for any other degree or diploma in any University. To the best of my knowledge it contains no material previously written or published, except where due reference is made in the text.

D.J. PRIDEAUX.

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CHAPTER ONE.

INTRODUCTION.

1-1 AIMS AND PURPOSE.

This project is centred on the primary education of Aboriginal children who were living alongside white children in an urban environment, where they comprised a small minority in the schools. Primary education was chosen for several reasons, not the least being that the author is a primary student teacher. Also, as Table 1.1 (below, p.4) shows, there are far more Aborigines in South Australia at primary school than at post-primary levels.

The project aims at comparing the educational attainments of Aboriginal children in Adelaide with a group of white children of similar age and fathers' occupation, in the same schools, fathers' occupation being considered a very crude index of social class. Comparison has also been made with school and state norms. In addition there has been some attempt to discover similarities and differences between the Aboriginal children and the white children of similar age and fathers' occupation for a number of factors relating to attainment. Attendance, attitudes to school, leisure activities and the influence of home backgrounds have been considered.

The four tests of attainment purport to measure how much the children had learnt at school or, in other words, how well they were performing in a European middle-class orientated education system.

The tests measure only what the testee has learnt in the past. They are not measures of ability or potential to learn. It is true that attainment and I.Q.[1] scores are correlated, but there are numerous factors other than ability which could affect attainment (e.g. attendance, health, home background, emotional factors). No attempt has been made to measure or control the innate ability factor in this project, for this would have involved the whole question of "cultural-bias" in testing. The attainment tests, too, are subject to cultural bias. However, since the tests are geared to the school curricula, poor results due to the operation of cultural bias would show that the children concerned did not understand the concepts in the school curricula. But this is precisely what the tests purport to measure. "Culture-free" testing is a very complex area of study (Butcher, 1968) and it has become increasingly doubtful that a culture-free test could ever be devised. Even non-verbal tests are subject to cultural bias (Butcher, 1968:247). Thus the question of how the results of the attainment tests have been affected by innate ability cannot be answered in this survey, and a satisfactory answer to problems of this kind may never be found.

As well as directly influencing attainment, attendance can also be seen as an indicator of attitudes of the child and the home to school. Of course, attendance at school is related to the health of the child, but apart from absences for medical reasons there are a host

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[1] I.Q. = Intelligence Quotient.

of factors related to the child's perception of himself and school, and a complex of interwoven influences arising from the home background that could lead to poor attendance at school.

The study of attitudes to school has been included in the survey in an attempt to discover something of the child's perception of school. It was somewhat surprising to the author that attitudes to school as measured by questionnaire items were on the whole positive for both groups (see Chapter 4-4). Perhaps the explanation of this lies in the relation of school to home. Some of the children in this survey came from depressed home backgrounds, and the stable and organised nature of school could have given a sense of security that may have been lacking in the home.

Leisure activities have been studied, for it was thought that these would be likely both to reflect and affect school performance and adjustment. Finally, some attempt has been made to look into aspects of the home backgrounds of the children. At the outset it was considered that the home backgrounds, (especially of the Aboriginal children), could be sources of numerous factors that may have had important effects on the children's progress at school. However, time limitations did not allow a detailed investigation of home backgrounds. Such a study would be a useful corollary to this project.

1-2 ABORIGINES AND EDUCATION.

This section attempts to set the survey in its wider perspective, i.e., to discuss the importance of education for Aborigines. In recent years education often has been said to be the most significant aspect of the whole question of the advancement of Aboriginal people in Australia. Yet the table below (Table 1.1) shows that, in South Australia at least, in spite of this verbal recognition of the importance of education, much remains to be done. Comprehensive and recently published literature on Aboriginal education is sparse, but one would hope that the books edited by Roper (1969) and Dunn and Tatz (1969) are pioneering works in a field where the frontiers of knowledge must be pushed further and further into the unknown.

TABLE 1.1 "ABORIGINAL STUDENTS AT PRIMARY, SECONDARY AND TERTIARY LEVELS, SOUTH AUSTRALIA 1968-1969".
Extracted from the "Karmel Report" (1971:366).

PRIMARY		SECONDARY		TERTIARY	
			As proportion of Primary.		As proportion of Primary.
ABORIGINAL STUDENTS			per cent		per cent
1968	1,820	271	14.9	4	0.2
1969	1,896	391	20.6	4	0.2
ALL STUDENTS					
1968	178,165	80,287	45.1	16,441	9.2
1969	179,070	83,481	46.6	17,021	9.5

Why should education be of such importance to Aborigines? Table 1.1, extracted from the "Karmel Report" gives a picture of the extent of Aboriginal education in South Australia. In the Report itself, it is stated that the differences between Aboriginal students and all students in South Australia "...are much greater than can be accounted for by differential birth rates which result in the number of Aboriginal children of primary school age increasing at a faster rate than that of children in the population as a whole." (Karmel Report 1971:366). So the first obvious answer to the question posed above is that education is an important area in Aboriginal advancement because disproportionally less Aborigines are climbing the educational ladder to its peak.

But education is not an end in itself. Inequalities in education cannot be divorced from the other inequalities, such as in housing and employment, from which the Aborigines of Australia suffer.

Where does education fit into the general scheme? The author believes that the future of Aboriginal people lies in their own hands. The days of white paternalism are over, and Aborigines themselves must now begin to make the decisions. To some extent such a process has begun. Aboriginal people and groups are beginning to speak out, and a few Aborigines are finding jobs within Government Departments. But in the author's opinion, two of the major obstacles to be overcome before Aborigines can successfully speak for themselves are the lack

of educated leaders, and a lack of life purpose and understanding among a majority of the would-be followers.

"At a time when more and more Aborigines are calling for their own groups to speak on their own behalf, there are too few of their people educated to compete with whites, to argue with whites, to meet with whites in white offices and to use white typewriters to send white letters to white Canberra." (Soc.Act.-Abs.-Anvil, April 1971).

Thus education is important to Aborigines for two reasons. Firstly, it must supply Aboriginal groups with educated and trained leadership. Some, who would claim that education is the arm of assimilation, may believe that highly educated Aborigines will simply become absorbed into the white community. As yet this belief is hard to test, for relatively few Aborigines in Adelaide have had the benefits of a post-secondary education. Forby (1970:21-22, 49-50) has indicated in a few cases that greater education had led to greater awareness of the gap between Aborigines and white Australians, and greater confidence in verbalising demands. But education should not solely aim at the creation of an educated Aboriginal elite. Followers are just as important as leaders. All Aborigines must have the opportunity to extend their educational capabilities to their limits. Education must aim at making Aborigines aware of their present position in Australian society, and help to give them some clear understanding of the course of action to undertake in a programme of self-help.

1-3 EDUCATION IN SOUTH AUSTRALIA.

The Department of Aboriginal Affairs[2] (D.A.A.) has ceased to be involved in most aspects of Aboriginal education, and the work has been turned over to the Education Department. The D.A.A. gives grants to high school children up to the age of fourteen, and is responsible for the administration of the Commonwealth Government grant for children over fourteen. Although it still assists in kindergartens and pays for some adult education courses, its main role is supportive, in that it encourages and assists Aborigines in using the facilities of the Education Department.

The work of the Education Department has been set out in Whitelaw (1970a). A Liaison Officer for Aboriginal education, who is responsible for education at all levels and co-operation with Government Departments and other bodies working for Aborigines, has been appointed. The Education Department concentrates on the administration of former mission schools, reserve schools and special schools in remote areas. It provides staff, but not buildings, for reserve pre-schools, the latter being done by the D.A.A. with State and Commonwealth Government money, and has also undertaken some work in adult education. (Whitelaw 1970a: 3-7, 9-10). It is the official policy of the Department to encourage the integration of Aboriginal children into State schools, and to this end it has arranged that children living on Government Reserves be transported, where possible, to a

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[2] Now amalgamated with the Department of Social Welfare.

nearby State school (Whitelaw 1970a: 3). There are no secondary schools for Aboriginal students alone, but secondary education is to be provided on the reserves in very remote areas.

On the whole, the Department's aims for Aboriginal education do not differ from the aims for the education of all South Australian children, but some adaptions have been made where appropriate. Where Aboriginal languages are still the main vehicles of communication, teaching is in the vernacular in the early years. Teaching in the vernacular was pioneered in 1937 at Ernabella school which was at that time run by the Presbyterian Board of Missions. It was not until 1968, after considerable discussion, that the Education Department adopted this policy, and much of the material used was compiled at Ernabella. At present, children are taught in the vernacular at all of the "full-blood semi-tribal schools, "Amata, Yalata, Ernabella, Fregon [3] and Indulkana. Also greater emphasis is placed upon the "privileges and responsibilities of Australian citizenship" and health education (Whitelaw 1970a: 8-9). These adaptions are made only where Aboriginal students comprise a majority or a sizeable minority of the children in the schools. No such adaptions had been made in the schools in this survey.

The Adult Education Department of the University of Adelaide is also concerned with Aboriginal education. It has at present two schemes proposed for work among adult Aborigines (Warburton 1970a; 1970b),

(3) In September, 1970, the Education Department took control of Ernabella and Fregon. Prior to this they were under the control of the Presbyterian Board of Missions.

and conducts a Pitjantjatjara course which has been attended by Aborigines, white teachers and administrators and other interested persons.

The Kindergarten Union has recently begun work in the field of Aboriginal pre-schooling. It has now developed a policy of encouraging Aboriginal families to send their children to pre-school, and adjusting the fees according to the abilities of the families to pay. This is mainly concentrated in the city areas, and much of the pre-schooling on the reserves and in special schools is supervised by the Education Department. Also in the field of pre-schooling, the Bernard Van Leer Foundation has made grants available for the implementation of experimental pre-school centres at Maree and Ernabella. (Grey, Hart and Scott 1969: 22).

The Aboriginal Education Foundation, founded in 1965, has been actively involved in the education of Aborigines in Adelaide since that time. (Bryan 1970). At first it assisted young adults, but recently it has turned its attention mainly to pre-schooling. It now provides taxi transport for children to and from kindergarten.

Abschol, an organisation run by University students, has also provided valuable assistance to Aborigines. It is a part of a national organization of the Australian Union of Students[4], (A.U.S.), and at the national level engages in research and related projects. At the local level it grants scholarships for secondary students and

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(4) Formerly National Union of Australian University Students (N.U.A.U.S.)

runs tutoring schemes. However, since the State and Commonwealth Governments now provide scholarships for high school children, Abschol is investigating other areas of educational need.

Finally, two organizations whose approach is to concentrate on enrichment of Aboriginal children's leisure activities must be mentioned. The Port Adelaide Central Methodist Mission has embarked on a Sunday club. The aim is to provide a wide range of continuing activities of a semi-educational nature (music education, camping, cooking, homework centres) for the Aboriginal children in the Port Adelaide area. Secondary Schools Aboriginal Affairs Fund (S.S.A.A.F.) a Melbourne based organisation, has recently moved to Adelaide. It aims at promoting integration of Aboriginal and white secondary students, and enabling Aboriginal youth to join organisations such as the Boy Scouts and participate in school tours and youth camps. (S.S.A.A.F.1970).

There is an increasing awareness of the problems of Aboriginal education, but as Table 1.1 shows, much remains to be done. If Aborigines are to determine their own destiny in the Australian society of the future, then there must be continuing efforts to remove inequalities in education between white and black Australians.

C H A P T E R T W O.

METHODOLOGY.

This chapter sets out the methodology of the survey. The samples, tests and results have been considered, and problems and difficulties in analysis of the data mentioned. The comments in this chapter refer to broad aspects of the methodology, and discussion of particular problems has been deferred to the chapter in which the relevant data has been utilised.

2-1 SAMPLES.

Since time allowed work in only three schools, schools with large, relatively stable, numbers of Aboriginal children were chosen from figures supplied by the South Australian Education Department in September, 1970. (See Table 3.2, p.31).

The aim of this project is to compare the educational attainments of Aboriginal children living in houses in the general community with those of white children living under similar conditions. Thus, schools where children came from institutions were avoided. As a result of this selection, the sample of Aboriginal children in this survey was not representative of the total number of Aboriginal children living in Adelaide. This has been further discussed in Chapter Three. The three schools chosen, Taperoo, Mansfield Park and Ferryden

Park, are situated in a north-westerly direction from the city of Adelaide, (see Map 3.1) and the districts in which the schools are situated contain relatively large numbers of lower-rental Housing Trust homes (Table 3.3, p. 35).

The Aboriginal sample was comprised of all but three[1] of the Aboriginal children in grades four to seven entered on the school register at the time the research was carried out in each school, (Taperoo late February 1971; Ferryden Park and Mansfield Park early March, 1971). There were fourteen children from Taperoo (eight boys, six girls), eight from Mansfield Park (two boys, six girls) and seven from Ferryden Park (three boys, four girls) in the sample. However, one girl at Taperoo left before testing was completed. Thus only information from school records and the results of one test were collected[2]. The matching white child (for matching, see below, p. 13), was not given the tests that the Aboriginal child had missed, nor the questionnaire. This accounts for the differences in total numbers between tables in the project.

Judging by skin colour, the children had varying amounts of Aboriginal ancestry. The means for the identification of Aboriginal children varied for the three schools. At Ferryden Park the headmaster identified all the Aboriginal children in the school, and at Mansfield Park the headmaster, prior to the research, conducted a

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(1) This exclusion is explained below.

(2) This girl is placed at number 23 on the retardation score and occupational aspirations tables.

survey asking the children to identify themselves as Aborigines. At Taperoo the headmaster and individual class teachers were asked to identify the Aboriginal children. In each school it was possible that there may have been omissions, but, as far as was possible, the author checked the information given usingskin colour and facial characteristics as criteria. There is still a slight chance that perhaps a very few children with very light skins may not have been identified.

The two restrictions on the sample mentioned above were made for the following reasons. Only grades four to seven children were selected since two of the tests used (Vocabulary and Reading for Meaning, see below) are only suitable for children above grade three level. If a child had transferred from another school but his name had not been entered on the "School Register", then this usually indicated that his record cards and transfer notice had not arrived from his previous school. Thus, since no records were available for these children, they were not included in the survey. Had they been included it is possible that the data for changes in school and attendance may have been altered significantly, as some of these children may have had a number of shifts of home.

The Aboriginal children were matched with white children of same sex and similar age and fathers' occupation. Since Migrant children have certain educational difficulties, the white children in

this survey were all selected solely from those with Australian-born parents. All the white children for the matched pairs came from the same school as the Aboriginal child to whom they were matched. From the School Registers a list of names of children with similar ages and fathers' occupations to the Aboriginal children was compiled. These children were then asked if both of their parents were born in Australia. Those who replied "no" were crossed off the list, and from the rest, the nearest match to a particular Aboriginal child was chosen. In the matching, more emphasis was placed on fathers' occupation, and age was allowed to vary up to four months. This difference has to some extent been controlled for comparisons of attainment by the use of retardation scores (see below, p.22). In matching fathers' occupation an exact match was used if possible. Otherwise matching was done according to the categories of the United States Bureau of Census (1960), (see Appendix A). Even within these categories, preference was given in matching to occupations in the same general industry (e.g., the metal working industry or the building industry).

For the purposes of comparison the groups have not been considered as exactly matched, but rather loosely related in structure. Age could not be precisely matched, and it was thought that there may be a number of variables operating in the relationship between fathers' occupation and school performance. For example, matching fathers' occupation may not necessarily match the amount of money spent on the child's education. One father might spend his money on books and the

other on beer.

There were three Aboriginal children at Taperoo for whom "matches" could not be found and these were not included in the sample. The tests and the questionnaire were not administered, but some information about these children has been set out in Appendix B to suggest how their inclusion in the sample may have affected the results. The children were above the normal age for leaving primary school (ages on 1st March, 1971, 12.5, 12.5, 13.7)(3), and hence the number of possible matches was very restricted. It is unfortunate that matching was not possible and they were thus excluded from the sample, because some of the reasons for explaining why these children were still at school when most of their peers had left, could have been important to this survey. For example, had very poor attainments been one of these reasons, the inclusion of these children in the sample may have significantly altered the sample means. This could have some effect on how the sample was representative of the Aboriginal children(4) in the three schools in the survey. Two of these three children had siblings who were included in the sample, so the family data may not have been altered a great deal. The white sample did not purport to be representative of white children in the schools concerned, since it was not selected randomly.

When the samples had been chosen, school records (EG1 and medical) were consulted. Details of attendance, changes in school,

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(3) These ages are in years months.

(4) i.e. How it was representative of Aboriginal children in grades four to seven who were entered on the School Register. The same condition applies to the white sample.

year of enrolment and family size were collected from the EG1 cards. In some cases these cards were not complete, but for family size and changes in school, missing information was obtained by asking the children concerned. In some cases the occupation reported on the EG1 card was different from that in the School Register, and in all cases it was found that the entry on the EG1 card was the more recent. In a few of these cases re-matching was necessary. Note was taken of special comments on the EG1 cards, and teacher and headmaster discussions with the author were recorded. Some caution was exercised in utilising the latter information, and this has been discussed in Chapter Six.

2-2 THE TESTS - QUESTIONNAIRE.

A questionnaire was administered to each child and the results of four attainment tests collected. The tests and questionnaire are described below. At Ferryden Park the class teachers gave the "R1" and "S1" tests, and at Mansfield Park the "Vocabulary" and "Reading for Meaning" tests. At Taperoo testing varied throughout the school, but results were collected where a particular test had been administered by a class teacher. Where the tests had not been given by teachers they were administered by the author. School norms for grades four to seven were calculated from the results of the R1 and S1 tests at Ferryden Park and the Vocabulary and Reading for Meaning tests at Mansfield Park.

Advice on the attainment testing for this survey was obtained from the Psychology Branch of the South Australian Education Department. They recommended the use of the four tests mentioned above - the Schonell R1 and S1 tests, a South Australian Education Department Vocabulary test and an Australian Council for Educational Research (A.C.E.R.) Reading for Meaning test (Part 3, Silent Reading Test). Copies of four tests dealing with basic number facts; addition, subtraction, multiplication and division were also provided. However, all three headmasters advised that because of the new mathematics curriculum in South Australian primary schools, the tests would be unsuitable. A check with the Psychology Branch revealed that, as yet, no test measuring attainment in primary mathematics has been developed. Thus testing of attainment in this survey can only give insight into two aspects of primary education - reading and spelling.

The R1 test "a graded word reading test" was developed in England (Schonell 1960: 39-42, Schonell 1961: 134-136), and from the raw score for the test a "reading age" can be calculated by the use of the following formula $\left\{\frac{\text{"number of words correctly read"}}{10} + 5\right\}$ years (Schonell 1960: 40).

The S1, a spelling test of one hundred "graded words," was similarly developed in England (Schonell 1960: 69-71) and utilises a similar formula to that of reading age for calculating "spelling age." There is some error in applying the reading age and spelling

age formulas to South Australian children, but this error would have been common to all children in the survey. The tests have not been normed in South Australia, and thus there was no comparison with State norms. The R1 is an individual test, but the S1 and the other tests considered below are group tests. Neither of the two Schonell tests have time limits.

The Vocabulary test was developed by the Psychology Branch in the 1950's. Ninety-nine words are listed and children are asked to indicate which of five alternatives is nearest in meaning to a particular word. There is a time limit of twelve minutes, and the test had been normed in April 1967 for a "large number" of South Australian primary school children, (S.A.E.D.P.B. 1968: 4). An "attainment age" corresponding to a particular raw score can be obtained from these norms. In the norms the average score of each age group in the norming population has been set out, and the attainment age corresponding to a particular raw score is the age of the children in the norming population who averaged that score.

The Reading for Meaning test was developed by A.C.E.R. in Victoria and was normed for South Australia at the same time as the Vocabulary test. (S.A.E.D.P.B. 1968: 4). It consists of thirty graded paragraphs with sixty multiple choice questions about them. There is a time limit of twenty minutes, and the attainment age for this test is calculated in a similar manner to the Vocabulary test. Neither the Vocabulary nor the Reading for Meaning test is suitable for children below grade four.

The tests purport to measure only attainment (i.e., how much the child has learnt at school), and do not indicate potential or capacity for learning. There was some mention of cultural-bias in testing in Chapter One, but it was not thought to be of great significance in this survey. As was discussed in Chapter One, if these tests could be shown to be culturally-biased for the Aboriginal children in this survey, then this would show that they did not understand the concepts in a European-orientated education system. But this is what the tests are trying to measure; attainment in European-orientated schools.

The "validity" and "reliability" of the tests must be considered. The tests are in wide general use in South Australia, and the Psychology Branch advised that the tests are useful as a general index of attainment, but are certainly not exclusive criteria. There are various factors that could affect test performance, such as motivation, health, physical conditions, and concentration span, and test results should not be used for interpretations about individual children without consulting other relevant facts. For the purposes of this survey the tests provide a general index of attainment, but precise indications, if they were even possible, would have to be based on a much wider knowledge of the children. Although, since all tests measure a different aspect of attainment, there need not necessarily be complete uniformity of scores on all tests for each child[5], some of the larger

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[5] This would especially be true of the difference between the reading tests and the spelling test.

differences in the retardation scores of individual children may, in part, be due to the operation of factors like those mentioned above.

To minimize the effect of such factors, the administration instructions set out by Schonell (1960: 38-42, 69-71) and the Psychology Branch (S.A.E.D.P.B. 1968: 1) were strictly adhered to where the tests were given by the author. Where they were not given by the author it was assumed that this had been done. Also, during testing periods for both the attainment tests and the questionnaire, children were not informed of the exact purpose of the survey. They were simply told that they had been selected randomly for a State-wide survey. As a further precaution there were fewer Aboriginal children in the testing groups[6]. The white children from the matched pairs and other white children, whose results were subsequently discarded, were tested alongside the Aboriginal children.

A questionnaire (Appendix C) was administered to the children in both samples. It consisted of twenty-nine items which dealt with leisure activities (Items 4-5, 7-11, 12-16, 17, 28), attitudes to school (18-25), occupational aspirations (27) and parental interest in school and sport (26, 6). Item twenty-nine was included to discover if any of the Aboriginal families spoke an Aboriginal language in the home and Items one to three were used as an introduction. The questionnaire was constructed according to the principles of wording, order, nature of questions and the like, set out in sociological text books.

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(6) The size of testing groups ranged from about three to ten children.

(Kornhauser 1951; Phillips 1966; Mann 1968). There were several test runs of the first draft with children of varying ages, and a subsequent re-examination and alteration of the items. Instructions were set out on the first page and read to all children before they commenced the questionnaire, although they were not followed exactly by some children in a few items. For example, there was a small number of children who indicated more than one alternative in some items.

Attempt was made to persuade the children to respond freely without consideration of what other persons might have thought of their responses. They were told that their names were not required on the questionnaire, although a check was kept by the author, and it was emphasised that the children should write down "what they really thought." The author did not look at the papers while the children were doing the questionnaire. In each of the three schools the children were told that the author was a teacher and thus a "teacher expectancy" factor may have operated. This has been further discussed in Chapter Five. Some items were read to children who, because of reading difficulties, were making very slow progress on the questionnaire. These items were read from a separate copy of the questionnaire, and the author again avoided looking at the children's work.

