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MAORI AND NON-MAORI EARLY SCHOOL LEAVING FROM  
SELECTED SECONDARY STATE SCHOOLS IN THE MANAWATU  
AND WANGANUI DISTRICTS.

A thesis presented in partial fulfilment  
of the requirements for the degree  
of Master of Arts in  
Education at Massey  
University

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ABSTRACTEarly School Leaving

In September 1969, data was collected on the fourteen year old pupils from two rural and two urban high schools in the Wanganui and Manawatu region. From the school records information was obtained on race, previous attendance, date of birth, history of audio-testing, and form. Non-Maori pupils were reduced by random selection so that they make up 75 per cent of the sample. All Maori pupils were included and make up 25 per cent of the sample. The total sample of 232 pupils were given a battery of tests which included reading comprehension, verbal and performance intelligence tests, a school interest inventory, a personality test and a general questionnaire. Maori pupils had poorer reading comprehension and lower verbal and performance I.Q.'s than non-Maori pupils.

A year after testing was carried out, the schools were contacted and they indicated which of the pupils examined had left school. It was found that 21 Maori pupils (37 per cent of the Maori sample) and 20 non-Maori pupils (11 per cent of the non-Maori sample) were early school leavers. Data was then analysed.

Sex of pupil, mother's employment, attendance, the socio-economic status of the father's occupation and pupil's expressed attitude toward school were not found to be related to early school leaving. Nor was early school leaving related to sense of belonging and sense of personal worth.

When all of the early school leavers were compared to all the continuers, leavers had poorer verbal and performance I.Q.'s. Leavers had poorer reading comprehension than continuers. Early school leavers at the age of fourteen had less school interest than continuers. Early leavers showed lesser aspirations in their vocational and educational plans than continuers at the age of fourteen. Audio-history was found to be related to early leaving and those pupils who failed an audio test at some stage of their schooling had a 44 per cent chance of becoming early school leavers as compared to an 18 per cent chance for the average pupil. More early school leavers came from urban areas than rural areas.

When all the early school leavers were compared to all the continuers on personality adjustment it was found that leavers tended to have a poorer personal and social adjustment. Leavers showed poorer adjustment than continuers in self reliance, sense of personal freedom, freedom from withdrawal tendencies, freedom from nervous symptoms, and total personal adjustment. Socially leavers tended to have poorer social standards, more acting out or anti-social tendencies, poorer family, school, and community relationships than pupils who continued on at high school. Early school leavers tended to be poorer than continuers in their social adjustment and in their overall adjustment.

Maori early school leaving was found to be significantly higher for urban schools. Maori pupils were three times more likely to become early school leavers

than the non-Maori pupil. Only a few significant differences were found between Maori early school leavers and Maori continuers. Maori early school leavers scored significantly lower on performance I.Q. tests but were approximately equal to Maori continuers on verbal intelligence tests. Maori leavers had poorer reading comprehension than Maori continuers. For the Maori male, school interest was found to be negatively related to early leaving but no significant difference was found for Maori females. Maori early school leavers had poorer adjustment than Maori continuers in just two areas--social standards and total social adjustment.

The non-Maori early school leaver had a poorer I.Q. on both verbal and performance tests than the non-Maori continuer. The non-Maori leaver had poorer reading comprehension than the non-Maori continuer. When personality adjustments were taken into account, it was found that the non-Maori leaver had more withdrawal tendencies, more nervous symptoms, poorer school adjustment, poorer personal and total adjustment than the non-Maori continuer. The non-Maori leaver was more likely to see his parents as leaving the decision to him whether he left or not while the non-Maori continuer most often saw his parents wanting him to spend three full years at school. It was also found that male non-Maori leavers at the age of fourteen showed less school interest than male non-Maori continuers.

Although there were approximately equal numbers of male and female early leavers, sex differences were noted between some independent variables and early school leaving.