The problem of the validity and the reliability of the questionnaire is a difficult one, as there are different considerations to be taken into account for each item. Discussion of the problem in analysis of each item will be found where data from the questionnaire has

been used in the text. The items dealing with attitudes to school are not intended to be precise scientific measures. At the outset of this project it was thought that a "Thurstone-type" scale for attitude measurement might be used; however, a mere glance at some literature dealing with attitude measurement (Thurstone 1931; Jahoda & Warren 1966; Secord and Backman 1964), showed that the construction of such a scale is so complex that it would be beyond the scope of this research.

2-3 RESULTS.

From the results of the attainment tests, retardation scores were calculated by subtracting the child's attainment age for the test (or reading or spelling age) from his chronological age on the first of March, 1971. The use of retardation scores overcomes the problem of the differences between the ages in the matching pairs. This does assume, however, that the rate of increase in attainment is constant at all stages of development.

The means for determining attainment age for the Vocabulary and Reading for Meaning tests has been set out previously. The attainment age corresponding to a particular score, is the age of the children in the norming population who averaged that score. Thus a positive retardation score indicates (in years, months) how far a particular child was below the mean for that age. A negative score indicates the reverse. There are no attainment ages corresponding to raw scores below ten for the Vocabulary test and below eight for the Reading for

Meaning test. Such scores were arbitrarily assigned the attainment age of 7.11-, and the corresponding retardation values are indicated by a plus sign after the numeral. Thus there is some inaccuracy in the retardation scores for these two tests, and the mean retardation may have been higher had it been possible to obtain attainment ages below 7.11. Since the R1 and S1 tests had not been normed in South Australia the retardation scores calculated may,as mentioned before, have been in error, but this would have been common to both groups and to the school norms.

Statistical tests were used in comparing the two samples on attainment. Comparisons were made across the groups, and to school norms and State norms.(7) There is a discussion of the nature of the statistical tests and the assumptions made in their use in Chapter Four. The number of days absent for the period 1968-1970 was determined, and statistical tests were again used. The difference between the attendance of the two groups was tested, as well as the correlation between attendance and attainment. Again there is comment on the tests in Chapter Four. Statistical testing was used with only two further sets of data: changes in school and family size. For all statistical tests (Appendix D), and 0.05 significance level was used.

All other important results, including occupational status of father, and responses to items in the questionnaire, were tabulated and comparison made from the tables where possible. Difficulties in

(7) State norms were only available for the Vocabulary and Reading for Meaning tests.

the interpretation of the particular results have been mentioned in the text accompanying each table. No statistical tests were used for items on the questionnaire, for it was thought that this would give the responses a spurious degree of accuracy.

These are the broad aspects of the methodology of this survey. As has been indicated there are some problems which, because of their specific nature, have been considered in the ensuing chapters.

CHAPTER THREE.

THE SETTING.

It is intended in this chapter to give some background information to this project. In the first section there is some discussion of the Aboriginal community in Adelaide. In the second, the distribution of the primary schools attended by Aboriginal children is considered, and there is some comment on how the children in this survey were representative of the total number of Aboriginal children attending primary school. Finally, in section three, there is some attempt to describe the schools and their surrounding districts. Information for this section is not comprehensive, and as a result, only general indications have been given.

3-1 THE ABORIGINAL COMMUNITY IN ADELAIDE.

In this section there are only brief comments on the Aboriginal community in Adelaide. For more detailed discussions the reader should consult the relevant literature (Forby 1970; Gale 1968; Gale and Brookman 1971; and Inglis 1961).

According to the 1966 Census, the number of Aborigines in the metropolitan area was 883, compared with 724 in "other urban" centres and 3,898 in rural areas. (A.C.B.C.S. 1969: 7). These figures, however, only include "persons who described themselves in the 1966 Census as being fifty per cent or more Aboriginal or simply as 'Abor-

iginal'". (A.C.B.C.S. 1969: 3). Jones (1970) has produced figures from the 1966 census based on "all persons of Aboriginal origin irrespective of degree" (Jones 1970: 13). These have been set out in Table 3.1, together with figures for the 1961 Census and the 1947 Census. The latter two groups of figures, however, are based on a similar definition of an Aboriginal person as used in the Commonwealth Bureau of Census and Statistics publications (A.C.B.C.S.1969).

TABLE 3.1 "NUMBER OF ABORIGINES IN SOUTH AUSTRALIA: URBAN AND RURAL: 1947 CENSUS, 1961 CENSUS, 1966 CENSUS"

Source (Jones 1970: 13).

Census	Metropolitan		Other Urban		Rural		Total
	No.	Per cent of Total	No.	Per cent of Total	No.	Per cent of Total	
1947	268	10.2	80	3.3	2,267	86.5	2,621
1961	512	10.5	674	13.8	3,698	75.7	4,884
1966	1,237	18.8	907	13.8	4,440	67.4	6,584

The figures in the above table show that there has been a significant trend for Aborigines to migrate to the city in recent years, and this has been documented elsewhere (Gale 1966; Gale 1968; Gale and Brookman 1971). Although there has been a general trend throughout South Australia for rural people, both black and white, to migrate to the city (Gale 1968), the striking fact about the Aboriginal migration is its recent origin. Gale (1968) found that, of "2,039 Aborigines who were living in Adelaide between 1962 and 1966 and had resided in

the city for a minimum of six months at any one time," forty-four per cent had migrated to Adelaide in the period 1961 to 1966. It is not proposed to go into a lengthy discussion of the migration process for this has been well covered in Chapter 5 of Gale and Brookman (1971), but some of the more significant aspects will be mentioned. Broadly the migrations are of two types; voluntary and involuntary. Involuntary migrations are often made for medical or legal reasons or for fostering of children. The main motivation for voluntary migrations has been the presence of kin in Adelaide. Although it is true that employment opportunities are better in the city and, as Moriarty (1969a) claims, discrimination is less, kinship ties are of such importance to Aboriginal people that few would be prepared to move to the city unless they had relatives there, who could give both moral and financial support. The main bulk of voluntary migrants have come from the Government Reserves of Point Pearce and Point McLeay and a few from Koonibba, while Aborigines from the north (northern South Australia and Northern Territory) residing in the city are mainly involuntary migrants (Gale and Brookman, 1971).

The Aboriginal population of Adelaide is a relatively young one. Gale (1968) claimed that sixty per cent of the Aboriginal people in Adelaide were under twenty years of age. In general the occupational status is very low. Table 4.12 (p.59) sets out the fathers' occupations of the children in the survey, and the occupations listed are not unrepresentative of the general occupational status of Aborigines

in Adelaide. Aboriginal males are mainly industrial workers in semi-skilled or un-skilled occupations.

The nature of Aboriginal housing in Adelaide has been discussed in Chapter 7 of Gale and Brookman (1971). Because their income levels are low, Aboriginal families have been forced to seek low rental housing. This has been of two main types. Houses that are too small, or those that are large enough but in very poor condition. Because of the strong kinship ties among Aboriginal people, there may be more than one family in a house. This would further add to the overcrowding in the smaller houses. Very few Aborigines own or are in the process of purchasing their own homes, and Gale and Brookman (1971) found that the home owners or purchasers were mainly northerners who had spent their early years in children's homes, or Aborigines who had been born in the city.

The Aboriginal culture in the city is far removed from tribal culture. As Forby (1970: 6) indicates, European names are used, European religions observed and the English language spoken. All of the Aboriginal children in this survey had a European religion recorded on their EG1 cards, and none reported any other language besides English being spoken at home (Item 29 Questionnaire, see Appendix C). Nevertheless, there is a distinctive Aboriginal sub-culture in Adelaide, and one of the more significant aspects of this sub-culture is the kin relationships. Kin relationships, horisontal, vertical and marital, have much greater significance for Aborigines than white Australians.

These are the means for identification of Aboriginal ancestry. For many Aborigines in the city, these relationships are based upon the Government Reserve from whence they migrated. Some, with institutional backgrounds, have kept in contact with other Aborigines from the same institution as compensation for the lack of kinship ties. (Gale and Brookman 1971: Chapter 5). Inglis (1961: 203-205) discussed the development of groups of "insiders" (those who recognised kin relations) and "outsiders" who tried to become absorbed into the white community. Non-recognition of kin relations was tantamount to disinheriting Aboriginal ancestry.

In conclusion, some of the organizations working for Aborigines in Adelaide should be mentioned. It is not intended to discuss all of them, for they have been set out in Le Sueur (1969b), but three of the more important ones will be considered.

The Department of Aboriginal Affairs is responsible for the administration of State and Commonwealth Government Grants, administering Reserves, and providing welfare services. In the past it has been charged with "paternalism" by both Aborigines and whites, but recent changes in policy have meant the abandonment of the paternalistic approach. The Department has now been amalgamated with the Department of Social Welfare, and further developments have been planned. For the present, Department Officers see their role as being one of assisting Aborigines in the use of the existing facilities of other Government services (i.e., Department of Social Welfare, the Housing Trust,

the Department of Health, etc.).

The Aborigines Progress Association and Council of Aboriginal Women are two organizations whose membership is restricted to Aborigines only, although there is some association with white people. The Progress Association, a more outspoken group than the Council of Women, has been responsible for the formation of an all-Aboriginal football team and the organization of Interstate football carnivals. Recently it acquired rooms in the city to set up a Cultural Centre for Aborigines in Adelaide.

The Council of Aboriginal Women, which employs a white social worker, aims at developing a sense of identity for Adelaide Aborigines. Through various social activities, it endeavours to help Adelaide Aborigines attain a positive self-concept, and foster recognition of "an urban part-Aboriginal culture with its own traditions and associations...." (le Sueur 1970a: 2).

3-2 PRIMARY SCHOOLS ATTENDED BY ABORIGINAL CHILDREN.

Table 3.2 shows the schools attended by Aboriginal children in the statistical division of Adelaide, and Map 3.1 shows the spatial distribution. The figures were supplied by the South Australian Education Department in September, 1970. From information from other sources the author believes that the figures were not entirely comprehensive, and there have been changes since they were compiled. They are, however, currently under review by the Education Department.

MAP 3.1. **PRIMARY SCHOOLS ATTENDED BY ABORIGINAL CHILDREN, SEPTEMBER 1970: STATISTICAL DIVISION OF ADELAIDE.**

SOURCE: EDUCATION DEPARTMENT - SOUTH AUSTRALIA.

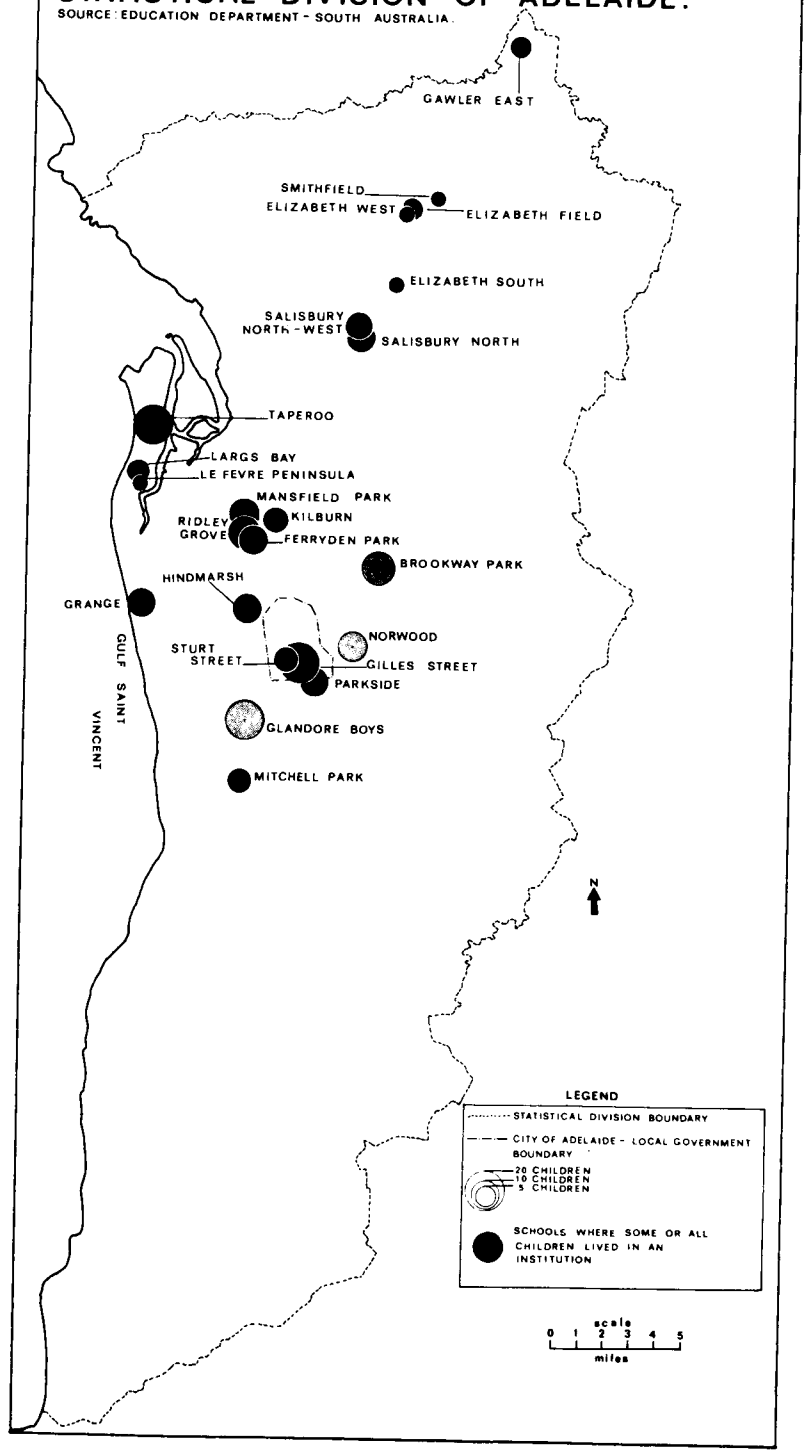

TABLE 3.2 "PRIMARY SCHOOLS ATTENDED BY ABORIGINAL CHILDREN, SEPTEMBER, 1970: STATISTICAL DIVISION OF ADELAIDE",

Source - Education Department.

School.	No. of Aboriginal Children	School	No. of Aboriginal Children
Glandore Boys Home	19	Salisbury North-West	9
Taperoo	19	Kilburn	7
Gilles Street (Inf)	18	Sturt Street (Inf)	7
Brookway Park	14	Elizabeth Field	6
Ridley Grove	13	Largs Bay	6
Mansfield Park	10	Mitchell Park	6
Norwood	10	Gawler East	5
Salisbury North	10	Elizabeth South	4
Ferryden Park (Inf)	9	Elizabeth West	4
Grange (Inf)	9	LeFevre Peninsula	4
Hindmarsh (Inf)	9	Smithfield	4
Parkside (Inf)	9	TOTAL	211

NOTE: Where (Inf) is printed after the school this indicates that grades one and two are included. All others include grades three to seven.

Map 3.1 could be considered as a very general index of the spatial distribution of Aboriginal families in Adelaide. For this reason, schools where some or all children lived in an institution have been indicated by shading. However, the map does not give a complete distribution of Aboriginal familes, for it excludes families without children of primary school age and, as said before, the figures given were not complete. It can be seen from the map and the table

that none of the schools concerned are in predominantly "middle-class" suburbs, and that the Aborigines were in a small minority in those schools.

As mentioned in the previous chapter, the three schools selected represented a biased sample of the total number of schools attended by Aboriginal children. Since Aboriginal children living in the general community alongside white children were to be studied, schools where some or all children lived in an institution were excluded from consideration for the samples. Brookway Park and Glandore Boys' Home are institutions run by the Department of Social Welfare. These contained approximately fifteen per cent of the total number of children. Some of the children at Norwood would have come from the Salvation Army Boys' Home at Kent Town, and thus the percentage of children coming from institutions would have been even higher than fifteen. Children from institutions often have emotional problems and low school attainment, and thus the results of this survey may have been significantly altered had a proportion of these children been included. Gilles Street School was visited in November, 1970, and it was found that the numbers of both Aboriginal and European children at the school were subject to fluctuations, as in many cases families frequently shifted in and out of the inner city areas. Because this may have created problems in matching and administration of the tests and questionnaire, this school was avoided, as was Sturt Street, the other inner city school. Again, had children from these schools been

included in the sample, the results, especially changes in school, may have been significantly altered.

From the rest of the schools, it was decided to select three schools which were among those with a higher number of Aboriginal children. This, and the consideration of the proximity of schools to each other, and whether permission to conduct the survey in the school was obtainable from the headmaster, led to the selection of Taperoo, Mansfield Park and Ferryden Park. But when any analysis of the results of this project is to be attempted, it must be remembered that children in this survey may well have been "the relatively more privileged" Aboriginal children in Adelaide. Children from institutions and children with possible frequent shifts in home were excluded, and this must be kept in mind when reading the ensuing chapters.

3-3 THE SCHOOLS AND THEIR SURROUNDING DISTRICTS.

This section completes the background to the project by giving a very brief description of the schools andtheir surrounding districts. As was mentioned in Chapter One, there was no survey of the home background of the children and, since there is no recent literature on the suburbs of Adelaide, the comments in this section are necessarily brief. Information from the South Australian Housing Trust, the numbers of children receiving free books and the numbers of Migrant children in the schools have been included to give some idea of the types of suburbs in which the children in this survey resided.

The buildings at Taperoo, a large non-graded school (for enrolment of the three schools, see Table 3.4) are almost entirely of wooden pre-fabricated construction (see Plate 3.1), although a new school has been promised. The headmaster has made concerted efforts to obtain as much school equipment (television sets, mathematics equipment, library books) as is needed, and generally the school is well provided for, even if the conditions of the buildings are poor.

Mansfield Park (see Plate 3.2) is a well-designed modern brick school. The school is adequately supplied with television sets, tape recorders and other such equipment. However, one teacher expressed concern at the lack of mathematics equipment.

Ferryden Park (see Plate 3.3) is an aluminium pre-fabricated school with air-conditioning throughout. It is moderately well supplied with essential equipment.

All three schools have large spacious playing areas (plate 3.4). However, the author considers that the three schools are certainly not as well equipped as some schools in predominantly middle-class areas that he has visited during his course as a primary student-teacher. Nor are the buildings at Taperoo and Ferryden Park of the same standard.

It was apparent when travelling through the three districts that they contained a relatively large number of Housing Trust homes. However, no figures were available for the proportion of Trust homes to non-Trust homes. In the absence of any housing survey, it was decided to obtain some figures from the Housing Trust.

PLATE 3.1 Taperoo Primary School.

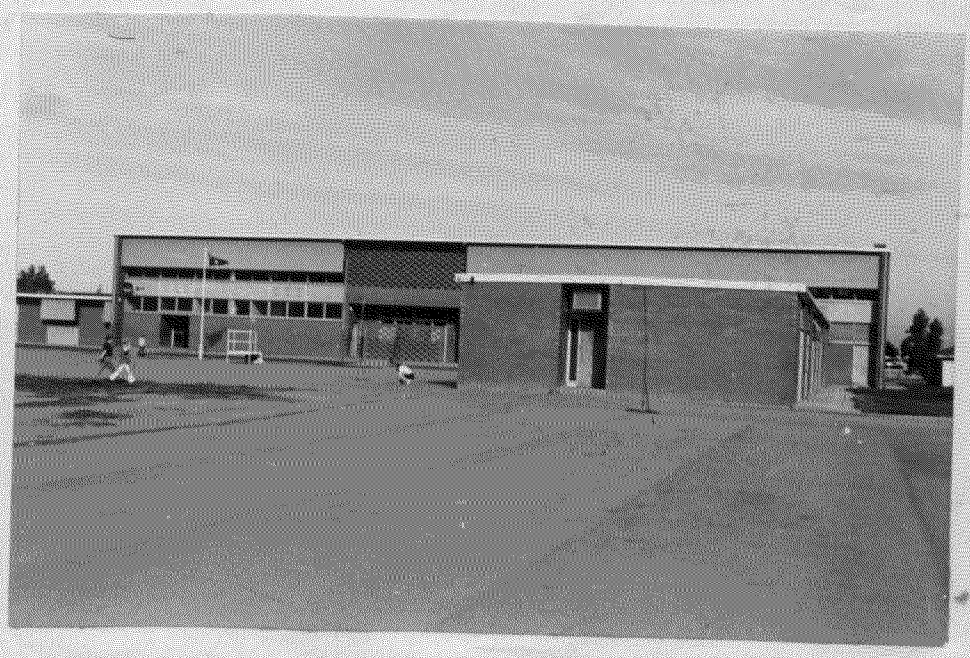

PLATE 3.2 Mansfield Park Primary School.

PLATE 3.3 Ferryden Park Primary School.

PLATE 3.4 "All three schools have large spacious playing areas." The playing fields at Mansfield Park Primary School.

TABLE 3.3 "HOUSING TRUST DWELLINGS IN TAPEROO, MANSFIELD PARK AND FERRYDEN PARK - JUNE, 1971."

Source - South Australian Housing Trust.

Area	No. of Timber Single Unit Dwellings (See Plate 3.5)	No. of Solid (brick) Single Unit Dwellings (See Plate 3.6)	No. of Double Unit Dwellings (See Plate 3.7)	No. of Cottage/ Pensioner Flats (See Plate 3.8)	Total
TAPEROO	21	238	464	15	738
MANSFIELD PARK	-	99	504	32	635
FERRYDEN PARK	-	-	44	-	44

Table 3.3 shows that at Taperoo and Mansfield Park there are large numbers of Trust homes, and the majority are of the divided or double-unit type. All the Trust homes in Ferryden Park are of this type. Although the number of Trust homes in Ferryden Park is low, judging by school enrolments (see Table 3.4), Ferryden Park is a much smaller area than either Taperoo or Mansfield Park. Gale and Brookman (1971) found that double-unit houses, in which most of the Aborigines in their survey were living, were too small for many Aboriginal families. In Chapter Six the family size for children in this survey is considered. From Table 6.1 it can be seen that double-unit houses would be too small for many of the families, both black and white. In addition, as was mentioned in the previous section, many Aboriginal homes may contain more than one family. However, no conclusions can

PLATE 3.5 Timber Single Unit Dwelling - Taperoo.

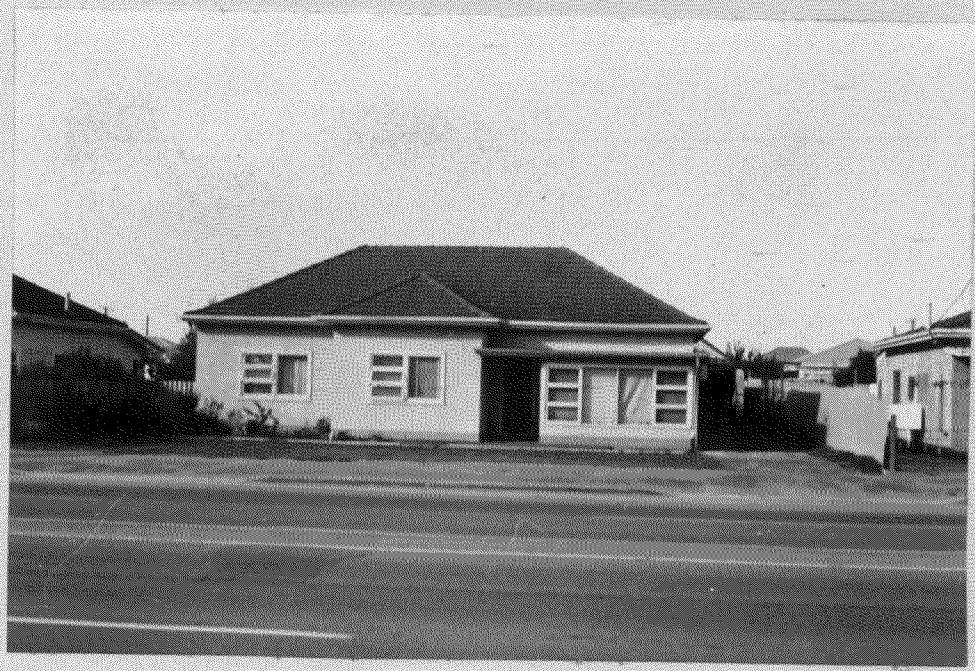

PLATE 3.6 Solid Single Unit Dwelling - Mansfield Park.

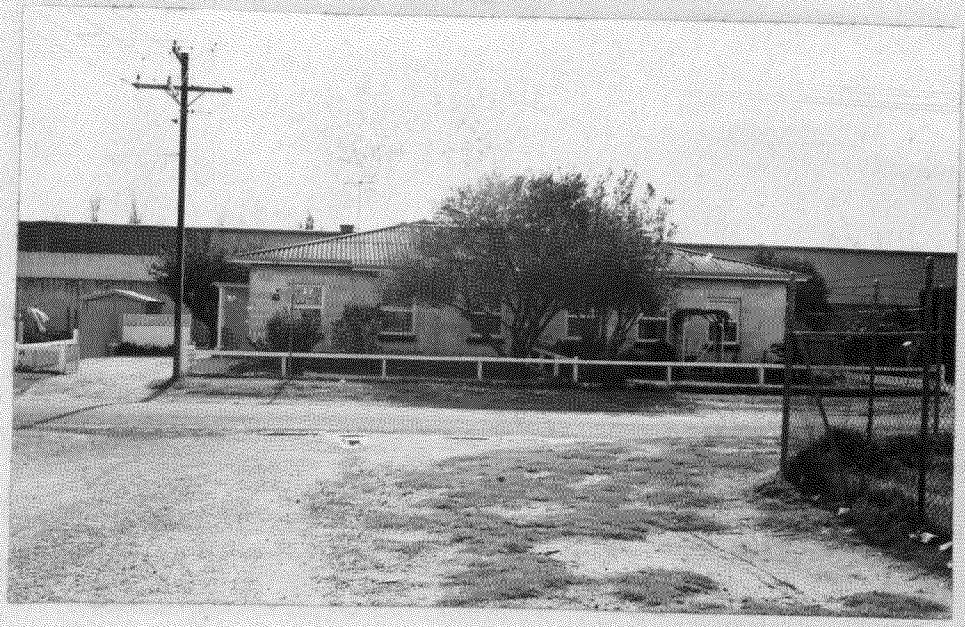

PLATE 3.7 Double Unit Dwelling - Ferryden Park.

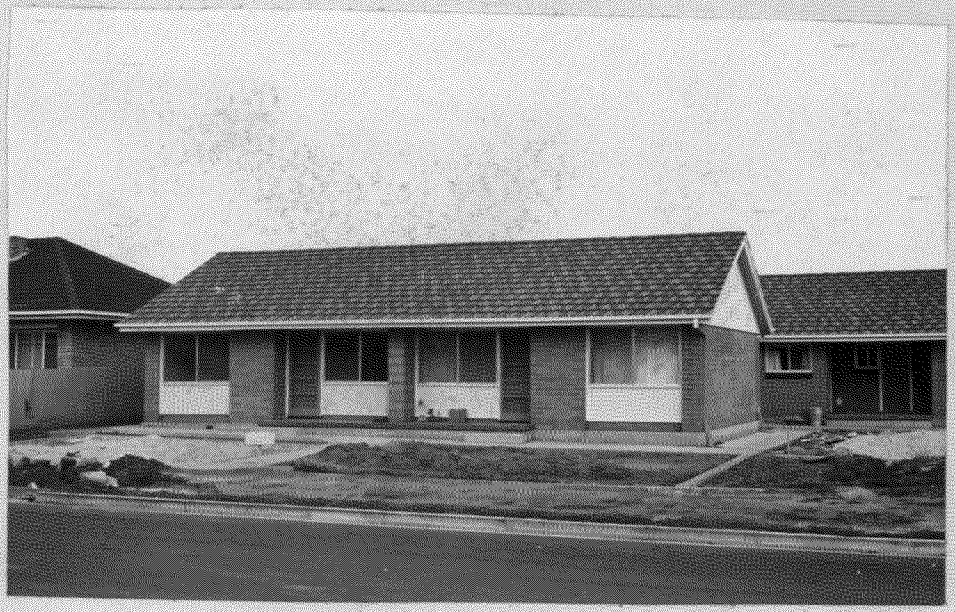

PLATE 3.8 Cottage Flats ,recently constructed - Mansfield Park.

be made, for it is not known how many families lived in Trust or non-Trust homes, single or double unit houses, or how many families lived in any one house.

Trust Officers reported that the age of the houses varies. The rents vary from five dollars to ten dollars per week. However, the renting system of the Trust makes generalisation very difficult. The Trust would like to equalise rents, but the Government will not give its approval and some tenants are paying low rents because they have been in the houses a long time. A new tenant next-door may pay a higher rent for the same type of home. Generally, it could be said that rents are in the lower category of Trust rents. From information obtained from the South Australian State Planning Office there was little evidence of sub-standard dwellings in any of the areas. At Taperoo this was in contrast to some of the adjacent districts.

TABLE 3.4 "NUMBER OF CHILDREN RECEIVING FREE STATIONERY, NUMBER OF MIGRANT CHILDREN AND TOTAL ENROLMENT: TAPEROO, MANSFIELD AND FERRYDEN PARK PRIMARY SCHOOLS."

Source - Education Department: Figures for Term I, 1971.

School	No. of Children Receiving Free Stationery	No. of Migrant Children	Total Enrolment
TAPEROO	170	132	804
MANSFIELD PARK	197	234	611
FERRYDEN PARK	163	94	435

NOTE: Taperoo and Mansfield Park include children in Grades three to seven. Ferryden Park includes children in Grades one to seven.

Table 3.4 shows the number of children receiving free stationery in each school. All South Australian children at primary school receive free text books, but the Education Department supplies free stationery in cases of financial hardship. Twenty out of the twenty-nine Aboriginal children were receiving free stationery. However, as the table shows, quite a number of their white school mates were also in this category. The relatively high number of children receiving free stationery is an indication that the income levels of many families living in the areas around the schools are low. Many Migrant families face financial difficulties, and the presence of a significant number of Migrant(1) children in the three schools may also indicate that the suburbs around the schools are attractive to families with low incomes. It was apparent when the School Registers were consulted for matching the two groups that very few of the children's fathers had middle to high income occupations.

Thus the three schools are situated in suburbs where there are some indications that most of the residents are from lower socio-economic groups. It is stressed that this section gives indications only, and no definite conclusions can be made without more details. Roper (1970) in "The Myth of Equality" shows that one of the existing inequalities in education in Australia is the inequality of opportunity between working class and middle and upper class children. He also mentions Migrants and Aborigines as suffering from inequalities. Thus

(1) Migrant children are those born outside of Australia, or those with one or more parents born outside Australia. This was the definition used by the Education Department

perhaps a great many children in the three schools may face certain educational difficulties.

CHAPTER FOUR.

THE ABORIGINAL CHILD AT SCHOOL.

This chapter attempts to place the Aboriginal child into perspective in the school situation. Results of standardised tests have been used to measure the attainments of Aboriginal children in "reading," "vocabulary development," "comprehension" and "spelling," and to compare these with the attainments of white children of similar age and father's occupation, and to school norms and state norms. Attendance figures and their relation to attainments have also been considered. Finally, from items in the questionnaire some attempt has been made to define attitudes to school and occupational aspirations.

These measures can give only a general indication of performance at, and adjustment to, school. There are so many variables relating to school performance and adjustment that a detailed analysis would more than likely involve lengthy case studies. Nevertheless, the measures can give broad trends, and as such, are useful indicators of how urban Aboriginal children are performing in the schools in which they are a minority group, and in which, even though many of their school mates are of the same low socio-economic class, the curriculum is largely geared to the needs of a middle-class white child.

4-1 ATTAINMENT.

Before attempting to draw conclusions from the data on attainments,

certain reservations concerning the nature of this data must be indicated.

In Chapter Two, problems concerning the validity and reliability of the tests, the suitability of norms and the calculation of retardation scores were discussed. These problems must be considered in analysis of the results in this section, and it should be remembered that the tests are not exclusive criteria for attainment, but rather give a general index of this factor.

Also in Chapter Two, comments were made on the matching of the samples. It was stressed that the samples were not pecisely matched on age, and that there were certain difficulties in the use of "father's occupation" as a criterion for matching the effects of social class status or income level on education. It was concluded that the samples were to be regarded as loosely related groups. However, this created some problems in statistical analysis. It was thought that the two groups were not sufficiently matched to allow the use of statistical tests designed for "correlated" groups, and thus the tests used (see Appendix D.1) assumed the samples to be "independent." The error involved in treating them as such for statistical analysis was thought to be less than that involved if they were considered as correlated or matched samples. Thus, although reference will be made to the two groups as if they were loosely related in structure, the statistical tests used strictly apply only to independent samples.

Both groups were regarded as samples of a larger population of all grades four to seven primary school children, whose retardation scores for the tests would be normally distributed. Two-tailed alternative hypotheses were used, since the differences between the means of each group were not in the same direction for all four tests. The school norms for grades four to seven (R1, S1, Ferryden Park; Vocabulary, Reading for Meaning, Mansfield Park) were assumed to be normally distributed, and two-tailed alternative hypotheses were used when comparing the sample means to the school means.

The numbers of the Aboriginal and the white children whose attainments were compared to the school norms were low (seven Ferryden Park, eight Mansfield Park), but for the former this represented all the grade four to seven children in the particular school.(1) Irrespective of number, the white children were not supposed to be representative of the particular school, since they were not selected randomly. The state norms have been so constructed that the retardation score for each age group is zero. Thus comparison between each sample and the state norms was made for the Vocabulary and Reading for Meaning tests (one-tailed alternative hypotheses). No such comparisons could be made for the R1 and S1 tests because of the unsuitability of the norms (see Chapter Two).

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(1) The three Aboriginal children excluded from the sample (see Chapter Two) were all from Taperoo.

TABLE 4.1 "AGE AND RETARDATION SCORES (IN YEARS/MONTHS) OF INDIVIDUAL CHILDREN ON THE SCHONELL R1, S.A.EDUCATION DEPARTMENT VOCABULARY, A.C.E.R.READING FOR MEANING AND SCHONELL S1 TESTS."

Source - Testing carried out in late February-early March, 1971.

N.B.: The significance of a minus sign before a numeral and a plus sign after, is explained in Chapter Two, p. 23).

	ABORIGINAL CHILDREN					WHITE CHILDREN				
	Age 1/3/71	R1	Voc.	Mean.	S1	Age 1/3/71	R1	Voc.	Mean.	S1
1	8.1	-1.1	-0.1	-0.3	-0.5	8.2	0.8	0.3+	0.3+	0
2	8.2	0.9	0.1	0.3	0.2	8.2	0.2	-0.7	0.3+	-0.5
3	8.6	0.4	-0.3	-0.1	-0.2	8.9	1.2	0.10+	0.10+	0.9
4	8.6	-2.8	-1.1	-2.5	-2.0	8.10	0.11	0.4	0.6	0.2
5	8.8	0.9	0.9+	0.9	0.2	8.6	-1.0	-0.7	-0.8	-1.0
6	8.11	1.0	1.0+	1.0+	1.1	8.9	0.9	0.9	0.10	0.4
7	9.0	0	0.7	0.10	0.6	8.9	1.3	0.10+	0.10+	1.11
8	9.0	1.1	0.10	0.7	0.4	8.8	0.2	-0.7	0.1	-0.1
9	9.1	3.0	1.2+	1.2+	3.3	9.4	2.0	1.5+	1.5+	2.3
10	9.4	0.8	0.9	-0.4	-0.4	9.4	1.3	0.9	1.5	0.11
11	9.4	2.3	2.5+	2.5+	1.9	9.4	1.3	0.11	1.5	1.3
12	9.7	0.5	-1.0	0.7	-0.7	9.11	0.9	0.3	1.2	1.4
13	9.7	2.2	2.8+	2.0+	2.5	9.8	1.7	0.4	0.3	2.3
14	9.10	-2.8	-2.0	-0.8	-1.3	9.8	-1.9	-1.3	-1.5	-1.0
15	10.0	2.5	1.7	2.1+	1.10	10.4	2.3	2.5	2.1	2.3
16	10.3	1.3	0.5	1.3	0.2	10.3	0.2	-0.5	-0.4	-0.11
17	10.5	1.9	2.3	2.3	2.7	10.6	1.11	1.9	1.9	2.1
18	10.5	1.0	1.5	1.2	0.7	10.5	0.6	1.0	-0.1	-0.1
19	10.9	1.0	-0.11	0.2	-0.3	10.7	0	-0.9	-0.4	0.5
20	10.9	2.8	1.8	2.8	1.5	10.8	-0.10	-1.3	-1.9	-1.0
21	10.11	2.9	3.0+	3.0	3.6	10.8	2.10	2.9+	2.9+	4.1
22	11.5	-1.8	-0.3	0.5	0.1	11.9	2.5	2.1	1.9	1.3
23	11.7	-	-	3.8	-	11.7	-	-	2.0	-
24	11.9	-0.3	0.2	1.5	-0.8	11.9	3.7	3.6	3.7	3.8
25	11.10	0.1	0.4	0.10	0.5	11.9	3.10	2.5	1.11	2.1
26	12.7	2.0	1.6	0.10	0.8	12.5	1.11	1.11	2.0	2.11
27	12.7	2.2	1.8	2.11	1.5	12.9	2.1	4.3	4.5	1.8
28	12.9	1.2	2.2	3.11	1.3	12.9	4.3	3.4	1.8	3.3
29	13.2	2.0	2.5	2.3	2.3	12.11	2.10	2.5	2.5	0.10
	MEAN (Yrs/Mths)	0.11	0.10	1.2	0.8	MEAN (Yrs./Mths)	1.3	1.0	1.1	1.1
	STAND. DEV. (Decl)	1.51	1.27	1.36	1.33	STAND. DEV. (decl)	1.46	1.54	1.40	1.50
		N=28	N=28	N=29	N=28		N=28	N=28	N=29	N=28

TABLE 4.2 (a - d) "MEANS, MEAN DIFFERENCES, AND PROBABILITY LEVELS OF OF RETARDATION SCORES (IN YEARS/MONTHS) FOR SCHONELL R1, S.A. EDUCATION DEPARTMENT VOCABULARY, A.C.E.R. READING FOR MEANING AND SCHONELL S1 TESTS - CROSS GROUP - SCHOOL NORMS - STATE NORMS."

Source - Testing carried out in late February-early March, 1971.

TABLE 4.2 (a) CROSS GROUP COMPARISON.

	R1	Voc.	Mean.	S1
Mean retardation Aboriginal children N = 28	0.11	0.10	1.2	0.8
Mean retardation white children N = 28	1.3	1.0	1.1	1.1
Difference	-0.4	-0.2	0.1	-0.5
Probability of difference occurring by chance (2-tailed t test)	0.4-0.3	0.6-0.5	0.8-0.7	0.3-0.2

TABLE 4.2 (b) SCHOOL NORMS - FERRYDEN PARK

	R1	S1
Mean retardation Aboriginal children N = 7	0.8	0.1
Mean retardation white children N = 7	0.8	0.5
Mean retardation school norms (P = 234 R1) (P = 242 S1)	0.8	0.7
Difference from school norms - Aboriginal	0	-0.6
Difference from school norms - white	0	-0.2
Probability of difference occurring by chance Aboriginal (2-tailed s test)		0.0562
Probability of difference occurring by chance white (2-tailed s test)		0.4652

TABLE 4.2 (c) SCHOOL NORMS - MANSFIELD PARK

	Voc.	Mean.
Mean retardation Aboriginal children N = 8	1.0	1.3
Mean retardation white children N = 8	1.8	1.7
Mean retardation - school norms (P = 485 V) (P = 483 M)	0.8	0.11
Difference from school norms - Aboriginal	0.4	0.4
Difference from school norms - white	1.0	0.8
Probability of difference occurring by chance Aboriginal (2-tailed z test)	0.25	0.10
Probability of difference occurring by chance white (2-tailed z test)	beyond 0.0002	0.003

TABLE 4.2 (d) STATE NORMS

	Voc.	Mean.
The mean retardation for the state norm is 0. Therefore, the difference between the sample means and the state mean is equal to the sample mean (Table 4.2 (a)).		
Probability of difference occurring by chance Aboriginal (1-tailed t test)	beyond 0.01	beyond 0.01
Probability of difference occurring by chance white (1-tailed t test)	beyond 0.01	beyond 0.01

Taking into account the problems outlined above, some general conclusions can be drawn from Tables 4.1 and 4.2 (a - d). Although the mean retardation for the Aboriginal sample was less than that of the white sample for three of the tests, the differences in all cases were not significant. This indicates that the Aboriginal children were not below the white children of similar age and fathers' occupation

in attainment for reading, vocabulary development, comprehension and spelling, and perhaps if very large samples were taken, they could possibly be slightly above in at least three of the areas. However, even if with larger samples the Aboriginal children were slightly above, the actual differences between the samples would have to be greater if they were to have an important "educational" meaning. The mean retardation for the Reading for Meaning test was higher than all of the others for Aboriginal children, but not for white children. Since this appears to be the test most biased towards white middle-class children, the effect of the double bias, cultural and social, may have led to the lower scores. However, no attempt was made to see if this difference was statistically significant, since, as was mentioned in Chapter One, "culture-free testing" is a very complex area of study, and a statistical test would involve many assumptions. In any case it would have assumed that the "Reading for Meaning" test was the most biased, something which has yet to be shown by the use of objective criteria. It is possible, then, that the difference may be due to the operation of the chance factor, and again the difference may be too small to have an important educational meaning.

The comparisons with the school norms reinforce the trends shown for the cross-group comparisons. At Ferryden Park there was no significant difference between the mean retardation of either group and the school norms, although the difference for the Aboriginal children for the S1 test was very nearly significant. At Mansfield

Park the eight Aboriginal children's scores were not significantly different from the school norms for the Vocabulary and Reading for Meaning tests. However, the eight white children's were. But it is important to note that both the Aboriginal and the white children were significantly behind the state norms for the Vocabulary and Reading for Meaning tests. Thus, these results indicate that the Aboriginal children's educational attainments were not different from those of the white children of similar age and fathers' occupation in the same school, and for at least half of the sample (eight Mansfield Park, seven Ferryden Park), not different from those of the majority of children with whom they attended school. These results lend support to the opinion of one of the headmasters who claimed that the Aboriginal children were different from the rest of the children in his school, but only in the sense that every child was different from the rest of the children in his school.

But, while the Aboriginal children may not have been different from those of the majority of children with whom they attended school, two factors of importance must not be forgotten. Firstly, as shown above, the Aboriginal children's and the white children's attainments were below the state norms for two of the tests, and secondly, as was indicated in Chapter Three, the Aboriginal children in this project may have been the "relatively more privileged" Aboriginal children in Adelaide. The results here may represent the peak of Aboriginal achievement in Adelaide. There is a further discussion of this in

the concluding chapter (Chapter Seven), but at this stage it will suffice to say that perh ps the higher levels of Aboriginal attainment were little different from the lower levels of white attainment.

4-2 ATTENDANCE.

TABLE 4.3 "NUMBER OF DAYS ABSENT OVER THE PERIOD 1968-1970."

Source - School record cards.

	Days Absent	No. of Aboriginal Children N = 27	No. of White Children N = 24
1	0 - 10½	3	2
2	11 - 20½	6	7
3	21 - 30½	4	7
4	31 - 40½	2	1
5	41 - 50½	1	4
6	51 - 60½	2	0
7	61 - 70½	2	0
8	71 - 80½	2	1
9	81 - 90½	2	1
10	91 - 100½	0	0
11	101 - 110½	1	0
12	111 - 120½	0	0
13	121 - 130½	1	0
14	131 - 140½	0	0
15	141 - 150½	0	0
16	151 - 160½	0	0
17	161 - 170½	0	1
18	171 - 180½	1	0
19	181 - 190½	0	0
20	191 - 200½	0	0
	Av. No. of Days Absent	48.5	35.8

Although the data in Table 4.3 has been set out in the form of a frequency distribution, ungrouped values were used for statistical

testing. The use of a "chi-squared" test was investigated, but this was not employed because of difficulties in grouping the data. With different groupings of data there were large variations in the value of chi-squared and, since the total numbers in each group were small, it was difficult to set out groups where eighty per cent of the "expected frequencies" would be greater than five. It was also thought that the population from which the samples were drawn (number of days absent over the period 1968-1970 for all South Australian primary school children) could not be assumed to be normally distributed, since there could be no value less than zero. A non-parametric test of significance (1-tailed Mann-Whitney-U-test) was used (Appendix D.2). The test assumes independent samples and thus the comments on this matter in the previous section are also relevant here.

The difference between the two groups was not statistically significant (probability of the difference occurring by chance 0.1210). However, interpretation of the results is made difficult by the fact that records were incomplete for two Aboriginal and five white children. Had these records been complete, or had larger samples been taken, the difference may have proved to be significant. It is also difficult to use criteria for "good," "average" and "poor" attendance for Table 4.3 since these criteria would have to be subjective. But even so, about one-half of each group were in the first three categories, and only three Aboriginal and two white children were in the very high categories.

What is more important was the relation between attendance and average retardation score (Appendix D.3). For the Aboriginal children (N=26) there was a high positive correlation for attainment and attendance (0.7) while for the white sample (N=25) there was a negative correlation (-0.42). This does not mean that for Aboriginal children poor attendance caused poor attainment, but it may indicate that the range of factors influencing attendance, for example, attiditudes of home and general influence of home background, the child's perception of school, health, etc., could also be the factors influencing attainment. The negative correlation for the white children could show that these factors were not as important in influencing their attainment. A change in the above factors for Aboriginal children may decrease retardation, while this may not be necessarily true for white children.

TABLE 4.4 "NUMBER OF CHANGES IN SCHOOL."

Source - School record cards.