Audio-history was related to early leaving for the male sample. Form retardedness was found to be only related to early school leaving for the female group. The percentage of subjects liked was also found to be related to early school leaving but by only the male group. When personality differences between early school leavers and continuers were considered by sex, in most areas the results for males and females were consistent. In only two areas were sex differences noted. Female leavers had more anti-social tendencies than female continuers while the differences for the male were not significant. Male early school leavers had poorer self reliance than male continuers while the differences between the females were not significant.

Socio-economic matching showed only a minor lessening of the significance of race as a factor in early school leaving. Socio-economic factors in themselves are only one of a number of variables that influence early school leaving.

The danger of generalising from profiles was noted. While as a whole early school leavers had poorer reading comprehension, twenty five per cent of leavers scored above the mean of continuers. Although leavers generally had lower verbal and performance I.Q.'s still fifteen per cent scored at or above the mean for continuers. Early school leavers cannot be stereotyped into one pattern. It was concluded that each high school should study the needs and characteristics of its own early school leavers as the local cultural setting may have its own significant influence. There is a need for more research into the area of early school leaving in the New Zealand setting.

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## SECTION 1

### Problem and Theory

#### CHAPTER 1

##### The Problem

In recent years, the problem of early school leaving in New Zealand has gradually shifted from the Primary School to the Secondary level. In 1917 only thirty-seven per cent of school leaving occurred in the Secondary system. By 1927 this had increased to fifty per cent. The abolition of the proficiency examinations, which acted as a bar to Secondary education was an even greater encouragement to students to attend so that by 1937, sixty five per cent of school leaving occurred at Secondary level. The next decade (1943) brought the enforcing of the school leaving age at fifteen and by 1947 eighty six per cent of school leaving occurred at High School. By 1960 only two per cent of school leaving occurred at the Primary level and ninety eight per cent carried on to the High School level. <sup>(1)</sup>

The Currie Commission <sup>(2)</sup> found that 93.7 per cent of Maori students leaving State Primary Schools tended to go on to a Secondary School. This failed to come up to the 98 per cent level for all pupils. The Maori child had a tendency to enrol later and age for age they were generally retarded in their progress through school to an extent of about six months at the Form II level. Thus, while evidence suggests that Maori pupils

are only slightly less likely than non-Maori pupils to go on to a Secondary School, the real problem of early school leaving still exists but is now found at the Secondary level. Differences between Maori and non-Maori in performance at Secondary School have been observed.

In 1968 whereas the percentage of Maori school leavers with School Certificate was 11.6 per cent. the non-Maori figure was 47 per cent. In 1968 only 1.3 per cent of Maori school leavers entered University. This is in contrast to approximately 12 per cent of the total school leaving population. <sup>(3)</sup> The Seventh Annual Report of the Maori Education Foundation <sup>(4)</sup> compiled the following table.

Table I

Education Attainments of the Maori and Non-Maori  
Leavers

| <u>Attainments</u>               | <u>Percentage</u> |              |
|----------------------------------|-------------------|--------------|
|                                  | <u>Non-Maori</u>  | <u>Maori</u> |
| University scholarship           | 0.5               | -            |
| University Bursaries examination | 4.8               | 0.2          |
| Higher School Certificate        | 6.4               | 1.1          |
| University Entrance              | 11.7              | 1.6          |
| Endorsed School Certificate      | 9.9               | 4.0          |
| School Certificate               | 14.1              | 4.6          |
| Certificate of Education         | 10.3              | 7.2          |
| Other                            | 42.3              | 81.3         |

The Maori school leaver is well behind in his attainments. This is true not only in regard to School Certificate and University Entrance but also in regard to the Certificate of Education, Endorsed School Certificate, and University Scholarship. The average Maori school leaver fails to achieve any type of certificate for Secondary school work. The majority of the non-Maori pupils were able to obtain some type of certificate.