No. of Changes in School	No. of Aboriginal Children N = 29	No. of White Children N = 29
0	13	19
1	8	7
2	2	1
3	2	1
4	0	1
5	1	0
6	2	0
7	0	0
8	1	0

Table 4.4 shows the number of changes in school. This includes all changes in school from date of first enrolment. Where several changes were made to only two or three schools, all changes were considered irrespective of whether they were moves to former schools. A one-tailed chi-squared test of significance was used (Appendix D4). Grouping was less difficult in this case since the range of the data was much lower. However, since the total for each group was small, there were again problems in grouping the data so that eighty per cent of the expected frequencies were greater than five. Only three categories were used (0, 1 and greater than 1), and therefore, the test does not differentiate beyond one change in school. Also the use of three categories meant there were only two degrees of freedom. The difference between the two distributions was not significant, but the probability of the difference occurring by chance was low (0.10-0.05). With larger samples and the possibility of a greater number of categories, the difference may be significant. Again the comments on the "independence" of the samples apply.

The table shows that the great majority of children in both groups had very few changes in school, hence no correlation with attainment was attempted. The two Aboriginal children who had six changes in school had high average retardation scores (2.2, 2.3)[2] and the same could be said of the white children with three and four changes (3.1, 3.2 respectively). The Aboriginal child who had eight changes

(2) These figures are in years-months.

did not have an extremely high average retardation score (0.10). Even in the cases above, changes could not be directly related to retardation, as there would be so many variables operating. It may be true to say, however, that the influences and attitudes that lead to constant shifts in home may have been one of a set of factors influencing attainment.

Year of enrolment was obtained for each child, but of all the children only two Aboriginal children were enrolled late, and they were only a year late. Hence this factor was not considered to be of great importance.

Thus, although there was no significant difference between the two groups for attendance at school, there was a definite positive relation between attainment and attendance for Aboriginal children. It was indicated that this relation may show that there could be a number of factors that were influencing both attainment and attendance. These factors have not been identified, but if it were possible to do so, it may provide valuable information for any attempt to explain some of the educational problems of the Aboriginal children.

4-3 ATTITUDES AND OCCUPATIONAL ASPIRATIONS.

This section deals with the attitudes of the Aboriginal and the white children to school. Results were taken from responses to items eighteen to twenty-five of the questionnaire (see Appendix C). These results do not purport to give a deep insight into the complex area of school attitudes, for this is fraught with many difficulties (see Chap-

ter Two, p. 22), but an idea of the general thoughts of the children concerned about school.

TABLE 4.5 "RESPONSES TO GRADED STATEMENTS ABOUT SCHOOL."

Source - Item Nineteen Questionnaire.

Category	No. of Aboriginal Children N = 28	No. of White Children N = 28
1	10	7
2	10	5
3	6	8
4		2
5		3
No Response(3)	2	3

Table 4.5 shows the responses to Item nineteen of the questionnaire (see Appendix C), which asked the children to indicate which of a series of graded statements about school best indicated their opinion of school. In the Table, category one represents the most favourable statement ("I like school very much"), and category five the least favourable ("Anything is better than school"). Most children in both groups responded in the first three categories, i.e., the neutral or more favourable categories, although there were a few more white children who responded in the less favourable categories.

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(3) For this table and tables 4.6 - 4.11 the "no response" category includes cases where more than one alternative was indicated.

TABLE 4.6 "RESPONSES TO THE QUESTION: DO YOU THINK THAT WHAT YOU LEARN AT SCHOOL IS USEFUL?".

Source - Item Twenty Questionnaire.

	Aboriginal Children N = 28	White Children N = 28
No. of "Yes" Responses	20	20
No. of "No" Responses	5	3
No. of "Don't "Know" responses	3	4
No response	0	1

TABLE 4.7 "RESPONSES TO THE QUESTION: DO YOU THINK CHILDREN SHOULD BE MADE TO GO TO SCHOOL?".

Source - Item Twenty-one Questionnaire.

	Aboriginal Children N = 28	White Children N = 28
No. of "Yes" Responses	18	16
No. of "No" Responses	4	9
No. of "Don't Know" Responses	5	2
No response	1	1

TABLE 4.8 "RESPONSES TO THE QUESTION: DO YOU THINK YOU WOULD LIKE TO STAY ON LONGER (OVER THE AGE OF 15) IF YOU COULD?"

Source - Item Twenty-two Questionnaire.

	Aboriginal Children N = 28	White Children N = 28
No. of "Yes" Responses	16	14
No. of "No" Responses	7	8
No. of "Don't Know" Responses	3	6
No Response	2	0

TABLE 4.9 "INCONSISTENT COMBINATIONS OF RESPONSES TO ITEMS TWENTY, TWENTY-ONE, TWENTY-TWO QUESTIONNAIRE."

Inconsistent Combinations			No. of Aboriginal Children	No. of White Children
Response to Item 20	Response to Item 21	Response to Item 22		
Yes	No	No	1	2
No	Yes	Yes	3	2
No	Yes	No	1	0
No	No	Yes	1	0
No	Don't know	Yes	1	0

Tables 4.6 - 4.8 set out responses to Items Twenty, Twenty-one and Twenty-two ofthe questionnaire (Appendix C), which asked the children

to consider whether school was useful, whether they "ought" to be made to go to school by law and whether they would like to leave as soon as they reached the minimum leaving age. The same general trends appear on these tables as on table 4.5. However, some inconsistent combinations of responses have been set out in Table 4.9. These inconsistencies may be indicative of a lack of development of logical thought processes, and a lack of clearly defined attitudes to school. It is also possible that the concepts involved in the questions were too sophisticated for the children in this survey. Thus, all responses must be viewed with some caution.

TABLE 4.10 "PREFERENCE FOR WEEKENDS OR SCHOOL DAYS."

Source - Item Eighteen Questionnaire

	Aboriginal Children N = 28	White Children N = 28
No. Reporting Weekends	10	7
No. Reporting School Days	5	2
No. Reporting Both	13	16
No. Reporting Neither	0	1
No Response	0	2

TABLE 4.11 "PREFERENCE FOR PLAYTIME OR SCHOOL WORK."

Source - Item Twenty-three Questionnaire.

	Aboriginal Children N = 28	White Children N = 28
No. Reporting Playtime	5	4
No. Reporting School Work	7	7
No. Reporting Both	15	15
No. Reporting Neither	0	1
No Response	1	1

Tables 4.10 and 4.11 show whether weekends or schooldays were favoured (Item Eighteen questionnaire), and whether schoolwork or playtime was preferred (Item Twenty-three questionnaire, Appendix C). Large numbers in both groups indicated that they liked both, and of the rest there were slightly more in the two groups who preferred playtime and weekends.

Thus, there was little difference between the two groups for general attitudes to school, and in both groups there was little evidence of complete rejection of school by large numbers of children. There are several factors which could explain this. For example, the fact that the Aboriginal children were achieving at the same level as most of their school mates could have lead them to have positive

attitudes to school. If with larger samples the white children could be shown to be achieving at a lower level than the Aboriginal children (and this is only a tentative suggestion, see above p.45), then this may explain why slightly more of them used less favourable categories in Item Nineteen. There is also the influence of "non-academic" factors. One Aboriginal boy who had one of the higher retardation scores was asked why he responded in the highest category in Item Nineteen. His answer was that he "liked school very much" because he could be with his friends at school. This may apply to the last two categories in Table 4.9.

In Chapter Six there are some indications, at least, that many of the children in this survey may have come from "underprivileged" home backgrounds. Hence school with its opportunities for friendship and its stable and organised pattern of activity, could provide a sense of security that was lacking in the home. No attempt was made to measure the amount of interaction between Aboriginal children and the rest of the children in the school, but from random observations it appeared that none of the Aborigines were isolates. Although quite a number associated mainly with other Aboriginal children, many, especially in the two schools that had smaller Aboriginal populations, had a number of friends among the European children. How far these friendships extended beyond the "school gate" is another question.

The analysis of "best" and "least" liked subject (Items twenty-four and twenty-five questionnaire), was designed to give further in-

sight into attitudes to school. However, when one point was assigned each time a subject was mentioned and half a point if two subjects were mentioned, all subjects except mathematics fell into the one to five range for acceptance and rejection. This included subjects such as art, poetry, music and sport. Mathematics was rejected nineteen times by the Aboriginal children and twelve and a half times by the white. This subject aims at developing logical thought processes. It is probably the most demanding in the school curriculum and presupposes certain concepts which may not be fully developed in under-privileged homes.

PLATE 4.1 "Some Aboriginal children had a number of friends among the European children." Lunch hour - Taperoo Primary School.

TABLE 4.12 "OCCUPATIONAL ASPIRATIONS COMPARED WITH ACTUAL OCCUPATION OF FATHER."

Source - Item Twenty-seven Questionnaire; School Record Cards (EG1). Categories are those used by the United States Bureau of Census (1960).

	Occupational Aspirations Aboriginal Children N=28	Father's Actual Occupation N=28	Occupational Aspirations White Children N=28
1	No response (travel)	11	1
2	No response (work)	7	1
3	1	7	1
4	1	6	No response (buy a motor bike)
5	1	11	1
6	No response (work)	11	7
7	7	7	7
8	1	12	7
9	9	12	No response (don't know)
10	No response (work)	11	9
11	No response (work)	11	1
12	6	11	9
13	9	12	No response (work)
14	1	7	No response
15	No response (buy a car)	12	1
16	1	11	1
17	6	11	9
18	9	11	No response
19	No response (help people)	11	No response (don't know)
20	9	11	9
21	7	12	9
22	No response (work)	11	1
23	-	12	-
24	1	7	6
25	1	11	9
26	1	6	1
27	1	7	5
28	9	11	5
29	1	12	1

A list of shortened titles of each occupational category has been made here for easy reference. For full titles see Appendix A

1. Professional,etc.
2. Farmers,etc.
3. Managers, Officials,etc.
4. Clerical Workers,etc
5. Sales Workers
6. Craftsmen, Foremen,etc.
7. Operatives,etc.
8. Private Household Workers
9. Service Workers
10. Farm Labourers.
11. Labourers.
12. Occupation not reported.

N.B. The words in brackets after "no response" indicate exactly what the child wrote down.

Table 4.12 sets out the responses to Item Twenty-seven of the questionnaire which attempted to measure the occupational aspirations of the children. The categories are those used by the United States Bureau of Census (1960) (see Appendix A) and are not supposed to represent a graduated scale, although generally they range from "Professional", one, to "Labourer", eleven. Category twelve includes those cases where the children's fathers were unemployed or were pensioners, or where there was no male parent in the family.

There was little difference across the groups, but most children had higher occupational aspirations than the actual occupation of their fathers. However, nine Aboriginal children and six white children gave no response or wrote down responses such as "work" or "travel". This may show that they had little idea of the kind of occupation they would like to undertake. In any case, the significance of occupational aspirations is difficult to measure at primary school level. The influence of "job expectancy" at high school is an important factor, but at the primary level few children probably are aware of their capabilities for particular jobs. But the results show that at least at this early stage many children in both groups aimed at higher occupational levels than their fathers, even if it could be added that, in some cases, there is some doubt as to whether they will realise their ambitions.

As a whole, this chapter shows that educationally the Aboriginal children were not very different from the white children of similar age

and father's occupation. Their attainments were not significantly different from those of a great many children in at least two of the schools. Neither were their attitudes to school nor their occupational aspirations markedly different from the white children. However, the difference between the two groups for changes in school was very nearly significant. Although there was no significant difference in the attendance of the two groups, there was a high positive correlation for the Aboriginal attainment and attendance, and a negative correlation for the white attainment and attendance. Thus, two factors more likely perhaps to influence Aboriginal attainment have been indicated. In the following two chapters other factors likely to influence attainment will be considered, and comparison made between the Aboriginal and the white children of similar age and father's occupation. Further conclusions will be drawn in Chapter Seven.

CHAPTER FIVE.

LEISURE ACTIVITIES.

No educational study could be complete without some consideration of the type of activities pursued outside of school hours, for involvement in, and types of leisure activities can be considered as a measure of school performance and adjustment. For example, a child who plays organised sport, or reads, or becomes actively involved in a hobby, is likely to be more successful, both academically and socially, at school than one who aimlessly wanders the streets. But also, leisure activities themselves will affect school performance. A child who watches television until late at night is less likely to be motivated for learning on the following day than is a child who watches a little television, does his homework, reads a book and goes to bed early. Thus, this chapter is devoted to a discussion of the leisure activities of both the Aboriginal and the white children of similar age and father's occupation, in an attempt to discover how the use of leisure time might have influenced school attainment.

Information was collected from Items four, five, seven to eleven, twelve to sixteen, seventeen and twenty-eight of the questionnaire (Appendix C). However, as will be shown below, almost all responses are of doubtful validity and reliability, and thus no cross-group comparisons can be made, nor any quantification attempted. Many children confused

sports and hobbies, while the responses to television viewing and reading are inflated, and if a detailed analysis of the leisure activities of these children were to be made with any degree of certainty, other methods where information could be collected independently of the children, should be used.

5-1 SPORT AND HOBBIES.

Sport is one of the most universal leisure activities, and it is of especial importance in this context, for success at sport could be seen by the children as compensation for failure at school. This could result in greater effort and interest in sporting activities.

Children in the survey were asked how many sports they played, and whether or not they played in teams (Items four and five questionnaire, Appendix C). Although at first some measure of the number of sports played was considered, this was abandoned because of the difficulties of deciding what was, or was not, "organised" sport. Some children recorded "races" or "beach bats" and the like as sports. These were not considered to be organised sport. There was also difficulty in deciding whether sports such as cricket or football were played in an organised manner or were just "back yard games." For example, some girls recorded cricket or football as sports. Thus, only negative responses to question four have been used. Of the twenty-eight[1] children in each group, only one Aboriginal child reported

[1] One white child reported "yes" to playing in teams, but did not respond to number of sports played. He was not considered as playing no sport at all.

playing no sports, compared with four white children. This does not represent a great difference for the numbers involved, but it does show that almost all children in both groups were at least interested in sporting activities. The numbers of children playing in teams provides a more reliable index of organised sporting activities. Twenty-two of the twenty-eight Aboriginal children reported playing in teams, compared with only fourteen of their white peers. Although a large difference would have to be indicated to generalise from samples of size twenty-eight, these results show that there is at least a trend (the difference amounts to one-quarter of the sample size) for Aboriginal children to play more organised sport.

This could be a reflection of the commonly held assumption that Aborigines excel in physical activities. This assumption lacks scientific evidence, but it could be a factor in the Aboriginal child's self-perception. As said before, success at sport may compensate for failure at school, but for Aboriginal children there is the additional factor that "white society" may expect them to be good sportsmen, and they may come to perceive themselves as better sportsmen than scholars. Hence they may devote more effort to sporting activities. Above average sporting ability has often been the means for acceptance into the "white community", and the Aboriginal child may thus believe that effort at sport is more worthwhile than effort in school. At Taperoo school at the time of research, two Aboriginal boys had become well-known and accepted for their outstanding performances in the cricket

PLATE 5.1 "The Aboriginal child may believe that effort at sport is more worthwhile than effort in school." Aboriginal children winning a "pick-a-back" race during National Aborigines Day celebrations, Taperoo Primary School.
Photograph courtesy of "The Advertiser."

team.

Although sixteen Aboriginal and twenty-two white children out of twenty-eight in both groups reported pursuing a hobby, of these, nine Aboriginal and six white children named sport as a hobby (Item twenty-eight questionnaire, Appendix C). This makes generalisation difficult, as it is not certain that those who reported sports as hobbies had no hobbies or had just confused the terms. However, had hobbies been of especial importance or interest to these children the confusion may not have occurred. Thus it appears that since only seven Aboriginal and sixteen white children responded positively and did not mention sports as hobbies, it is quite possible that a great majority of Aboriginal and almost one half of the white children had little interest in pursuing a hobby.

5-2 TELEVISION

TABLE 5.1 "NUMBER OF HOURS OF TELEVISION REPORTED VIEWED ON A NIGHT AFTER SCHOOL."

Source - Items seven to nine questionnaire.
(Item nine arbitrarily assigned the value of 1½ hours)

No. of Hours	No. of Aboriginal Children N = 28	No. of White Children N = 28
½ - 1	0	1
1½ - 2	0	2
2½ - 3	2	2
3½ - 4	2	2
4½ - 5	8	4
5½ - 6	4	6
6½ - 7	1	5
7½ - 8	3	2
More than 8	8	4

TABLE 5.2 "NUMBER OF HOURS OF TELEVISION REPORTED VIEWED ON WEEKENDS".

Source - Item ten questionnaire.
(Parts 3 and 6 arbitrarily assigned the value of 1½ hours).

No. of Hours	No. of Aboriginal Children N = 28	No. of White Children N = 28
0 - 4½	4	6
5 - 9½	4	9
10 - 14½	7	3
15 - 19½	2	6
20 - 24½	6	2
25 - 28	1	0
More than 28	1	1
No response	3	1

Over the last decade television viewing has occupied an increasing amount of children's leisure time. Where once a television set was a luxury, there are now probably few houses in Adelaide without one. The children included in this survey all come from lower-socio-economic families[2], yet all reported watching television. Tables 5.1 and 5.2 represent the results of Items seven to ten, which asked how many television programmes were viewed on week nights and weekends.

It can be seen from the Tables that the responses are inflated. Children could not possibly watch more than eight hours of television after school, yet eight Aboriginal and four white children gave hours of viewing above this maximum. One Aboriginal child reported watching three to four movies in a night, while others reported watching up to ten half-hour programmes.

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(2) See Table 4.12 for occupational level of the children's fathers, (p. 59).

As a whole the results show that both groups of children had little concept of time. But the high responses could be an indication that the children perceived television as very important in their lives, and hence spent much time in viewing. This is possibly the only conclusion that could be drawn from these results. There was little difference across the groups in choice of favourite programmes (Item eleven questionnaire, Appendix C). About one-third of the children in each group preferred cartoons or comedies.

It is surprising educators have not taken into account that television could be so popular when planning school curricula. If television, especially cartoons and comedies, has a great attraction for these children, then surely this could be put to advantage in any scheme of remedial work.

5-3 READING.

The type and amount of reading in leisure time is one of the most important areas where school performance is likely to be both reflected and affected, but again the responses are inflated so that no quantification could be attempted.

TABLE 5.3 "NUMBER OF LIBRARY BOOKS REPORTED READ PER WEEK".

Source - Item thirteen questionnaire.

No. of Books	No. of Aboriginal Children N = 28	No. of White Children N = 28
0	2	7
1	6	8
2	5	6
3	6	1
4	4	2
5	1	1
6	2	0
More than 6	2	2
No response	0	1
Average No.of Books "Read" per week	3.1	2.0

Table 5.3 shows the number of library books that the children reported reading in one week (Item thirteen questionnaire, Appendix C). Two books read thoroughly per week is about the limit of primary school children, yet fifteen Aboriginal and six white children responded above this figure. Responses above this "maximum," especially the very high ones, could indicate that the children concerned had little concept of what was involved in reading a book. Two Aboriginal children reported reading ten books per week, and two white children eight and nine books per week. This perhaps, rather than suggesting that they read a great many books, could show that they had read very few, since if they were avid readers, they probably would have realised that to read such a large number of books in a week was virtually impossible.

Thus, instead of indicating a large number of books read, the results may perhaps suggest the reverse.

It is significant to note that the four children who reported the large number of books read, also reported television viewing above the maximum. Thus it is quite possible that these children had very little idea of the "concept of number." In fact, much of the inflation of results by both Aboriginal and white children may have resulted from a lack of understanding of this concept.

There are two further reasons that could be put forward in an attempt to explain the inflation of these results. The first could be "teacher expectancy." The children in the survey were led to believe that the author was a teacher (see Chapter Two, p. 21), and thus, since reading books is considered desirable at school, they may have enlarged their responses to impress the experimenter. Although attempts were made to control this (see Chapter Two, p. 21) there is no guarantee that the control methods were successful, and that this factor did not operate. The children may have, in fact, been covering up for reading very few or no books, and since they may have had little concept of how long it takes to read a book, they could have put down a large number of books in the hope of greatly impressing the experimenter.

Also, this survey did not attempt to find out exactly what "reading a book" meant to the children, or what type of book was read. Item twelve (questionnaire, Appendix C), related to the last book read,

but since the questionnaire was conducted during school hours, most children in both groups wrote down the school text book that they had read in the lesson previous to the administration of the questionnaire. To these children, reading a book may have meant looking at picture books or flipping the pages of a novel. It was noted during the few library lessons observed, that many children both Aboriginal and white, glanced at the pages of a book then replaced it on the shelves and took another. They may have considered this as reading a book.

TABLE 5.4 "NUMBER OF COMICS REPORTED READ PER WEEK."
Source - Item fourteen questionnaire.

No. of Comics	No. of Aboriginal Children N = 28	No. of White Children N = 28
0	2	10
1	4	4
2	3	4
3	4	2
4	4	1
5	6	3
6	2	1
7	1	1
8	0	0
9	0	1
10	1	1
More than 10	1	0
Average No.of Comics "read" per week	4.0	3.6

The considerations discussed above concerning the subjective nature of the responses could also apply to the number of comic books that the children reported reading in a week (Table 5.4). Since many

of the children came from homes where the income was very low (see father's occupation Table 4.12, p. 59) it is difficult to see where the money could have come from for five to seven comics per week at approximately fifteen cents each, let alone ten or more than ten. Even the lower responses could be open to some question. Ten white children reported reading no comics, compared with two Aboriginal children, but this may be a result of the "teacher expectancy" factor discussed above. White children may have sensed that, since comic reading is undesirable in the eyes of many school teachers, they should lower their responses accordingly.

The situation was similar for magazines (Table 5.5 below). With the approximate cost of magazines being thirty cents, most families in the areas studied could not afford more than one or two magazines per week. Although the difference between Aboriginal and white children for no magazines reported read was less than for comics, it is still possible that the "expectancy factor" operated.

Considering that most Adelaide families would receive seven newspapers per week, and many would receive more, the responses for newspaper reading (Table 5.6 below) do not appear to be inflated. But it is difficult to claim validity and reliability for these responses while questioning all the others. It must be assumed that the responses for newspaper reading could have been subject to the same inaccuracies as the others.

TABLE 5.5 "NUMBER OF MAGAZINES REPORTED READ PER WEEK."

Source - Item fifteen questionnaire.

No. of Magazines	No. of Aboriginal Children N = 28	No. of White Children N = 28
0	7	11
1	4	8
2	7	1
3	1	4
4	2	0
5	1	1
6	3	2
7	2	0
8	0	0
9	0	0
10	0	0
More than 10	1	1
Average No.of Magazines "read" per week	2.8	2.1

TABLE 5.6 "NUMBER OF NEWSPAPERS REPORTED READ PER WEEK."

Source - Item sixteen questionnaire.

No. of Newspapers	No. of Aboriginal Children N = 28	No. of White Children N = 28
0	9	7
1	4	4
2	3	2
3	2	4
4	0	1
5	1	4
6	2	1
7	6	5
More than 7	1	0
Average No. of Newspapers "read" per week	3.2	3.2

But even if the responses were not inflated, the averages do not show a great number of newspapers reported read; and further, there is no indication of what constituted reading a paper. For many it may have been reading the comic section or looking at the pictures, and if this factor and the possible inflation were to be controlled, the numbers may have been even less. Although here some account must be taken of the ages of the children in the samples. Approximately half of the children in each group were under ten years of age, and this, combined with the low reading attainments, could perhaps be one of the factors in explaining why few newspapers were read. Many children would have difficulty in understanding them.

5-4 WEEKENDS.

5.7 "WEEKEND ACTIVITIES."

Source - Item seventeen questionnaire.

Activity	No. of Aboriginal Children N = 28	No. of White Children N = 28
Sport	11½	12½
Reading	½	0
Excursions, etc., with parents	4	2½
T.V., Radio	2½	1½
Other	7½	6½
No response	2	5

Table 5.7 shows the activities that the children liked to do nearly every weekend. Seven and a half[3] of the Aboriginal children's responses and six and a half of the white children's could not be categorized. These non-categorised responses ranged from "two cans of Coke after baseball," to "feeding animals" or "riding around." This, in combination with the fact that two Aboriginal and five white children did not respond at all, makes generalisation difficult. It is possible that the "no responses" indicate that the children concerned cared little about weekend activities, and it is possible that some of the non-categorised responses such as "riding around" or "playing" may also have indicated a lack of interest. The numbers, however, are too small to support any significant conclusions.

For all measures, except perhaps sport, there appear to be no major differences between Aboriginal and white children. On the whole, this chapter lends support to the idea that school performance and leisure activities are mutually related. Although the results cannot lead to any precise conclusions, there is at least an indication that few children, both Aboriginal and white, were using their leisure time in pursuing activities that would be likely to increase their chances of success at school. Television appears to be the dominant influence on how leisure time was used, while most children, through showing little concept of the time involved in reading a book, indicated that they probably did not read many school library books. Some were

(3) The half responses indicate that the activity was one of two that the child wrote down.

confused over the term "hobbies" which may show that they had little interest in pursuing them.

Hence, not only were both groups behind in the narrow academic sense, but also their leisure activities indicate that in many ways they were not receiving an education in the "social sense". This apparent lack of interest in worthwhile recreational activities could be accentuated with age. Will these children grow up to live in a world centred on the hotel bar, the television set, or the billiard hall? If the pattern reported continues, this seems likely.

CHAPTER SIX.

THE INFLUENCE OF HOME BACKGROUNDS.

Home background can be the source of many factors influencing educational attainment, and it was thought that some consideration of the home backgrounds of the Aboriginal and the white children may be useful in an attempt to understand the patterns emerging in this project. However, to have fully investigated the influence of home backgrounds, visits to the homes of the children and the use of a structured interview or questionnaire would have been necessary. This was beyond the scope of this research.

In the absence of such a survey with uniform and objective criteria of measurement, no definite conclusions about the relationship between home background and school performance can be made. Thus, this chapter only describes some aspects of the environmental backgrounds of the children in an attempt to suggest topics for further research.

The information used came from various sources. For occupational status, family size and health, school record cards were used (EG1 and medical), and results of Items twenty-six and six of the questionnaire provided data for the section on parental interest in school and sport. Other information came from special notes on the EG1 cards and teacher and headmaster discussions. However, since it was thought that some of this information may have been of a subjective nature, much caution was exercised in its use. For this latter

information and for health, material pertaining only to the Aboriginal children was collected and thus there has been no attempt at any comparisons.

6-1 THE HOME SITUATION.

The comments in Chapter Three on the general nature of the districts in which the children in this survey were living are relevant to this section. There were many low-rent "Housing Trust" homes around the schools, large numbers of children in all three schools were on the "free stationery list" and each school contained a relatively high number of Migrant children. These all give some indication of the environmental background of the Aboriginal and white children.

In Chapter Four the occupational status of the children's fathers was set out (Table 4.12, p. 59). Thirteen of the Aboriginal children's fathers were labourers. This represents nine families out of eighteen. Category twelve ("Occupation not Reported") was used in a further seven cases (five families). In two of these families, the two parents were separated and the children lived with the mother. Of the other three, one child lived with his grandmother, and in the remaining two families the male parent was a pensioner. These two occupational categories (eleven and twelve) are representative of the majority of Aboriginal families in the sample (twelve out of eighteen). For the remaining six families the fathers' occupations were tradesman (two families), drivers (three families), and an assembler. Thus, the

occupational status of the Aboriginal children's fathers was low, and this would apply to the white children in this survey, since the two groups were matched on fathers' occupation. No attempt was made to collect data for school norms for occupational status of father, but when the School Registers were consulted for matching the groups, it appeared that the occupations listed above were not unusual.

Low occupational status indicates low income and, very often, little parental education. Evidence for the former has been set out in Chapter Three, where it was found that the number of children receiving free stationery was high. Twenty out of the twenty-nine Aboriginal children were receiving free stationery.

Low incomes and low parental education levels can have significant effects on a child's progress at school. Thus, this aspect of the Aboriginal children's home backgrounds could hinder progress at school, but in this respect their problems would be little different from many of the children living around them.

The twenty-nine Aboriginal children in this survey came from eighteen families, and the twenty-nine white children from twenty-seven. The number of children in these families has been set out in Table 6.1.

TABLE 6.1 "NUMBER OF CHILDREN PER FAMILY."

Source - School Record Cards (EG1).

No. of Children per Family	No. of Aboriginal Families N = 18	No. of White Families N = 27
1	0	3
2	2	6
3	4	5
4	3	5
5	2	3
6	2	2
7	3	1
8	1	0
9	0	0
10	0	1
11	1	0
12	0	1
Average No. of Children per Family	5.0	3.9

There were similar difficulties in grouping the data for a chi-squared test as in grouping the data for attendance (see p.48), and again it was thought that the population from which the samples were drawn (number of children per family for all South Australian families), could not be assumed to be normally distributed, since there could be no value less than zero. A Mann-Whitney-U-test was used to test the difference in number of children per family, but it must be remembered that this test assumes the samples to be independent (see Chapter Four, p. 40). The Aboriginal families were significantly larger than the white families (probability of the difference occurring by chance 0.0475).

It was hoped that the average number of children per family for both groups could be compared to a state mean, but the only figure that the Commonwealth Bureau of Census and Statistics could supply (2.19 children per family) [1] was calculated from child endowment claims. This excluded children over sixteen years of age. Since the ages of the brothers and sisters of the children in this survey were not always recorded on the HG1 cards, it was not possible to calculate a similar statistic for children in this survey. However, both the means of the Aboriginal and the white groups could be considered as indicating a relatively large number of children per family, and they become even more significant when the low incomes of the families are considered.

Not only does large family size reduce the amount of money that could be spent on the education of any one child, but it also creates problems in living conditions, especially homework facilities. Many of the houses in the areas were very small, a high number being divided homes, and large families could make conditions very cramped. This could be of great significance in the case of the Aboriginal families, for not only was there a greater number of children per family for this group, but also because of the kinship relations outlined in Chapter Three, many houses may contain more than one family at any one time.

The school medical cards were consulted for the Aboriginal children, and they showed that none of them had serious physical handicaps.

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(1) This figure represents average number of children per family, not per marriage.

There were a few cases of "head lice" or "constantly running nose" reported, but these disorders were common in the schools concerned. Of course, some handicaps may not have been discovered in school medicals, and there is now evidence from people working in one of the leisure enrichment programmes mentioned in Chapter One that in at least one case this was very likely.

There were a range of other factors in the Aboriginal children's home backgrounds to which only reference can be made because of a lack of detailed analysis with objective criteria. There was evidence of some instability in marriage patterns and irregularity of employment. Reports of actual physical living conditions indicated that perhaps in some cases these were very poor. There was also evidence that a few children had spent some time in institutions.

There were, however, cases where it was apparent that the home background was having a positive influence on educational progress. For example, there was a girl whose mother was reasonably well educated and was involved in a community organisation working for Adelaide Aborigines. The girl had been to pre-school and was well above state norms for attainment (average two years above). She had been absent for only seventeen days during the period 1968-1970. This is not the only example; there were a few other cases where it was obvious that the parents were trying to take steps to ensure that the children could make greater use of the educational opportunities available to them.

Thus, although there was a range of home environment influences on the Aboriginal children, the discussion above on occupation and family size indicates that for most children low income levels, and, therefore, probably low parental education levels, and large families, often perhaps in small houses, typified their environmental background. There is no doubt that these factors would be likely directly to affect school performance and adjustment. There was some indication that in the absence of some of these influences, chances of success were increased. Thus, this section points to some relation between home background and educational progress; but no definite conclusions can be drawn because of the lack of detailed source material and objective standards of measurement. However, the nature of this relationship could be an important topic for further research, as it may be one of the more significant factors influencing Aboriginal educational achievement.

It has been suggested that some of the problems were not unique to the Aboriginal children. Since the white children in this survey were matched on fathers' occupation, the comments on income and parental education would also apply. Although the average family size of the white children was less than that of the Aboriginal children, it was still relatively high. The occupations of the Aboriginal children's fathers were not thought to be unusual for persons living in the areas around the schools. But again, more research is needed, perhaps in a comparative survey of the home backgrounds of the Aboriginal and the

white children, using a number of different criteria.

6-2 PARENTAL INTEREST.

Table 6.2 "RESPONSES TO THE QUESTION 'DO YOU TALK ABOUT SCHOOL WHEN YOU GO HOME?'"

Source - Item Twenty-six questionnaire.

	No. of Aboriginal Children N = 28	No. of White Children N = 28
No. of "yes" Responses	23	18
No. of "No" Responses	5	10

Table 6.3 "RESPONSES TO THE QUESTION 'WHO DO YOU NEARLY ALWAYS TALK TO ABOUT SCHOOL?'".

Source - Item Twenty-six questionnaire.

	No. of Aboriginal Children N = 28	No. of White Children N = 28
Parents	6	10
Brothers or Sisters or Grandparents	2	2
Friend	11	3
Other	1	0
No Response	8	13

TABLE 6.4 "RESPONSES TO GRADED STATEMENTS REPRESENTING AMOUNT OF COMMUNICATION BETWEEN CHILDREN AND PARENTS ABOUT SCHOOL."

Source - Item Twenty-six questionnaire.

(Category 1 most frequent; Category 4 least frequent).

Category	No. of Aboriginal Children N = 28	No. of White Children N = 28
1	4	3
2	6	8
3	12	10
4	3	4
No Response or more than one category indicated	3	3

Tables 6.2 - 6.4 show the responses to Item twenty-six of the questionnaire (Appendix C), which attempted to measure parental interest in school. There are, however, certain problems in the interpretation of this data. Twenty-three of the Aboriginal children responded positively to the question "Do you talk about school when you go home," yet only eight reported talking to parents, brothers or sisters, or grandparents. There was a similar difference for the white children (eighteen - twelve). Eleven Aboriginal and three white children reported talking mainly to friends about school. Although the second part of Item twenty-six did not specify that the person with whom the child most frequently talked about school had to necessarily come from the home, it was thought that the phrase "when you go home" in the first part of

Item twenty-six may have been understood by some of these children to mean "as you are going home." Thus, responses to this part could have included discussion with schoolmates before the children actually reached home. Four Aboriginal children and three white children who gave "yes" responses to part one of Item twenty-six did not respond at all to the second part, [2] and there were a few cases (two Aboriginal, four white) where the category used in part three did not correspond to the response in part one. There was also some disagreement as to amount of parental interest as measured by these criteria among children of the same family. Thus, no cross-group comparisons have been made, but there were certain trends which show that for both groups there was probably little parental interest in school.

Although there were twenty-three Aboriginal children and eighteen white children who gave positive responses to part one, the figures, as suggested above, may be too high, and therefore, the supportive data is likely to give a better indication. Only six Aboriginal and ten white children reported talking to parents about school. Even with the responses for brothers, sisters and grandparents added, the totals are less than a half of the whole samples. For many children in both groups the comment by one Aboriginal boy who wrote in reply to part two, "I ges (sic) go out and play", may have typified the amount of communication between children and parents about school. Approximately half

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[2] One Aboriginal child who gave a "no response" to part one, responded in the other category for part two. The actual response was "teacher."

of the children in each group used the lower two categories for the third part of Item twenty-six, which is a further indication that communication about school was in many cases infrequent. Thus, although there are certain problems in interpretation of the data, the results show that there was probably little discussion between the children in both groups and parents about school subjects.

There were a few cases where parental interestwas high. For example, one Aboriginal mother worked in the canteen and often consulted the headmaster about her children, but these cases were few in number. The lack of interest of the majority of parents may have stemmed from their lack of understanding of the significance of school, which, in turn, may have stemmed from their probable lack of educational achievement.

TABLE 6.5 "RESPONSES TO THE QUESTION 'DOES ANYONE FROM HOME EVER COME TO WATCH YOU PLAY (SPORT)?'"

Source - Item six questionnaire.

	No. of Aboriginal Children N = 28	No. of White Children N = 28
No. giving "Yes" responses	20	11
No. giving "No" responses	8	16
No. not playing in teams (from Chapter Five)	6	14
No. playing in teams giving "no" responses.	5	4
No Response	0	1

Table 6.5 shows the responses to Item six of the questionnaire (Appendix C). This item asked if anyone from home ever came to watch the children play (sport), so that the responses may have included brothers and sisters as well as parents.(3) The higher numbers for Aboriginal children may be a reflection of the greater number playing in teams, and thus there has been no attempt at cross-group comparison. In both groups there was only a small number who played in teams and responded negatively. This may indicate a fairly high level of parental interest in sport, although it must be remembered that the responses may have included the attendance of brothers and sisters at sporting games.

Because of the problems associated with the two sets of data on parental interest, it is difficult to compare interest in school with interest in sport. For reasons that have already been stated, in both cases the responses may not have indicated parental interest only, but also the interest of friends or siblings.

This chapter indicates that a number of factors in the environmental background of the Aboriginal children, such as large families, low income and low parental interest in school, may have had some influence on school performance and adjustment. To some extent this was also true of the white children. No definite conclusions have been drawn, but there are certain trends shown that could be investigated by further research.

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(3) This item was worded in this manner to avoid the use of the word "parents", for it was thought this might embarrass children from broken homes, etc. Unfortunately, the side effect of wording the question in such a manner (i.e. including brothers and sisters) was overlooked.

CHAPTER SEVEN.

CONCLUSION.

7-1 SUMMARY AND CONCLUSIONS.

In Chapter Four it was shown that there were no significant differences between the Aboriginal children's attainments and those of white children of similar age and father's occupation in the same schools. It was also shown that there were no significant differences between the Aboriginal attainment scores and the school norms. However, the Aboriginal children's scores and the scores of the white children of similar age, and father's occupation were significantly below the state norms for the Vocabulary and Reading for Meaning tests.

In Chapter Three it was indicated that most of the children in the schools were from low socio-economic class backgrounds, and there was a relatively high number of Migrant children at the schools. Roper (1970) has shown these two groups, as well as Aborigines, to be suffering from inequalities in Australian education. Thus, by equating Aboriginal attainment with children of similar age and father's occupation and children in the same schools, one is equating their attainments with low educational achievers.

The comments in Chapter Three on how the Aboriginal children in this survey were representative of the total number of Aboriginal children in Adelaide, must not be forgotten. It was indicated that the

Aboriginal children may well have been the relatively "more privileged" children, since institution children and inner city children were excluded. Thus, the results of this survey may show the higher levels of achievement of Aboriginal children in Adelaide primary schools. In fact, this survey may well show that the higher educational achievements of Aboriginal children in Adelaide were no different from those of white children considered to be among the lower achievers in South Australia.

This survey cannot hope to explain the patterns above, for there are so many variables unexplored. The patterns can be explained very generally, as has been done on the previous page, by showing that almost all children in the schools studied suffer from certain educational inequalities. But the explanation cannot go beyond this stage. It can be shown that both black and white children were low achievers, but it cannot be sufficiently explained why there were no significant differences between the groups. What the project attempted to do was to consider a number of factors relating to attainment, and to discover how they varied between Aboriginal children and white children of similar age and socio-economic status (by fathers' occupation) in the same school. It was shown, for example, that few of the children in either group were using their leisure time in a manner that would be likely to increase their chances of school success. In Chapter Six some aspects of the home backgrounds of both groups were indicated, and it

was suggested that these may have had some effect on the school performance of the children, although it was stressed that this aspect of the survey required further research. Both groups came from families which were considered to be large and where income levels were low. There was very little parental interest in school. It was found, however, that the children's attitudes to school were not markedly negative and occupational aspirations were, in many cases, higher than the actual occupations of the children's fathers.

There were a few factors considered that may have been more important in influencing the school performance of Aboriginal children than white children. The families of the Aboriginal children in this survey were larger than those of the white children and, although there was no significant difference bwtween the groups for changes in school, the probability of the difference occurring by chance was very low (0.1 - 0.05). It was thought that with larger samples this difference may have been significant. It must be remembered, however, that most children in both groups had few changes in school, and that the Aboriginal children who had a large number of changes were in a minority. Thus, this factor may have only been of importance for a small number of children. It was shown that there was a high positive correlation for Aboriginal attainment and attendance, but a negative correlation for the white children. This, it was suggested, indicates that the factors influencing Aboriginal attendance at school (health, home background, attitudes of parents to school, child's perception of school)

may have also been the factors affecting attainment, but that this may not have been so for the white children.

Thus, some factors likely to influence school attainment have been identified as common to both groups, and some have been found to be probably more important in influencing the attainments of Aboriginal children. But this does not provide sufficient evidence to enable the patterns above to be explained. Why, for example, if some factors could be identified as being more important in affecting the attainments of Aborigines, were the Aboriginal children's attainments not lower than the white children's?. There may have been factors specifically relating to the attainments of the white children that may not have been identified. Similarly there could be factors relating specifically to the attainments of the Aboriginal children that were not discovered. One such area could be psychological influences; for example, the effects of prejudice or of self perception. Finally, there could, of course, be factors common to both groups that were not investigated. It was stated in Chapter One that the effects of innate ability were not measured or even controlled.

Hence this survey is confined to describing patterns and cannot explain them, except in very broad terms. Some factors that could be of importance in influencing the patterns have been suggested, but these must be investigated in more detail by further research.

7-2 RECOMMENDATIONS.

It is not surprising, in the light of the above comments, that the major recommendation arising from this survey is that there be further research in an attempt to explain the patterns found here. The effects of ability and home backgrounds could be investigated, psychological influences studied and perhaps factors not identified in this survey discovered. However, this would involve many more problems than are apparent at first sight. How to control the numerous variables influencing educational attainments could create serious, if not insoluble, problems in research design. It has already been hinted that a satisfactory answer to the problem of cultural-bias in testing may never be found, and so the influence of ability when comparing the attainments of Aboriginal and white children may cause problems in interpretation for years to come.

The danger of considering these complexities is that it may leave the researcher so frustrated that he may completely abandon his project and try some other field where the problems are less complex. So the author has singled out one area where he believes that research would provide a valuable contribution in any attempt to explain the patterns outlined in this survey.

The area, of course, is the influence of home background, for which, in this survey, there were some indications that this could be of importance. A comparative survey into the home backgrounds of Aboriginal and white children may help to determine the relative educa-

tional importance of the home life, and answer such questions as: Were the Aboriginal children's home backgrounds more deprived than those of the white children?: or, Would a solution to the problems of the home backgrounds of the Aboriginal children lead to a greater improvement in attainment than a similar process for the white children?

While a home background survey may show how the causes of environmental deprivation are to be attacked, for the present, schools must begin to take account of those symptoms that are evident. Schools are white middle-class institutions run by white middle-class teachers, and, although lip-service may be paid to the effects of underprivileged home backgrounds, there has been, as yet, little attempt to adapt courses or methods. Taperoo has made some significant advances in this direction. This school is non-graded, and the emphasis is on the child progressing at his own rate. There is a keen awareness among the staff of the poor home backgrounds of the children at the school, and adaptions have been made. For example, since it was thought that many children may have poor diets in the home, the school canteen has ceased to sell sweets, and foods with high nutritional values are sold.

There is also room for voluntary bodies to organise leisure enrichment programmes. The Central Methodist Mission at Port Adelaide leads the field in this regard. Its intensive programme of semi-educational activities with some of the Aboriginal children of Port Adelaide and surrounding districts is giving some sense of direction

to the children's out-of-school hours; hours that were formerly spent in aimless and, it was reported, even destructive activities. Further programmes of this type for both black and white children would be extremely beneficial.

Changes should be made for both Aboriginal and white children, because it has been shown that both were lagging educationally. In some ways it may seem that perhaps the problems of the white children are more pressing, since there would be far greater numbers involved. However, there are two factors which raise the Aboriginal problems to at least equal status in regard to urgency. Firstly, from Table 3.2 it can be seen that most Aboriginal children lived in low socio-economic class suburbs, and a significant proportion were in institutions. If born white, a child has a good chance of being born into a middle-class family and escaping from the problems outlined here, but if born black, a child has very little chance of escaping. Secondly, there are at the moment, few Aborigines in the city, but the numbers are rapidly increasing (see Chapter Three for discussion of migration process). The time to act is now, before the situation reaches crisis proportions.

Educationally, Aboriginal children are at the lower levels of white society. If the aims and purposes of education as outlined in Chapter One are to be fulfilled, there must be a concerted effort to enquire into those factors retarding Aboriginal pupils, and action must be taken, either to eliminate such factors or neutralise their effects.

A P P E N D I X "A"

Occupational Categories from:

UNITED STATES DEPARTMENT OF COMMERCE : BUREAU OF THE CENSUS.

"1960 Census of Population - Alphabetical Indix of Occupations and Industries." (REV ED), Washington, 1960.

1. Professional, Technical and Kindred Workers.
2. Farmers and Farm Managers.
3. Managers, Officials and Proprietors, except Farm.
4. Clerical and Kindred Workers.
5. Sales Workers.
6. Craftsmen, Foremen and Kindred Workers.
7. Operatives and Kindred Workers.
8. Private Household Workers.
9. Service Workers, except Private Household.
10. Farm Labourers and Foremen.
11. Labourers, except Farm and Mine.
12. Occupation Not Reported.

These are the headings for each major group in the census. There is a list of occupations, each with a code number, under each heading. This is not designed to be a graduated scale, but there is some order in the classification.

A P P E N D I X "B".

ABORIGINAL CHILDREN EXCLUDED FROM THE SAMPLE.

	Child 1	Child 2	Child 3
Age (years/months)	12.5	12.5	13.7
Guidance Tests entered on EG1 cards	I.Q. 83 measured at age 10:11	I.Q. 99 measured at age 10:1	I.Q. 71 measured at age 12:6
Attendance (No. of days absent for period 1968-1970)	30	120	-
No. of Changes in School	1	2	8
Fathers' Occupation	Pensioner	Labourer	Labourer
No. of Brothers and Sisters	2	6	7

Child Two and Child Three had siblings in the sample.

All three children attended Taperoo primary school.