Even the average non-Maori student failed to gain what many New Zealanders feel is a satisfactory High School education - the School Certificate. Over 30 per cent drop out before they have entered the fifth form. W.J.D. Minogue<sup>(5)</sup> contrasts the holding power of Hawaiian and New Zealand Secondary Schools. He found that in 1966 Hawaiian holding power in Grades 9-12 was 89 per cent. He found that only 20 per cent of the New Zealanders of that age group reached the equivalent of the 12th grade (the lower sixth form). Minogue states "The main reason for the comparatively high 'drop out' rate in New Zealand is that main Secondary Schools deliberately use a selective agency by setting a series of examinations for children in the eleventh, twelfth and thirteenth year at school"<sup>(6)</sup> Minogue notes that there is a trend to stay longer in school in New Zealand and claims that the holding powers increased by 10 per cent over the past 10 years (1958-68), but that the examination bottleneck is slowing down the

trend. "Despite the steadily increasing proportion of the age group passing School Certificate, the proportion qualifying for University Entrance is almost constant, with only a slight upward tendency." (7) Before anything could be done at the tertiary level "the bottleneck" must be broken at the Secondary level.

Early school leaving by Maori pupils can be expected to become more of a problem in the future. At present the Maori makes up approximately ten per cent of the school population. In the next thirty years this can be projected to double to approximately 20 per cent of the full roll. The present demographic upsurge of the Maori, may have a major impact on race relations in New Zealand. (8) In the next 30 years the New Zealand Maori population could triple itself. (9) This would not only change the present proportion between the two races but would drastically increase the number of Maori youth. Since the youth of late adolescence is more likely to come into conflict with the law, this could lead to a deterioration in race relations. "Borstal inmates come in the main from the 17 to 20 year age group. Of the 6,740 Maori males in this group 157 were admitted to Borstal (23.3 per 1000 - non-Maori rate 3.5). Of the 6,690 Maori females, 17 were sent to Borstal (2.54 per 1,000 non-Maori rate .346)." (10) Mol (11) discussing race relations in New Zealand found that the larger the percentage of Maoris in urban areas the greater the

tendency for race relations to deteriorate if all other factors influencing racial prejudice were constant. Mol explains this by stating the greater the number, the greater the perceived threat. Until recent years the majority of the Maori lived in rural areas and thus had little contact with the non-Maori group who were mostly urban dwelling. The Second World War saw a speeding up of the Maori drift to the city. The 1966 urban census showed that approximately half the Maori population now lived in cities and towns. Within a decade the Maori - urban rural ratio should approximate the national ratio of about 75 per cent urban, 25 per cent rural." (12)

Beaglehole <sup>(13)</sup> in his theory of race relations felt that socio-economic differences between the two groups were of major importance in determining racial harmony or friction. Since socio-economic differences in our culture are correlated to educational attainments, the educational progress of the Maori people must be accelerated if there is to be a closing of the socio-economic gap between European and Maori. The Maori drop-outs may in the long run have a negative effect on race relations. The converse is true. If the socio-economic gap can be closed by improving the Maori educational attainments, it will in turn improve the vocational opportunities of Maori youth. According to this theory there should be an improvement in race relations, if the socio-economic gap can be closed by

education or other means. As the New Zealand economy becomes more technologically advanced, the importance of an increase in the educational level of Maoris becomes greater.

Yet how can this socio-economic gap be narrowed and then closed? Webster<sup>(14)</sup> sees Secondary education as the critical point. He states, "In particular, we have failed to create equality of opportunity for those for whom it was necessary to create it, that is, those whose background and development is less suited to our particular educational goals and methods." (15) As a result those disadvantaged tend to remain so. They are caught in a cycle. Forster and Ramsay describe the Maori plight:

Entering the labour force with few skills and less than the Pakeha standard of education, they must take those jobs which pay the least; their standard of living restricts the potential opportunities and encouragement that can be given to their children. Without supported opportunity, or unusual circumstances, the children are likely to find themselves in a position not unlike that of their parents. Thus the situation can all too easily become a self-perpetuating. (16)

As the problem of Maori early school leaving is largely taking place at the Secondary level, it is at the High School level that early school leaving needs to be investigated. Little New Zealand research has been carried out in the area of early school leaving. This study will undertake to find out the characteristics of the early school leaver and will also investigate the theory that the major causes of early school leaving are socio-economic in nature.