The I.Q. scores were taken from the EG1 cards. They have only been included here as a very crude indication of how the attainment scores of these children, if they had been collected, might have affected the results.

A P P E N D I X "C".

QUESTIONNAIRE.

(In the actual questionnaire boxes and dotted lines were provided for responses. These have been excluded in this copy, but in those questions where the boxes represented alternative responses the alternatives have been indicated).

Underneath are some short questions. I would like you to answer them if you could. As you will see they are about school and play.

I WOULD LIKE YOU TO SAY WHAT YOU REALLY THINK. YOU WILL NOT BE ASKED TO PUT YOUR NAME ON THIS PAPER, SO I WILL NOT KNOW WHO HAS DONE EACH PAPER.

I will be asking the same questions of other children at other schools. I would like to find out what children think about school, so I can tell others about it.

If you do not think you can answer any question then leave it. I only ask that you answer all the questions you can, and that you say what you really think. There is no need to take a long time over the questions. Do not rush them, but work fairly quickly.

The way to answer questions is not always the same. For some you will have to write a few words. You do not have to write sentences, just a few words will do. If you do not think you can spell a word, write it down as you think it should be spelt. Other questions will ask you to put ticks in boxes. Tick only one of the boxes in each question (except question 10). If your answer to a question is yes, put a tick in the yes box, or if it is no, put a tick in the no box. If you cannot make up your mind, or you do not know, put a tick in the don't know box.

IF YOU HAVE ANY QUESTIONS ABOUT THE TEST PLEASE PUT YOUR HAND UP. DO NOT SPEAK TO THE PERSON NEXT TO YOU.

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1. DID YOU LIKE YOUR CHRISTMAS HOLIDAYS?
   YES NO

2. WHAT WAS THE BEST THING YOU DID IN YOUR HOLIDAYS?

3. DO YOU LIKE PLAYING SPORT IN YOUR CHRISTMAS HOLIDAYS?
   YES NO

4. WHAT SPORTS DO YOU PLAY? WRITE DOWN ALL THE SPORTS YOU PLAY, NOT ONLY THOSE YOU PLAY IN THE CHRISTMAS HOLIDAYS.

5. DO YOU PLAY IN ANY TEAMS?
   YES NO

6. HAS ANYONE FROM HOME EVER COME TO WATCH YOU PLAY?
   YES NO

7. ABOUT HOW MANY HALF HOUR T.V. SHOWS WOULD YOU WATCH AT NIGHT AFTER SCHOOL? PUT A NUMBER IN THE BOX BELOW.

8. ABOUT HOW MANY ONE HOUR T.V. SHOWS WOULD YOU WATCH AT NIGHT AFTER SCHOOL? PUT A NUMBER IN THE BOX BELOW.

9. SOME T.V. SHOWS (SUCH AS MOVIES) GO FOR MORE THAN ONE HOUR. IF YOU WATCH THESE AT NIGHT AFTER SCHOOL, PUT DOWN ABOUT HOW MANY IN THE BOX BELOW.

10. THIS QUESTIONS ASKS HOW MANY HOURS OF T.V. YOU WATCH ON WEEKENDS. (Six boxes were set out with this question. The children were asked to put numbers in boxes corresponding to half hour, hour, and more than one hour programmes on Saturday and Sunday. The items were framed in a similar manner to items seven, eight and nine).

11. TELL ME WHAT YOU THINK IS THE BEST T.V. SHOW.

12. WHAT WAS THE NAME OF THE LAST BOOK YOU READ?
ABOUT HOW LONG AGO DID YOU READ IT?

13. ABOUT HOW MANY BOOKS WOULD YOU READ FROM THE SCHOOL LIBRARY IN ONE WEEK? PUT A NUMBER IN THE BOX BELOW.

14. ABOUT HOW MANY COMIC BOOKS WOULD YOU READ IN ONE WEEK? PUT A NUMBER IN THE BOX BELOW.

15. ABOUT HOW MANY MAGAZINES WOULD YOU READ IN ONE WEEK? PUT AT NUMBER IN THE BOX BELOW.

16. ABOUT HOW MANY NEWSPAPERS WOULD YOU READ IN ONE WEEK? PUT A NUMBER IN THE BOX BELOW.

17. IS THERE SOMETHING YOU LIKE TO DO NEARLY EVERY WEEKEND? COULD YOU WRITE IT DOWN?

18. WHAT DO YOU LIKE BETTER: WEEKENDS OR SCHOOLDAYS?
WEEKENDS SCHOOLDAYS LIKE THEM BOTH
DON'T LIKE WEEKENDS OR SCHOOLDAYS.

19. HERE ARE SOME SENTENCES ABOUT SCHOOL. PUT A TICK IN THE BOX NEXT TO THE ONE YOU WOULD SAY IS THE BEST WAY OF PUTTING DOWN WHAT YOU THINK ABOUT SCHOOL. TICK ONLY ONE BOX.

I LIKE SCHOOL VERY MUCH.

I LIKE COMING TO SCHOOL BUT THERE ARE OTHER THINGS I LIKE BETTER.

SCHOOL IS NOT TOO BAD.

I DON'T REALLY LIKE SCHOOL.

ANYTHING IS BETTER THAN SCHOOL.

20. DO YOU THINK THAT WHAT YOU LEARN AT SCHOOL IS USEFUL?

YES NO CANNOT MAKE UP YOUR MIND.

21. THE LAW SAYS CHILDREN SHOULD GO TO SCHOOL. DO YOU THINK THAT CHILDREN SHOULD BE MADE TO GO TO SCHOOL?

YES NO DON'T KNOW

22. YOU CAN LEAVE SCHOOL WHEN YOU ARE 15 YEARS OLD. DO YOU THINK YOU WOULD <u>LIKE</u> TO STAY ON LONGER IF YOU COULD?

YES NO DON'T KNOW

23. WHAT DO YOU LIKE BETTER AT SCHOOL : PLAYTIME OR SCHOOL WORK?

SCHOOLWORK PLAYTIME LIKE THEM BOTH

DO NOT LIKE SCHOOLWORK OR PLAYTIME.

24. WRITE DOWN THE SUBJECT YOU LIKE BEST AT SCHOOL.

25. WRITE DOWN THE SUBJECT YOU LIKE LEAST.

26 DO YOU TALK ABOUT SCHOOL WHEN YOU GO HOME?

YES NO

WHO DO YOU NEARLY ALWAYS TALK TO ABOUT SCHOOL?

DO YOU DO THIS VERY MUCH? PUT A TICK IN ONE OF THE BOXES BELOW.

I TALK ABOUT SCHOOL AT HOME VERY MUCH

I TALK ABOUT SCHOOL AT HOME EVERY NOW AND THEN

I TALK ABOUT SCHOOL AT HOME VERY LITTLE

I NEVER TALK ABOUT SCHOOL AT HOME

27. WHAT WOULD YOU LIKE TO DO WHEN YOU GROW UP?

28. HAVE YOU ANY HOBBIES?

YES NO

COULD YOU NAME THEM?

29. DO YOUR PARENTS ALWAYS SPEAK ENGLISH AT HOME?

YES NO

IF NOT, WHAT ELSE DO THEY SPEAK?

APPENDIX D1.

STATISTICAL TESTS - ATTAINMENT.

Retardation scores (see Chapter Two, p.22) have been used throughout. All figures, except where indicated, are in decimals. Retardation scores have been converted from years/months to decimals.

1. R1 TEST.

(a) CROSS-GROUP COMPARISON. (Comparison between the retardation scores of the Aboriginal children and the white children).

HO: There is no difference between the mean retardation of the Aboriginal children for the R1 test and that of the white children $(\bar{X}_1 - \bar{X}_2 = 0)$.

H1: There is a difference between the mean retardation of the Aboriginal children for the R1 test and the mean retardation of the white children (2-tailed) $(\bar{X}_1 - \bar{X}_2 \neq 0)$.

Statistical Test.

The two samples are drawn from a population of the retardation scores for the R1 test of all South Australian primary school children, which is assumed to be normally distributed. The standard deviation of the population is unknown and therefore a t test has been used. Degrees of Freedom $N_1 + N_2 - 2 = 54$ (∞). The test assumes the samples to be "independent" (see Chapter Four, p.40).

Significance Level.

$\alpha = 0.05$ (2-tailed H1).

Calculation of Statistic.

R1 Retardation Scores.
Aboriginal Children

X_1	$X_1-\bar{X}_1$	$(X_1-\bar{X}_1)^2$
-1.1	-2.0	4.00
0.8	-0.1	0.01
0.4	-0.5	0.25
-2.7	-3.6	12.96
0.8	-0.1	0.01
1.0	0.1	0.01
0	-0.9	0.81
1.1	0.2	0.04
3.0	2.1	4.41
0.7	-0.2	0.04
2.3	1.4	1.96
0.5	-0.4	0.16
2.2	1.3	1.69
-2.7	-3.6	12.96
2.4	1.5	2.25
1.3	0.4	0.16
1.8	0.9	0.81
1.0	0.1	0.01
1.0	0.1	0.01
2.7	1.6	2.56
2.8	1.9	3.61
-1.7	-2.6	6.76
-0.3	-1.0	1.00
0.1	-0.8	0.64
2.0	1.1	1.21
2.2	1.3	1.69
1.2	0.3	0.09
2.0	1.1	1.21

$N_1=28$

R1 Retardation Scores
White Children.

X_2	$X_2-\bar{X}_2$	$(X_2-\bar{X})^2$
-0.7	-0.6	0.36
0.2	-1.9	3.61
1.2	-0.1	0.01
0.9	-0.4	0.16
-1.0	-2.3	5.29
0.8	-0.5	0.25
1.3	0	0
0.2	-1.1	1.21
2.0	0.7	0.49
1.3	0	0
1.3	0	0
0.8	-0.5	0.25
1.6	0.3	0.09
-1.8	-3.1	9.61
2.3	1.0	1.00
0.2	-1.1	1.21
1.9	0.6	0.36
0.5	-0.8	0.64
0	-1.3	1.69
-0.8	-2.1	4.41
2.8	1.5	2.25
2.4	1.1	1.21
3.6	2.3	5.29
3.8	2.5	6.25
1.9	0.6	0.36
2.1	0.8	0.64
4.3	3.0	9.00
2.8	1.5	2.25

$N_2=28$

$\Sigma X_1 = 24.8$ $\Sigma(X_1-\bar{X}_1)^2 = 61.32$

$\bar{X}_1 = \frac{\Sigma X_1}{N_1}$

$= \frac{24.8}{28}$

$= 0.8857$

$= \underline{0.9}$

$s_1 = \sqrt{\frac{\Sigma(X_1-\bar{X}_1)^2}{N_1-1}}$

$= \sqrt{\frac{61.32}{27}}$

$= \sqrt{2.2711}$

$= 1.507$

$\Sigma X_2 = 37.3$ $\Sigma(X_2-\bar{X}_2)^2 = 57.89$

$\bar{X}_2 = \frac{\Sigma X_2}{N_2}$

$= \frac{37.3}{28}$

$= 1.332$

$= \underline{1.3}$

$s_2 = \sqrt{\frac{\Sigma(X_2-\bar{X}_2)^2}{N_2-1}}$

$= \sqrt{\frac{57.89}{27}}$

$= \sqrt{2.1441}$

$= 1.464$

$s_{\bar{X}_1-\bar{X}_2}$

$= \sqrt{\frac{(N_1-1)s_1^2 + (N_2-1)s_2^2}{N_1+N_2-2}} \times \sqrt{\frac{1}{N_1}+\frac{1}{N_2}}$

$= \sqrt{\frac{27(2.27)+2(1.14)}{54}} \times \sqrt{\frac{2}{28}}$

$= \sqrt{\frac{4.41}{2} \times \frac{1}{14}}$

$= \sqrt{\frac{4.41}{28}}$

$= \sqrt{0.1575}$

$= 0.3968$

$t = \frac{\bar{X}_1 - \bar{X}_2}{s_{\bar{X}_1-\bar{X}_2}}$

$$= \frac{-0.4}{0.3968}$$

$$= -1.010$$

From Table I in Karmel and Polasek (1970) associated probability of this value of t with infinite degrees of freedom = 0.4 - 0.3 (2-tailed H1).

Decision.

The probability of the difference in means occurring by chance is 0.4 - 0.3, which is above the significance level set (α = 0.05 2-tailed H1). Therefore H0 is not rejected.

(b) COMPARISON TO SCHOOL NORMS. (School norms for grades four to seven were calculated for the R1 and S1 tests at Ferryden Park Primary School. The retardation scores of the seven Aboriginal children and seven white children have been compared to school norms).

The mean retardation of both the Aboriginal children and the white children was in each case equal to the mean retardation of school norms for the R1 test. Thus in both cases the difference in mean retardation was zero.

R1 RETARDATION SCORES: Ferryden Park Primary School.

Age Range (years/months)	Mid-Point (Years/months)	X	f	fX	X-u	$(X-u)^2$	$f(X-u)^2$
8.0- 8.2	8.1	-0.4	9	-3.6	-1.1	1.21	10.89
8.3-8.5	8.4	-0.2	18	-3.6	-0.9	0.81	14.58
8.6-8.8	8.7	0.1	13	1.3	-0.6	0.36	4.68
8.9-8.11	8.10	0.2	11	2.2	-0.5	0.25	2.75
9.0-9.2	9.1	0.3	21	6.3	-0.4	0.16	3.36
9.3-9.5	9.4	0.6	20	12.0	-0.1	0.01	0.20
9.6-9.8	9.7	0.4	16	6.4	-0.3	0.09	1.44
9.9-9.11	9.10	0.7	14	9.8	0	0	0
10.0-10.2	10.1	1.6	10	16.0	0.9	0.81	8.10
10.3-10.5	10.4	0.9	12	10.8	0.2	0.04	0.48
10.6-10.8	10.7	1.2	6	7.2	0.5	0.25	1.50
10.9-10.11	10.10	0.7	10	7.0	0	0	0
11.0-11.2	11.1	0.5	14	7.0	-0.2	0.04	0.56
11.3-11.5	11.4	0.9	15	13.5	0.2	0.04	0.60
11.6-11.8	11.7	1.2	20	24.0	0.5	0.25	5.00
11.9-11.11	11.10	1.6	19	32.3	0.9	0.81	15.39
12.9-12.11	12.10	3.5	6	21.0	2.8	7.84	47.04

$P = 234$ $\Sigma fX = 169.6$ $\Sigma f(X-u)^2 = 116.57$

$u = \frac{\Sigma fX}{P}$

$= \frac{169.6}{234}$

$= 0.7249$

$= 0.7$

$\sigma = \sqrt{\frac{\Sigma f(X-u)^2}{P}}$

$= \sqrt{\frac{116.57}{234}}$

$= \sqrt{0.4985}$

$= 0.7061$

R1 Retardation Scores:

Aboriginal Children, Ferryden Park Primary School.

X_1
-1.1
0.8
0.7
0.5
1.0
2.7
0.1

$N_1 = 7$

$\Sigma X_1 = 4.7$

$$\bar{X}_1 = \frac{\Sigma X_1}{N_1}$$

$$= \frac{4.7}{7}$$

$$= 0.6714$$

$$= 0.7$$

R1 Retardation Scores:

White Children, Ferryden Park Primary School.

X_2
0.7
-1.0
1.3
0.8
0
-0.8
3.8

$N_2 = 7$

$\Sigma X_2 = 4.8$

$$\bar{X}_2 = \frac{\Sigma X_2}{N_2}$$

$$= \frac{4.8}{7}$$

$$= 0.6857$$

$$= 0.7$$

II. S1 TEST.

(a) CROSS-GROUP COMPARISON. (see above).

HO: There is no difference between the mean retardation of the Aboriginal children for the S1 test and the mean retardation of the white children ($\bar{X}_1 - \bar{X}_2 = 0$)

H1: There is a difference between the mean retardation of the Aboriginal children for the S1 test and the mean retardation of the white children ($\bar{X}_1 - \bar{X}_2 \neq 0$) (2-tailed).

Statistical Test.

t-test (see above). Degrees of Freedom $N_1 + N_2 - 2 = 54$ (∞)

Significance Level.

$\alpha = 0.05$ (2-tailed H1).

Calculation of Statistic.

S1 Retardation Scores.
Aboriginal Children

X_1	$X_1-\bar{X}_1$	$(X_1-\bar{X}_1)^2$
-0.4	-1.1	1.21
0.2	-0.5	0.25
-0.2	-0.9	0.81
-2.0	-2.7	7.29
0.2	-0.5	0.25
1.1	0.4	0.16
0.5	-0.2	0.04
0.3	-0.4	0.16
3.3	2.6	6.76
-0.3	-1.0	1.00
1.8	1.1	1.21
-0.6	1.3	1.69
2.4	1.7	2.89
-1.3	-2.0	4.00
1.8	1.1	1.21
0.2	-0.5	0.25
2.6	1.9	3.61
0.6	-0.1	0.01
-0.3	-1.0	1.00
1.4	0.7	0.49
3.5	2.8	7.84
0.1	-0.6	0.36
-0.7	-1.4	1.96
0.4	-0.3	0.09
0.7	0	0
1.4	0.7	0.49
1.3	0.6	0.36
2.3	1.6	2.56

$N_1 = 28$

S1 Retardation Scores.
White Children.

X_2	$X_2-\bar{X}_2$	$(X_2-\bar{X}_2)^2$
0	-1.1	1.21
-0.4	-1.5	5.25
0.8	-0.3	0.09
0.2	-0.9	0.81
-1.0	-2.1	4.41
0.3	-0.8	0.64
1.9	0.8	0.64
-0.1	-1.2	1.44
2.2	1.1	1.21
-0.9	-2.0	4.00
1.3	0.2	0.04
1.3	0.2	0.04
2.3	1.2	1.44
-1.0	-2.1	4.41
2.3	1.2	1.44
0.9	-0.2	0.04
2.1	1.0	1.00
-0.1	-1.2	1.44
0.4	-0.7	0.49
-1.0	-2.1	4.41
4.1	3.0	9.00
1.3	0.2	0.04
3.7	2.6	6.76
2.1	1.0	1.00
2.9	1.8	3.24
1.7	0.6	0.36
3.3	2.2	4.84
0.8	-0.3	0.09

$N_2 = 28$

$\Sigma X_1 = 20.3$ $\Sigma (X_1 - \bar{X}_1)^2 = 47.95$

$$\bar{X}_1 = \frac{\Sigma X_1}{N_1}$$

$$= \frac{20.3}{28}$$

$$= 0.7250$$

$$= 0.7$$

$$s_1 = \sqrt{\frac{\Sigma (X_1 - \bar{X}_1)^2}{N_1 - 1}}$$

$$= \sqrt{\frac{47.95}{27}}$$

$$= \sqrt{1.7758}$$

$$= 1.332$$

$\Sigma X_2 = 31.4$ $\Sigma (X_2 - \bar{X}_2)^2 = 59.78$

$$\bar{X}_2 = \frac{\Sigma X_2}{N_2}$$

$$= \frac{31.4}{28}$$

$$= 1.1214$$

$$= 1.1$$

$$s_2 = \sqrt{\frac{\Sigma (X_2 - \bar{X}_2)^2}{N_2 - 1}}$$

$$= \sqrt{\frac{59.78}{27}}$$

$$= \sqrt{2.2555}$$

$$= 1.502$$

$$s_{\bar{X}_1 - \bar{X}_2} = \sqrt{\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}} \times \sqrt{\frac{1}{N_1} + \frac{1}{N_2}}$$

$$= \sqrt{\frac{27(1.77) + 27(2.26)}{54}} \times \sqrt{\frac{2}{28}}$$

$$= \sqrt{\frac{4.03}{2} \times \frac{1}{14}}$$

$$= \sqrt{\frac{2.015}{14}}$$

$$= \sqrt{0.1439}$$

$$= 0.3794$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s_{\bar{X}_1 - \bar{X}_2}}$$

$$= \frac{0.7 - 1.1}{0.3794}$$

$$= \frac{-0.4}{0.3794}$$

$$= -1.054$$

From Table I in Karmel and Polasek (1970) associated probability of this value of t with infinite degrees of freedom = 0.3 - 0.2 (2-tailed H1).

Decision.

The probability of the difference in means occurring by chance is 0.3 - 0.2, which is above the significance level set (α = 0.05 2-tailed H1). There HO is not rejected.

(b) COMPARISON TO SCHOOL NORMS, (see above).

(i) Aboriginal Children

HO: There is no differencebetween the mean retardation for the S1 test of the sample of seven Aboriginal children at Ferryden Park Primary School, and the mean retardation of the population of all children in grades four to seven at Ferryden Park Primary School ($X_1 - u = 0$)

H1: There is a difference between the mean retardation for the S1 test of the sample of seven Aboriginal children at Ferryden Park Primary School and the mean retardation of the population of all children in grades four to seven at Ferryden Park Primary School ($X_1 - u \neq 0$) (2-tailed).

Statistical Test

z-score test. The retardation scores for the whole school are assumed to be normally distributed and a standard deviation has been calculated. Therefore a z test has been used.

Significance Level

α =0.05 (2-tailed H1).

Calculation of Statistic.

S1 RETARDATION SCORES: Ferryden Park Primary School.

Age Range (years/months)	Mid-Point (Years/ months)	X	f	fX	X-u	$(X-u)^2$	$f(X-u)^2$
8.0-8.2	8.1	-0.3	9	-2.7	-0.9	0.81	7.29
8.3-8.5	8.4	-0.1	18	-1.8	-0.7	0.49	8.82
8.6-8.8	8.7	-0.1	13	-1.3	-0.7	0.49	6.37
8.9-8.11	8.10	-0.1	11	-1.1	-0.7	0.49	5.43
9.0-9.2	9.1	0.2	21	4.2	-0.4	0.16	3.36
9.3-9.5	9.4	0.4	20	8.0	-0.2	0.04	0.80
9.6-9.8	9.7	0.1	16	1.6	0.5	0.25	4.00
9.9-9.11	9.10	0.7	14	9.8	0.1	0.01	0.14
10.0-10.2	10.1	0.8	10	8.0	0.2	0.04	0.40
10.3-10.5	10.4	0.8	12	9.6	0.2	0.04	0.48
10.6-10.8	10.7	1.7	6	10.2	1.1	1.21	7.26
10.9-10.11	10.10	0.7	11	7.7	0.1	0.01	0.11
11.0-11.2	11.1	1.0	14	14.0	0.4	0.16	2.24
11.3-11.5	11.4	0.7	17	11.9	0.1	0.01	0.17
11.6-11.8	11.7	1.0	20	20.0	0.4	0.16	3.20
11.9-11.11	11.10	1.3	19	24.7	0.7	0.49	9.31
12.3-12.5	12.4	1.9	5	9.5	1.3	1.69	8.45
12.9-12.11	12.10	3.5	6	21.0	2.9	8.41	50.46

$P = 242 \quad \Sigma fX = 153.3 \qquad \Sigma f(X-u)^2 = 116.29$

$u = \frac{\Sigma fX}{P}$

$= \frac{153.3}{242}$

$= 0.6336$

$= 0.6$

$= \sqrt{\frac{f(X-u)^2}{P}}$

$= \sqrt{\frac{116.29}{242}}$

$= \sqrt{0.4805}$

$= 0.6932$

S1 Retardation Scores:

Aboriginal Children, Ferryden Park Primary School

X_1
-0.4
0.2
-0.3
-0.6
-0.3
1.4
0.4

$N_1 = 7$

$\Sigma X_1 = 0.4$

$\bar{X}_1 = \frac{\Sigma X_1}{N_1}$

$= \frac{0.4}{7}$

$= 0.05714$

$= 0.1$

$z = \frac{\bar{X}_1 - u}{\sigma_{\bar{X}_1}}$

$\sigma_{\bar{X}_1} = \frac{\sigma}{\sqrt{N_1}}$

$z = \frac{0.1 - 0.6}{\frac{0.6932}{\sqrt{7}}}$

$$= \frac{-0.5 \times \sqrt{7}}{0.6932}$$

$$= -0.7214 \times 2.646$$

$$= -1.909$$

From Table A in Runyon and Haber (1967) associated probability for this value of z (2-tailed H1) = 0.0562.