Footnotes Chapter 1

(1) Report of the Commission on Education in New Zealand, Sir George Currie, Chairman (Wellington: Government Printer, 1962), p. 50.

(2) Ibid., p. 406.

(3) Polynesian Institute News Letter, January, 1970, pp. 9-10.

(4) Maori Education Foundation, Seventh Annual Report, (Wellington: Government Printer, 1970), p. 21.

(5) W.J.D. Minogue, "The Social Heritage and Educational Systems of Hawaii and New Zealand: Comparisons and Contrasts," in New Zealand Journal of Educational Studies, Vol. 3 (November, 1968), 154.

(6) Ibid.

(7) Ibid.

(8) Report of the Commission on Education in New Zealand, Ibid., p. 401.

(9) Ibid., p. 409.

(10) New Zealand Educational Institute, Report and Recommendations on Maori Education, (Wellington: New Zealand Educational Institute 1967), p. 48.

(11) H. Mol, Religion and Race in New Zealand, (Christchurch: National Council of Churches, 1966), p. 31.

(12) New Zealand Educational Institute, Ibid., p.33.

(13) E. Beaglehole, "The Maori in New Zealand; A case Study of Socio-Economic Integration," International Labour Review, (July, 1957), 103-123.

(14) A.C. Webster, "Critical Issues in Secondary Education," Delta Five (August, 1969), 2-11.

(15) Ibid., p. 4.

(16) J. Forster and P. Ramsay, "The Maori Population 1936-66," in J. Forster (editor) Social Process in New Zealand, Auckland: Longman Paul 1969, p. 202.

## CHAPTER II

### Previous Relevant Research

#### American Studies of Drop-Outs

Edward Cook <sup>(1)</sup> analysed the number of factors related to withdrawal from High School. He found that no one single factor or simple combination of factors clearly distinguished the two groups. Rather he found that most cases of withdrawal from school resulted from a multiplicity of factors.

Bledsoe <sup>(2)</sup> investigated six correlates of student withdrawal from High School. He found that withdrawal was not only related to sex but also to the occupation of the student's parents. Withdrawal from High School was related to the parent's level of education. Students who transferred schools as well as those behind in reading comprehension, were more inclined to drop out of school. In a comparative study between High School graduates and drop-outs Livingstone <sup>(3)</sup> found that there were significant differences between the two groups in regard to marital status of the parents, attendance record, reading, mental ability, number of grades detained, area of curricular emphasis, number of years retarded entering High School, and the extent of participation at High School. However, it is interesting to note that he did not find significant differences in regard to sex, race, number of inter-district transfers, nor the occupational status of family as determined by the amount of wage earned.

In addition to the previous factors mentioned by Bledsoe, and Livingstone, Schreiber <sup>(4)</sup> reviews a number of studies on the school drop out problem. Some of the factors dealt with were intelligence, reading retardation, extra curricular activities, word retention and scholastic achievement, occupation of parents, education of parents, as well as the relationship of school discipline and juvenile delinquency to early school leaving. In the studies he reviews, the majority of early school leavers had not come in conflict with the school or the courts. Schreiber discusses the self-concepts of the drop out as follows:

to summarise, the potential drop-out in his personal and social qualifications is one who: (a) tends to reject both school and self; (b) is usually insecure in his school status; (c) is less respected by his teachers because of his academic inadequacy; (d) is often hostile towards other persons; (e) has not established adequate goals. (5)

Voss (6) found that there was not just one type of drop-out but rather that many of the apparent contradictions in the findings of research were caused by there being several types of drop-outs. He classified drop-outs into three categories. Firstly the involuntary drop-outs left school as the result of some personal crisis such as illness, or an economic problem. Secondly there were the retarded drop-outs who were not capable of doing the work required for graduation. Thirdly there were the capable drop-outs. These students had the ability to be successful at

school and may or may not have been making satisfactory academic progress. They left for reasons other than their ability. Thus the major problem encountered in research of early school leaving is that the term drop-out or early school leaver is not a term that applies to a homogeneous category.