Decision.

The probability of the difference occurring by chance is 0.0562, which is above the significance level set (α = 0.05 2-tailed H1). Therefore HO is not rejected.

(ii) White Children.

HO: There is no difference between the mean retardation for the S1 test of the sample of seven white children at Ferryden Park Primary School and the mean retardation of the population of all children in grades four to seven at Ferryden Park Primary School ($\bar{X}_1 - u = 0$).

H1: There is a difference between the mean retardation for the S1 test of the sample of seven white children at Ferryden Park Primary School and the mean retardation of the population of all children in grades four to seven at Ferryden Park Primary School ($\bar{X} - u \neq 0$) (2-tailed).

Statistical Test

z-score test

Significance Level.

$\alpha = 0.05$ (2-tailed H1).

Calculation of Statistic

From previous test

$u = 0.6$

$\sigma = 0.6932$

S1 Retardation Scores:

White Children, Ferryden Park Primary School.

X_2
0
-1.0
0.9
1.4
0.5
-1.0
2.1

$N_2 = 7$

$\Sigma X_2 = 2.9$

$$\bar{X}_2 = \frac{\Sigma X_2}{N_2}$$

$$= \frac{2.9}{7}$$

$$= 0.4143$$

$$= 0.4$$

$$z = \frac{\bar{X}_2 - u}{\sigma_{\bar{X}_2}}$$

$$\sigma_{\bar{X}_2} = \frac{\sigma}{\sqrt{N_2}}$$

$$z = \frac{0.4 - 0.6}{\frac{0.6932}{\sqrt{7}}}$$

$$= \frac{-0.2 \times \sqrt{7}}{0.6932}$$

= -0.7273

From Table A in Runyon and Haber (1967) associated probability for this value of z (2-tailed H1) = 0.4654.

Decision.

The probability of the difference occurring by chance is 0.ϕ4654 which is above the significance level set (α=0.05 2-tailed H1). Therefore HO is not rejected.

III. VOCABULARY TEST.

(a) CROSS-GROUP COMPARISON. (see above).

HO: There is no difference between the mean retardation of the Aboriginal children for the Vocabulary test and the mean retardation of the white children ($\bar{X}_1 - \bar{X}_2 = 0$)

H1: There is a difference between the mean retardation of the Aboriginal children for the Vocabulary test and the mean retardation of the white children ($\bar{X}_1 - \bar{X}_2 \neq 0$) (2-tailed).

Statistical Test.

t-test. Degrees of Freedom $N_1 + N_2 - 2 = 54$ (∞). (See above)

Significance Level.

α = 0.05 (2-tailed H1).

Calculation of Statistic.

Vocab.Retardation Scores.
Aboriginal Children.

X_1	$X_1-\bar{X}_1$	$(X_1-\bar{X}_1)^2$
-0.1	-0.9	0.81
0.1	-0.7	0.49
-0.3	-1.1	1.21
-1.1	-1.9	3.61
0.8+	0+	0
1.0+	0.2+	0.04
0.6	-0.2	0.04
0.8	0	0
1.2+	0.4+	0.16
0.8	0	0
2.4+	1.6+	2.56
-1.0	-1.8	3.24
2.7+	1.9+	3.61
-2.0	-2.8	7.84
1.6	0.8	0.64
0.4	-0.4	0.16
2.3	1.5	2.25
1.4	0.6	0.36
-0.9	-1.7	2.89
1.7	0.9	0.81
3.0+	2.2+	4.84
0.3	-1.1	1.21
0.2	-0.6	0.36
0.3	-0.5	0.25
1.5	0.7	0.49
1.7	0.9	0.81
2.2	1.4	1.96
2.4	1.6	2.56

$N_1 = 28$

Vocab.Retardation Scores.
White Children.

X_2	$X_2-\bar{X}_2$	$(X_2-\bar{X}_2)^2$
-0.3+	-0.7+	0.49
-0.6	-1.6	2.56
0.8+	-0.2+	0.04
0.3	-0.7	0.49
-0.6	-1.6	2.56
0.8	-0.2	0.04
0.8+	-0.2+	0.04
-0.6	-1.6	2.56
1.4+	0.4	0.16
0.8	-0.2	0.04
0.9	-0.1	0.01
0.3	-0.7	0.49
0.3	-0.7	0.49
-1.3	-2.3	5.29
2.4	1.4	1.96
-0.4	-1.4	1.96
1.8	0.8	0.64
1.0	0	0
-0.8	-1.8	3.24
-1.3	-2.3	5.29
2.8+	1.8+	3.24
2.1	1.1	1.21
3.5	2.5	6.25
2.4	1.4	1.96
1.9	0.9	0.81
4.3	3.3	10.89
3.3	2.3	5.29
2.4	1.4	1.96

$N_2 = 28$

$\Sigma X_1 = 23.4 \quad \Sigma(X_1-\bar{X}_1)^2 = 43.20 \quad \Sigma X_2 = 29.0 \quad \Sigma(X_2-\bar{X}_2)^2 = 59.96$

$$\bar{X}_1 = \frac{\Sigma X_1}{N_1} \qquad \bar{X}_2 = \frac{\Sigma X_2}{N_2}$$

$$= \frac{23.4}{28} \qquad = \frac{29.0}{28}$$

$$= 0.8357 \qquad = 1.03$$

$$= 0.8 \qquad = 1.0$$

$$s_1 = \sqrt{\frac{\Sigma(X_1-\bar{X}_1)^2}{N_1 - 1}} \qquad s_2 = \sqrt{\frac{\Sigma(X_2-\bar{X}_2)^2}{N_2 - 1}}$$

$$= \sqrt{\frac{43.20}{27}} \qquad = \sqrt{\frac{59.96}{27}}$$

$$= \sqrt{1.600} \qquad = \sqrt{2.2207}$$

$$= 1.265 \qquad = 1.490$$

$$s_{\bar{X}_1-\bar{X}_2} = \sqrt{\frac{(N_1-1)s_1^2 + (N_2-1)s_2^2}{N_1 + N_2 - 2}} \times \sqrt{\frac{1}{N_1} + \frac{1}{N_2}}$$

$$= \sqrt{\frac{27(1.60) + 27(2.22)}{54}} \times \sqrt{\frac{2}{28}}$$

$$= \sqrt{\frac{1.6 + 2.22}{2}} \times \sqrt{\frac{2}{28}}$$

$$= \sqrt{\frac{3.82}{28}}$$

$$= \sqrt{0.1364}$$

$$= 0.3693$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s_{\bar{X}_1-\bar{X}_2}}$$

$$= \frac{0.8 - 1.0}{0.3693}$$

$$= \frac{-0.2}{0.3693}$$

$$= \frac{-1.0}{1.8465}$$

$$= -0.5415$$

From Table I in Karmel and Polasek (1970) associated probability of this value of t with infinite degrees of freedom = 0.6 - 0.5,

Decision.

The probability of the difference in means occurring by chance is 0.6 - 0.5, which is above the significance level set ($\alpha = 0.05$ 2-tailed H1). Therefore HO is not rejected.

(b) COMPARISON TO SCHOOL NORMS. (School norms were calculated for the Vocabulary and Reading for Meaning tests at Mansfield Park Primary School. The retardation scores of the eight Aboriginal children and eight white children have been compared to the school norms).

(i) Aboriginal Children.

HO: There is no difference between the mean retardation for the Vocabulary test of the sample of eight Aboriginal children at Mansfield Park Primary School and the mean retardation of the population of all children in grades four to seven at Mansfield Park Primary School ($\bar{X}_1 - u = 0$)

H1: There is a difference between the mean retardation for the Vocabulary test of the sample of eight Aboriginal children at Mansfield Park Primary School and the mean retardation of the population of all

children in grades four to seven at Mansfield Park Primary School ($\bar{X}_1 - u \neq 0$) (2-tailed).

Statistical Test

z-score test (see above).

Significance Level.

$\alpha = 0.05$ (2-tailed H1).

Calculation of Statistic.

VOCAB. RETARDATION SCORES: Mansfield Park Primary School.

Age Range (years/months)	Mid-Point (Years/ months)	X	f	fX	X-u	$(X-u)^2$	$f(X-u)^2$
8.0- 8.2	8.1	-0.3	6	-1.8	-1.0	1.00	6.00
8.3--8.5	8.4	-0.6	18	-10.8	-1.3	1.69	30.42
8.6- 8.8	8.7	-0.1	21	- 2.1	-0.8	0.64	13.44
8.9- 8.11	8.10	0.4	32	12.8	-0.3	0.09	2.88
9.0- 9.2	9.1	0.2	14	2.8	-0.5	0.25	3.50
9.3- 9.5	9.4	0.8	21	16.8	0.1	0.01	0.21
9.6- 9.8	9.7	0.5	22	11.0	-0.2	0.04	0.88
9.9- 9.11	9.10	0.5	29	14.5	-0.2	0.04	1.66
10.0-10.2	10.1	0.7	43	30.1	0	0	0
10.3-10.5	10.4	0.6	35	21.0	-0.1	0.01	0.35
10.6-10.8	10.7	0.9	27	24.3	0.2	0.04	1.08
10.9-10.11	10.10	0.5	24	12.0	-0.2	0.04	0.96
11.0-11.2	11.1	0.8	40	32.0	0.1	0.01	0.40
11.3-11.5	11.4	0.3	26	7.8	-0.4	0.16	4.16
11.6-11.8	11.7	0.8	31	24.8	0.1	0.01	0.31
11.9-11.11	11.10	1.1	26	28.6	0.4	0.16	4.16
12.0-12.2	12.1	1.1	20	22.0	0.4	0.16	3.20
12.3-12.5	12.4	0.8	10	8.0	0.1	0.01	0.10
12.6-12.8	12.7	1.7	9	15.3	1.0	1.00	9.00
12.9-12.11	12.10	2.8	10	28.0	2.1	4.41	44.10
13.0-13.2	13.1	3.0	13	39.0	2.3	5.29	68.71
13.3-13.4	13.4	3.3	8	26.4	2.6	6.76	70.08

$P = 485 \qquad \Sigma f(X-u)^2 = 265.60$

$\Sigma fX = 362.5$

$u = \frac{\Sigma fX}{P}$ $\qquad \sigma = \sqrt{\frac{\Sigma f(X-u)^2}{P}}$

$= \frac{362.5}{485}$ $\qquad = \sqrt{\frac{265.60}{485}}$

$= 0.7474$ $\qquad = \sqrt{0.5476}$

$= 0.7$ $\qquad = 0.7400$

Vocab. Retardation Scores:

Aboriginal Children, Mansfield Park Primary School.

X_1
-0.3
-1.1
1.0+
0.8
1.6
1.7
2.2
2.4

$N_1 = 8$

$\Sigma X_1 = 8.3$

$\bar{X}_1 = \frac{\Sigma X_1}{N_1}$

$= \frac{8.3}{8}$

$= 1.0375$

$= 1.0$

$z = \frac{\bar{X}_1 - u}{\sigma_{\bar{X}_1}}$

$\sigma_{\bar{X}_1} = \frac{\sigma}{\sqrt{N_1}}$

$z = \frac{1.0 - 0.7}{\frac{0.7400}{\sqrt{8}}}$

$$= \frac{0.3 \times \sqrt{8}}{0.7400}$$

$$= 0.4055 \times 2.828$$

$$= 1.1470$$

From Table A in Runyon and Haber (1967) associated probability for this value of z (2-tailed H1) = 0.2502.

Decision.

The probability of the difference occurring by chance is 0.2502, which is above the significance level set ($\alpha = 0.05$ 2-tailed H1). Therefore HO is not rejected.

(ii) White Children.

HO: There is no difference between the mean retardation for the Vocabulary test of the sample of eight white children at Mansfield Park Primary School and the mean retardation of the population of all children in grades four to seven at Mansfield Park Primary School ($\bar{X}_1 - u = 0$).

H1: There is a difference between the mean retardation for the Vocabulary test of the sample of eight white children at Mansfield Park Primary School and the mean retardation of the population of all children in grades four to seven at Mansfield Park Primary School. ($\bar{X}_1 - u \neq 0$)

Statistical Test.

z-score test.

Significance Level.

α = 0.05 (2-tailed H1).

Calculation of Statistic.

From previous test u = 0.7

σ = 0.7400

Vocab. Retardation Scores:

White children, Mansfield Park Primary School.

X_2
0.8+
0.3
0.8
-0.6
2.4
4.3
3.3
2.4

$N_2 = 8$

$\Sigma X_2 = 13.7$

$$\bar{X}_2 = \frac{\Sigma X_2}{N_2}$$

$$= \frac{13.7}{8}$$

$$= 1.7125$$

$$= 1.7$$

$$z = \frac{\bar{X}_2 - u}{\sigma_{\bar{X}_2}}$$

$$\sigma_{\bar{X}_2} = \frac{\sigma}{\sqrt{N_2}}$$

$$z = \frac{1.7 - 0.7}{\frac{0.7400}{\sqrt{8}}}$$

$$= \frac{1.0 \times \sqrt{8}}{0.7400}$$

$$= \frac{1}{0.74} \times 2.828$$

$$= 3.8233$$

From Table A in Runyon and Haber (1967) associated probability for this value of z (2-tailed H1) = beyond 0.0002.

Decision.

The probability of the difference occurring by chance is beyond 0.0002 which is below the significance level set (α = 0.05 2-tailed H1). Therefore HO is rejected.

(c) COMPARISON TO STATE NORMS. (State norms were calculated for the Vocabulary and Reading for Meaning tests for a "large number" of South Australian primary school children in April, 1967. The norms have been so constructed that the mean retardation is zero. (see Chapter Two)).

(i) Aboriginal Children.

HO: There is no difference between the mean retardation of the Aboriginal children for the Vocabulary test and the mean retardation of the population of a "large number" of South Australian primary school children in April, 1967 ($\bar{X}_1 - u = 0$).

H1: The mean retardation of the Aboriginal children for the Vocabulary test is greater than the mean retardation of the population of a "large number" of South Australian primary school children in April, 1967 ($\bar{X}_1 - u > 0$) (1-tailed).

Statistical Test.

The population of retardation scores of a large number of South Australian primary school children in April, 1967, is assumed to be normally distributed, but the standard deviation is unknown. A t-test has, therefore, been used. Degrees of freedom $N_1 - 1 = 27$.

Significance Level.

$\alpha = 0.005$ (1-tailed).

Calculation of Statistic.

from test III (a)

$s_1 = 1.27$

$N_1 = 28$

$\bar{X}_1 = 0.8$

$$t = \frac{\bar{X} - u}{s_{\bar{X}_1}}$$

$$s_{\bar{X}_1} = \frac{s_1}{\sqrt{N_1}}$$

$$t = \frac{(0.8 - 0) \times \sqrt{28}}{1.27}$$

$$= \frac{4.2336}{1.27}$$

$$= 3.336$$

From Table I in Karmel and Polasek (1970) associated probability of this value of t with 27 degrees of freedom = beyond 0.01.

Decision.

The probability of the difference occurring by chance is beyond

0.01 which is below the significance level set ($\alpha = 0.05$ 1-tailed H1). Therefore HO is rejected.

(ii) White Children.

HO: There is no difference between the mean retardation of the white children for the Vocabulary test and the mean retardation of the population of a "large number" of South Australian primary school children in April, 1967 ($\bar{X}_2 - u = 0$).

H1: The mean retardation of the white children for the Reading for Meaning test is greater than the mean retardation of a "large number" of South Australian primary school children in April, 1967 ($\bar{X}_2 - u > 0$) (1-tailed).

Calculation of Statistic.

from test III (a) $s_2 = 1.49$

$N_2 = 28$

$\bar{X}_2 = 1.0$

$$t = \frac{\bar{X}_2 - u}{s_{\bar{X}_2}}$$

$$s_{\bar{X}_2} = \frac{s_2}{\sqrt{N_2}}$$

$$t = \frac{1.0 - 0}{1.49} \times 5.292$$

$$= \frac{5.292}{1.49}$$

$$= 3.552$$

From Table I in Karmel and Polasek (1970) associated probability of this value of t with 27 degrees of freedom = beyond 0.01.

Decision.

The probability of the difference occurring by chance is beyond 0.01 which is below the significance level set (α = 0.05 1-tailed H1). Therefore HO is rejected.

IV. READING FOR MEANING TEST.

(a) CROSS GROUP COMPARISON (see above).

HO: There is no difference between the mean retardation of the Aboriginal children for the Reading for Meaning test and the mean retardation of the white children ($\bar{X}_1 - \bar{X}_2 = 0$)

H1: There is a difference between the mean retardation of the Aboriginal children for the Reading for Meaning test and the mean retardation of white children ($\bar{X}_1 - \bar{X}_2 \neq 0$) (2-tailed).

Statistical Test.

t-test degrees of freedom $N_1 + N_2 - 2 = 56$ (∞) (see above).

Significance Level.

α = 0.05 (2-tailed H1).

Calculation of Statistic.

Reading for Meaning
Retardation Scores.
Aboriginal Children

X_1	$X_1-\bar{X}_1$	$(X_1-\bar{X}_1)^2$
-0.3	-1.5	2.25
0.3	-0.9	0.81
-0.1	-1.4	1.69
-2.4	-3.6	12.96
0.8	-0.4	0.16
1.0+	-0.2+	0.04
0.8	-0.4	0.16
0.6	-0.6	0.36
1.2+	0+	0
-0.3	-1.5	2.25
2.4+	1.2+	1.44
0.6	-0.6	0.36
2.7+	1.5+	2.25
-0.7	-1.9	3.61
2.1+	0.9+	0.81
1.3	0.1	0.01
2,3	1.1	1.21
1.2	0	0
0.2	-1.0	1.00
2.7	1.5	2.25
3.0	1.8	3.24
0.4	-0.8	0.64
3.7	1.5	2.25
1.4	0.2	0.04
0.8	-0.4	0.16
0.8	-0.4	0.16
2.9	1.7	2.89
3.9	2.7	7.29
2.3	1.1	1.21

$N_1=29$

Reading for Meaning
Retardation Scores.
White Children

X_2	$X_2-\bar{X}_2$	$(X_2-\bar{X}_2)^2$
0.3+	-0.8	0.64
0.3+	-0.8	0.64
0.8+	-0.3	0.09
0.5	-0.6	0.36
-0.7	-1.8	3.24
0.8	-0.3	0.09
0.8+	-0.3+	0.09
0.1	-1.0	1.00
1.4+	0.3+	0.09
1.4	0.3	0.09
1.4	0.3	0.09
1.2	0.1	0.01
0.3	-0.8	0.64
-1.4	-2.5	6.25
2.1	1.0	1.00
-0.3	-1.4	1.96
1.8	0.7	0.49
-0.1	-1.2	1.44
-0.3	-1.4	1.96
-1.8	-2.9	8.41
2.8+	1.7+	2.89
1.8	0.7	0.49
2.0	0.9	0.81
3.6	2.5	6.25
1.9	0.8	0.64
2.0	0.9	0.81
4.4	3.3	10.89
1.7	0.6	0.36
2.4	1.3	1.69

$N_2=29$.

$\Sigma X_1 = 35.6 \quad \Sigma(X_1-\bar{X})^2 = 51.50 \qquad \Sigma X_2 = 31.2 \quad \Sigma(X_2-\bar{X}_2)^2 = 53.41$

$$\bar{X}_1 = \frac{\Sigma X_1}{N_1}$$

$$= \frac{35.6}{29}$$

$$= 1.23$$

$$= 1.2$$

$$\bar{X}_2 = \frac{\Sigma X_2}{N_2}$$

$$= \frac{31.2}{29}$$

$$= 1.08$$

$$= 1.1$$

$$s_1 = \sqrt{\frac{\Sigma(X_1-\bar{X}_1)^2}{N_1-1}}$$

$$= \sqrt{\frac{51.50}{28}}$$

$$= \sqrt{1.8393}$$

$$= 1.356$$

$$s_2 = \sqrt{\frac{\Sigma(X-\bar{X})^2}{N_2-1}}$$

$$= \sqrt{\frac{53.41}{28}}$$

$$= \sqrt{1.9075}$$

$$= 1.406$$

$$s_{\bar{X}_1-\bar{X}_2} = \sqrt{\frac{(N_1-1)s_1^2 + (N_2-1)s_2^2}{N_1+N_2-2}} \times \sqrt{\frac{1}{N_1}+\frac{1}{N_2}}$$

$$= \sqrt{\frac{28\,(1.84) + 28(1.90)}{56}} \times \sqrt{\frac{2}{29}}$$

$$= \sqrt{\frac{1.84 + 1.90}{29}}$$

$$= \sqrt{\frac{3.74}{29}}$$

$$= \sqrt{0.12207}$$

$$= 0.3494$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s_{\bar{X}_1-\bar{X}_2}}$$

$$= \frac{1.2 - 1.1}{0.3494}$$

$$= \frac{1}{3.494}$$

$$= 0.2862.$$

From Table I of Karmel and Polasek (1970) associated probability of this value of t with infinite degrees of freedom = 0.8 - 0.7.

Decision.

The probability of the difference in means occurring by chance is 0.8 - 0.7 which is above the significance level set ($\alpha = 0.05$ 2-tailed H1). Therefore HO is not rejected.

(b) COMPARISON TO SCHOOL NORMS. (see above).

(i) Aboriginal Children.

HO: There is no difference between the mean retardation for the Reading for Meaning test of the sample of eight Aboriginal children at Mansfield Park Primary School and the mean retardation of the population of all children in grades four to seven at Mansfield Park Primary School ($\bar{X}_1 - u = 0$).

H1: There is a difference between the mean retardation for the Reading for Meaning test of the sample of eight Aboriginal children at Mansfield Park Primary School and the mean retardation of the population of all children in grades four to seven at Mansfield Park Primary School ($\bar{X}_1 - u \neq 0$) (2-tailed).

Statistical Test.

z-score test (see above).

$\alpha = 0.05$ (1 tailed)

Calculation of Statistic.

READING FOR MEANING RETARDATION SCORES: Mansfield Park Primary School.

Age Range (years/months)	Mid-Point (Years/ months)	X	f	fX	X-u	$(X-u)^2$	$f(X-u)^2$
8.0- 8.2	8.1	0	6	0	-0.9	0.81	4.86
8.3- 8.5	8.4	-0.3	17	5.1	-1.2	1.44	24.48
8.6- 8.8	8.7	0.2	21	4.2	-0.7	0.49	10.29
8.9- 8.11	8.10	0.4	32	12.8	-0.5	0.25	8.00
9.0- 9.2	9.1	0.5	14	7.0	-0.4	0.16	2.24
9.3- 9.5	9.4	0.8	21	16.8	-0.1	0.01	0.21
9.6- 9.8	9.7	0.8	22	17.6	-0.1	0.01	0.22
9.9- 9.11	9.10	1.0	28	28.0	0.1	0.01	0.28
10.0-10.2	10.1	0.9	43	38.7	0	0	0
10.3-10.5	10.4	0.8	35	28.0	-0.1	0.01	0.35
10.6-10.8	10.7	1.0	27	27.0	0.1	0.01	0.27
10.9-10.11	10.10	0.3	24	7.2	-0.6	0.36	8.64
11.0-11.2	11.1	1.0	40	40.0	0.2	0.04	1.60
11.3-11.5	11.4	0.4	26	10.4	0.5	0.25	6.50
11.6-11.8	11.7	1.0	31	31.0	0.1	0.01	0.31
11.9-11.11	11.10	1.3	26	33.8	0.4	0.16	4.16
12.0-12.2	12.1	1.5	20	30.0	0.6	0.36	7.20
12.3-12.5	12.4	0.9	10	9.0	0	0	0
12.6-12.8	12.7	2.2	9	19.8	1.3	1.69	15.21
12.9-12.11	12.10	2.8	10	28.0	1.9	3.61	36.10
13.0-13.2	13.1	3.0	13	39.0	2.1	4.41	57.33
13.3-13.4	13.4	2.9	8	23.2	2.0	4.00	32.00

$P = 483 \quad \Sigma fX = 456.6 \quad \Sigma f(X-u)^2 = 220.25$

$u = \frac{\Sigma fX}{P}$ $\qquad \sigma = \sqrt{\frac{\Sigma f(X-u)^2}{P}}$

$$= \frac{456.6}{483} \qquad = \sqrt{\frac{220.25}{483}}$$

$$= 0.9456 \qquad = \sqrt{0.4668}$$

$$= 0.9 \qquad = 0.6754$$

Read. for Mean. Retardation Scores:
Aboriginal Children, Mansfield Park Primary School.

X_1
-0.1
-2.4
1.0+
0.6
2.1+
2.9
3.9
2.3

$$\bar{X}_1 = \frac{\Sigma X_1}{N_1}$$

$$= \frac{10.3}{8}$$

$$= 1.2875$$

$$= 1.3$$

$$\Sigma X_1 = 10.3$$

$$z = \frac{X_1 - u}{\sigma_{\bar{X}_1}}$$

$$\sigma_{\bar{X}_1} = \frac{\sigma}{\sqrt{N_1}}$$

$$z = \frac{1.3 - 0.9}{0.6754} \times \sqrt{8}$$

$$= 0.5923 \times 2.828$$

$$= 1.674$$

From Table A in Runyon and Haber (1967) associated probability for this value of z (2-tailed H1) = 0.0950.

Decision.

The probability of the difference occurring by chance is 0.0950,

which is above the significance level set (α = 0.05 2-tailed H1). Therefore Ho is not rejected.

(ii) White Children.

HO: There is no difference between the mean retardation for the Reading for Meaning test of the sample of eight white children at Mansfield Park Primary School and the mean retardation of the population of all children in grades four to seven at Mansfield Park Primary School ($\bar{X}_1 - u = 0$).

H1: There is a difference between the mean retardation for the Reading for Meaning test of the sample of eight white children at Mansfield Park Primary School and the mean retardation of the population of all children in grades four to seven at Mansfield Park Primary School ($\bar{X}_1 - u \neq 0$)

Statistical Test.

z-score test.

Significance Level.

α = 0.05 (2-tailed H1).

Calculation of Statistic.

from previous test $u = 0.9$

$\sigma = 0.6754$

Read. for Mean. Retardation Scores:
White Children, Mansfield Park Primary School.

X_2
0.8+
0.5
0.8
0.1
2.1
4.4
1.7
2.4

$$\bar{X}_2 = \frac{\Sigma X_2}{N_2}$$

$$= \frac{12.6}{8}$$

$$= 1.575$$

$$= 1.6$$

$$\Sigma X_2 = 12.6$$

$$z = \frac{\bar{X}_2 - u}{\sigma_{\bar{X}_2}}$$

$$\bar{X}_2 = \frac{\sigma}{\sqrt{N_2}}$$

$$z = \frac{1.6 - 0.9}{0.6754} \times \sqrt{8}$$

$$= \frac{0.7}{0.6754} \times 2.828$$

$$= 2.93125$$

From Table A in Runyon and Haber (1967) associated probability for this value of z (2-tailed H1) = 0.0034.

Decision.

The probability of the difference occurring by chance is 0.0034, which is below the significance level set ($\alpha = 0.05$ 2-tailed H1). Therefore HO is rejected.

(c) COMPARISON TO STATE NORMS. (see above).

(i) Aboriginal Children.

HO: There is no difference between the mean retardation of the Aboriginal children for the Reading for Meaning test and the mean retardation of the population of a "large number" of South Australian primary school children in April, 1967. $(\bar{X}_1 - u = 0)$

H1: The mean retardation of the Aboriginal children for the Reading for Meaning test is greater than the mean retardation of the population of a "large number" of South Australian primary school children in April, 1967. $(\bar{X}_1 - u > 0)$ (1-tailed).

Statistical Test.

t-test (see above). Degrees of freedom $N_1 - 1 = 28$.

Significance Level.

$\alpha = 0.05$ (1-tailed).

Calculation of Statistic.

from test IV (a)

$$s_1 = 1.36$$

$$N_1 = 29$$

$$\bar{X}_1 = 1.2$$

$$t = \frac{\bar{X}_1 - u}{s_{\bar{X}_1}}$$

$$s_{\bar{X}_1} = \frac{s_1}{\sqrt{N_1}}$$

$$t = \frac{(1.2 - 0) \times \sqrt{29}}{1.36}$$

$$= \frac{1.2}{1.36} \times 5.385$$

$$= \frac{6.4620}{1.36}$$

$$= 4.751$$

From Table I in Karmel and Polasek (1970) associated probability of this value of t with 28 degrees of freedom = beyond 0.01.

Decision.

The probability of the difference occurring by chance is beyond 0.01, which is below the significance level set ($\alpha = 0.05$ 1-tailed H1). Therefore HO is rejected.

(ii) White Children

HO: There is no difference between the mean retardation of the white children for the Reading for Meaning test and the mean retardation of the population of a "large number" of South Australian primary school children in April, 1967 ($\bar{X}_2 - u = 0$)

H1: The mean retardation of the white children for the Reading for Meaning test is greater than the mean retardation of the population of a "large number" of South Australian primary school children in April, 1967 ($\bar{X}_2 - u > 0$ (1-tailed).

Statistical Test.

t-test (see above). Degrees of freedom $N_2 - 1 = 28$.

Calculation of Statistic.

From test IV (a)

$$s_2 = 1.41$$

$$N_2 = 29$$

$$\bar{X}_2 = 1.1$$

$$t = \frac{\bar{X}_2 - u}{s_{\bar{X}_2}}$$

$$s_{\bar{X}_2} = \frac{s_2}{\sqrt{N_2}}$$

$$t = \frac{1.1 - 0}{1.41} \times \sqrt{29}$$

$$= \frac{1.1}{1.41} \times 5.385$$

$$= 4.202$$

From Table I in Karmel and Polasek (1970) associated probability of this value of t with 28 degrees of freedom = beyond 0.01.

Decision.

The probability of the difference occurring by chance is beyond 0.01, which is below the significance level set (α = 0.05 1-tailed H1). Therefore H0 is rejected.

A P P E N D I X D2.

STATISTICAL TESTS - ATTENDANCE.

The number of days absent for the period 1968-1970 was recorded. Data was unavailable for two Aboriginal and five white children. On the following page the data has been set out in order of age (i.e., the data corresponding to the youngest child has been placed first, and the oldest last). Thus the order of the data on that page is the same as the order of retardation scores on Table 4.1 (p.42). For the statistical test, the data has been re-arranged so that it is in increasing order of days absent.

	No. of Days Absent, 1968-1970 Aboriginal Children. X_1	No. of Days Absent, 1968-1970 White children. X_2
1	18	43
2	16	13
3	26	15
4	17	47
5	20½	28
6	56	23
7	31	-
8	66	45
9	119	16
10	8½	28
11	-	-
12	35	32
13	86	23
14	17½	90½
15	75½	21
16	-	72½
17	101	16½
18	58½	29½
19	23	28½
20	25	46½
21	80	-
22	3½	11
23	175½	-
24	5	166½
25	20	25
26	23½	6
27	67	17
28	88½	-
29	48½ $N_1 = 27$	16 $N_2 = 24$

$\Sigma X_1 = 1039.0$

$\bar{X}_1 = \frac{\Sigma X_1}{N_1}$

$= \frac{1039.0}{27}$

$= 43.43$

$= 48.5$

$\Sigma X_2 = 859.51$

$\bar{X}_2 = \frac{\Sigma X_2}{N_2}$

$= \frac{859.51}{24}$

$= 35.81$

$= 35.8$

HO: There is no difference between the numbers of days absent for the period 1968-1970 of the Aboriginal children and the white children.

H1: The numbers of days absent for 1968-1970 of the Aboriginal children are greater than the numbers of days absent for 1968-1970 of the white children. (1-tailed).

Statistical Test.

Since it is thought that the population from which the samples are drawn can not be assumed to be normally distributed, a non-parametric test has been used (Mann-Whitney-U-test). The test assumes the samples to be independent (see Chapter Four).

Significance Level.

$\alpha = 0.05$ (1-tailed H1).

Calculation of Statistic.

No. of Days Absent, 1968-1970 Aboriginal Children. X_1	No. of Days Absent, 1968-1970 White Children. X_2
3½	6
5	11
8½	13
16	15
17	16
17½	16
18	16½
20	17
20½	21
23	23
23½	23
25	25
26	28
31	28
35	28½
48½	29½
56	32
58½	43
66	45
67	46½
75½	47
80	72½
86	90½
88½	166½
101	
119	
173½	
$N_1 = 27$	$N_2 = 24$

U is the sum of a set of numbers which show how many X_2 scores are greater than each X_1 score. Tied scores across the groups count as a half. Since the number of tied scores is low there has been no correction for tied scores.

$$U = 24 + 24 + 23 + 19 + 16\tfrac{1}{2} + 16 + 16 + 16 + 16 + 14 + 13 + 12\tfrac{1}{2} + 12 + 8 + 7 + 3 + 3 + 3 + 3 + 3 + 2 + 2 + 2 + 2 + 1 + 1 + 0 = 262.$$

$$z = \frac{U - \frac{N_1 N_2}{2}}{\sqrt{\frac{N_1 N_2 (N_1 + N_2 + 1)}{12}}}$$

$$= \frac{262 - \frac{648}{2}}{\sqrt{\frac{648 \times 52}{12}}}$$

$$= \frac{262 - 324}{\sqrt{54 \times 52}}$$

$$= \frac{-62}{\sqrt{54 \times 52}}$$

$$= \frac{-62}{\sqrt{2808}}$$

$$= \frac{-62}{52.99}$$

$$= -1.170$$

From Table A in Runyon and Haber (1967) associated probability for this value of z (1-tailed H1) = 0.1210.

Decision.

The probability of the difference occurring by chance is 0.1210, which is above the significance level set (α = 0.05 1-tailed H1). Therefore HO is not rejected.

A P P E N D I X D3.

STATISTICAL TESTS - ATTENDANCE AND ATTAINMENT.

An average retardation score of all four tests (in decimals) was calculated for each child. This has been correlated with the number of days absent for 1968-1970.

(i) Aboriginal Children.

HO: Thereis no correlation between the number of days absent 1968-1970 and average retardation for the Aboriginal children.

H1: There is a correlation between the number of days absent 1968-1970 and average retardation for the Aboriginal Children (2-tailed).

Statistical Test.

Spearman rho, rank correlation coefficient.

Significance Level.

α = 0.05 (2-tailed H1).

Calculation of Statistic.

No. of Days Absent 1968-1970	Rank R_1	Av. Retard. Score	Rank R_2	D (R_1-R_2)	D^2
18	7	-0.475	4	3	9.00
16	4	0.35	10	- 6	36.00
26	13	-0.75	3	10	100.00
17	5	-2.05	1	4	16.00
20½	9	0.65	13	- 4	16.00
56	17	1.025	15	2	4.00
31	14	0.475	12	2	4.00
66	19	0.725	14	5	25.00
119	26	2.425	24	2	4.00
8½	3	0.175	9	- 6	36.00
35	15	-0.15	5	10	100.00
86	23	2.5	25	- 2	4.00
17½	6	-1.7	2	4	16.00
75½	21	1.975	18	3	9.00
101	25	2.25	22½	2½	6.25
58½	18	1.05	16	2	4.00
23	10	0	7	3	9.00
25	12	2.125	20	- 8	64.00
80	22	3.075	26	- 4	16.00
3½	1	-0.125	6	- 5	25.00
5	2	0.15	8	- 6	36.00
20	8	0.4	11	- 3	9.00
23½	11	1.25	17	- 6	36.00
67	20	2.05	19	1	1.00
88½	24	2.15	21	3	9.00
48½	16	2.25	22½	- 6½	42.25

$\leq D^2 = 636.50$

N = 26 (For two children, attendance records not available. For one child, only 1 test recorded so no average retardation score).

$$r\ rho = 1 - \frac{6 \leq D^2}{N(N^2 - 1)}$$

$$= 1 - \frac{6 \times 636 \cdot 50}{26 \times (675)}$$

$$= 1 - \frac{3820 \cdot 50}{17750}$$

$$= 1 - 0.217692$$

$$= 0.782308$$

From Table G in Runyon and Haber (1967) associated probability of this value of r rho = beyond 0.01.

Decision.

The probability of the correlation occurring by chance is beyond 0.01, which is below the significance level set (α = 0.05 2-tailed H1). Therefore HO is rejected.

(ii) White Children.

HO: There is no correlation between the number of days absent 1968-1970 and average retardation for the white children.

H1: There is a correlation between the number of days absent 1968-1970 and average retardation for the white children (2-tailed).

Statistical Test.

Spearman rho rank correlation coefficient.

Significance Level.

α = 0.05 (2-tailed H1).

Calculation of Statistic.

No. of Days Absent 1968-1970	Rank R_1	Av. Retard. Score	Rank R_2	D (R_1-R_2)	D^2
43	18	0.325	8½	9½	90.25
13	3	-0.5	4	- 1	1.00
15	4	0.9	12½	- 8½	72.25
47	21	0.475	10	11	121.00
28	13½	-0.825	3	10½	110.25
23	10½	0.7	11	- ½	0.25
45	19	-0.1	6	13	169.00
16	5½	1.775	16	- 9½	90.25
28	13½	1.1	14	- ½	0.25
32	16	0.9	12½	3½	12.25
23	10½	1.15	15	- 4½	20.25
90½	23	-1.425	1	22	484.00
21	9	2.275	21	-12	144.00
72½	22	-0.325	5	17	289.00
16½	7	1.9	17½	-10½	110.25
29½	16	0.325	8½	7½	56.25
28½	15	0.025	7	8	64.00
46½	20	-1.225	2	18	324.00
11	2	1.9	17½	-15½	250.25
166½	24	3.6	24	0	0
25	12	2.55	22	-10	100.00
6	1	2.175	20	-19	361.00
17	8	3.125	23	-15	225.00
16	5½	2.1	19	-13½	182.25

N = 24 (five childrens' attendance records not complete).

$\Sigma D^2 = 3277.00$

$$r\ rho = \frac{1 - 6\leq D^2}{N(N^2 - 1)}$$

$$= \frac{1 - 6x3277.00}{24(575)}$$

$$= 1 - \frac{19662}{13,800}$$

$$= 1 - 1.42479$$

$$= -0.4247$$

From Table G in Runyon and Haber (1967) associated probability of this value of rho = 0.05 - 0.02.

Decision.

The probability of the correlation occurring by chance is 0.05 - 0.02, which is below the significance level set (α = 0.05 2-tailed H1). Therefore HO is rejected.

A P P E N D I X D4.

STATISTICAL TESTS - CHANGES IN SCHOOL.

H0: There is no difference in the number of changes of school of the Aboriginal children and the white children.

H1: The Aboriginal children have a greater number of changes in school than the white children (1-tailed).

Statistical Test.

Since the data is in the form of a frequency distribution, a χ^2 test has been used. The test assumes the samples to be "independent" (see Chapter Four). Degrees of freedom N - 1 = 2.

Significance Level.

$\alpha = 0.05$ (1-tailed H1).

Calculation of Statistic.

Observed Frequencies (O)	0	1	1	Total
Aboriginal children	13	8	8	29
White children	19	7	3	29
Total	32	15	11	58
Expected Frequencies (E)				
Aboriginal children	16	7½	5½	
White children	16	7½	5½	

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

$$= \frac{(13-16)^2}{16} + \frac{(8-7\frac{1}{2})^2}{7\frac{1}{2}} + \frac{(8-5\frac{1}{2})^2}{5\frac{1}{2}} + \frac{(19-16)^2}{16} + \frac{(7-7\frac{1}{2})^2}{7\frac{1}{2}} + \frac{(3-5\frac{1}{2})^2}{5\frac{1}{2}}$$

$$= \frac{9}{16} + \frac{\frac{1}{4}}{7\frac{1}{2}} + \frac{6\frac{1}{4}}{5\frac{1}{2}} + \frac{9}{16} + \frac{\frac{1}{4}}{7\frac{1}{2}} + \frac{6\frac{1}{4}}{5\frac{1}{2}}$$

$$= \frac{9}{8} + \frac{\frac{1}{2}}{7\frac{1}{2}} + \frac{12\frac{1}{2}}{5\frac{1}{2}}$$

$$= \frac{9}{8} + \frac{1}{15} + \frac{25}{11}$$

$$= 1.125 + 0.0666 + 2.272$$

$$= 3.4636$$

From Table III Karmel and Polasek (1970) associated probability of this value of χ^2 with 2 degrees of freedom is 0.10 - 0.05 (1-tailed H1).

Decision.

The probability of the difference occurring by chance is 0.10 - 0.05, which is above the significance level set ($\alpha = 0.05$, 1-tailed H1). Therefore HO is not rejected.

A P P E N D I X D5.

STATISTICAL TESTS - FAMILY SIZE.

The number of children per family was recorded. There were eighteen Aboriginal and twenty-seven white families in the sample. On the following page the data has been set out in order of age (i.e., the data corresponding to the youngest child has been placed first and the oldest last). For the statistical test the data has been re-arranged so that it is in increasing order of number of children per family.

	No. of children per family Aboriginal families. X_1	No. of children per family White families. X_2
1	6	5
2	3	3
3	3	5
4	5	3
5	6	2
6	7	4
7	4	2
8	4	10
9	2	1
10	Same family as No. 1	6
11	7	7
12	Same family as No. 5	3
13	5	2
14	Same family as No. 7	2
15	Same family as No. 8	Same family as No. 8
16	8	1
17	7	4
18	Same family as No. 11	4
19	Same family as No. 5	6
20	Same family as No. 1	2
21	Same family as No. 13	3
22	4	1
23	3	4
24	Same family as No. 2	5
25	Same family as No. 5	Same family as No. 1
26	2	12
27	3	4
28	Same family as No. 6	3
29	11	2

$N_1 = 18$ $\quad$ $N_2 = 27$

$\Sigma X_1 = 90$ $\quad$ $\Sigma X_2 = 106$

$\overline{X}_1 = \frac{\Sigma X_1}{N_1}$ $\quad$ $\overline{X}_2 = \frac{\Sigma X_2}{N_2}$

$= \frac{90}{18}$ $\quad$ $= \frac{106}{27}$

$= 5.0$ $\quad$ $= 3.925$

$= 3.9$

H0: There is no difference between the numbers of children per family of the Aboriginal families and the white families.

H1: The numbers of children per family of the Aboriginal families are greater than the numbers of children per family of the white families (1-tailed).

Statistical Test.

Since it is thought that the population from which the samples are drawn can not be assumed to be normally distributed, a non-parametric test has been used (Mann-Whitney-U-test). The test assumes the samples to be independent (see Chapter Four).

Significance Level.

$\alpha = 0.05$ (1-tailed H1).

Calculation of Statistic.

No. of children per family Aboriginal families. X_1	No. of children per family White families. X_2
2	1
2	1
3	1
3	2
3	2
3	2
4	2
4	2
4	2
5	3
5	3
6	3
6	3
7	3
7	4
7	4
8	4
11	4
	4
	5
	5
	5
	6
	6
	7
	10
	12
$N_1 = 18$	$N_2 = 27$

U is the sum of a set of numbers which show how many X_2 scores are

greater than each X_1 score. Tied scores across the groups count as a half.

$$U = 21 + 21 + 15\tfrac{1}{2} + 15\tfrac{1}{2} + 15\tfrac{1}{2} + 15\tfrac{1}{2} + 10\tfrac{1}{2} + 10\tfrac{1}{2} + 10\tfrac{1}{2} + 6\tfrac{1}{2} + 6\tfrac{1}{2} + 4 + 4 + 2\tfrac{1}{2} + 2\tfrac{1}{2} + 2\tfrac{1}{2} + 2 + 1 = 167.$$

$$z = \frac{U - \frac{N_1 N_2}{2}}{\sqrt{\frac{N_1 N_2 (N_1 + N_2 + 1)}{12}}}$$

$$= \frac{167 - \frac{486}{2}}{\sqrt{486 . \frac{46}{12}}}$$

$$= \frac{167 - 243}{\sqrt{162 . \frac{23}{2}}}$$

$$= \frac{-76}{\sqrt{81 \times 23}}$$

$$= \frac{-76}{9 \times \sqrt{23}}$$

$$= \frac{-8}{\sqrt{23}}$$

$$= \frac{-8}{4.796}$$

$$= -0.1668$$

From Table A in Runyon and Haber (1967) associated probability for this value of z (1-tailed H1) = 0.0475.

Decision.

The probability of the difference occurring by chance is 0.0475,

which is below the significance level set ($\alpha = 0.05$ 1-tailed H1). Therefore HO is rejected.

NB. The data has a number of tied scores. Tied scores make the test more "conservative" i.e., they decrease chances of rejecting HO. The correction formula for tied scores was not applied in this test since HO was rejected without its use.

B I B L I O G R A P H Y .

Abbreviations of reference material appearing in the text:-

A.C.B.C.S. = Australia: Commonwealth Bureau of Census and Statistics.

S.S.A.A.F. = Secondary Schools Aboriginal Affairs Fund.

S.A.E.D.P.B. = South Australian Education Department Psychology Branch.

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