Litcher and his associates<sup>(7)</sup> did a treatment study of capable students who were early school leavers. The drop-outs had unsuccessful and unhappy school experiences and did not have any clear vocational plans. It was found that emotional problems were the major cause of the school difficulties and this resulted in early school leaving. Often the drop-outs and their parents had unhealthy and distorted relationships.

#### New Zealand Studies

Very little research has been carried out in New Zealand in regard to early school leaving. In 1960 there was a survey of "Able Pupils Leaving Prematurely From Auckland Provincial Schools." Replies were received from 47 Secondary schools. Results of this study indicated that for every 100 pupils who passed School Certificate after three years at Secondary school there were an additional nine, equally able students who left in the fourth form. A major weakness in this survey was that there could have been other equally able students leaving from the fifth form without sitting School Certificate, but no data was

collected on these pupils. The survey also indicated that for every 100 pupils who passed University Entrance an additional 21 equally able students left school without attempting sixth form work. Schools were asked to assign reasons for this early school leaving but some of the reasons given by the parents to the school are not always felt to be the real ones. A final conclusion was reached in regard to reasons for leaving. It was felt that early leaving among able pupils was mainly due to the educational outlook of the parents and pupils. It was also felt that a considerable number of pupils, particularly boys, were keen to start work or begin apprenticeships. Financial factors in the home appear to be the major cause of early leaving in only a small number of cases. (8)

#### New Zealand Research Relating to Intelligence

Adcock and his associates<sup>(9)</sup> used the Wechsler-Bellevue with a random sample of 53 Maoris living on the East Coast of New Zealand. These Maoris obtained the following I.Q. scores. For verbal tests a mean of 94.26, for performance tests a mean of 91.76, and for the full scale a mean of 93.56. A second group was composed of 32 Maori students at the Wellington Teachers' Training College. These students were matched with a similar number of European students for age, geographic area, and for similar educational background. A comparison of Maori and European I.Q.'s of the Teacher Training College groups found both groups above average on verbal

and performance scales. In all the subtests the Maori mean was lower than the European mean. In none of the subtests was there a statistical difference. Adcock warned "that suitable caution should be used in judging Maori intelligence on the basis of tests designed for children with a Pakeha background."<sup>(10)</sup>

The Wechsler-Bellevue Intelligence Test was also used by Ritchie<sup>(11)</sup> in a rural sample of Maoris and Europeans. The Maori obtained a Full Scale I.Q. of 87.2 as contrasted to a European mean of 96.8. It is interesting to note that the Maori had a very small standard deviation of approximately five as contrasted to the European standard deviation of eleven.

Using an Otis I.Q., Ausubel<sup>(12)</sup> found the mean in the rural school was 83 as compared to a European mean of 96. Even when matched groups were used the difference between Maori and Pakeha means continued to be significant in both the rural and urban samples. The difference in the urban samples was less marked with only four I.Q. points difference.

Several other studies indicated that European children were generally able to score better on Intelligence tests than Maori children. Lovegrove<sup>(13)</sup> found that there were significant differences between Maori and European on tests of intelligence. This was true even though an attempt was made to match the groups according to the father's occupation. He used an intelligence battery made up of the 'S' sub-test of Roger's New Zealand

Standardisation of the Thurstone's Primary Mental Abilities Test, the Otis Intermediate Form B, the Ravens Progressive Matrices and the Lorge-Thorndike verbal and non-verbal batteries where appropriate.

Walters<sup>(14)</sup> did not find any significant differences between a sample of country Maori and a European rural control group. Urban Europeans did significantly better than the urban Maori and the market garden Maori. Walters used the Thurstone's Primary Mental Abilities Test as well as a specially compiled non-verbal battery. In the non-verbal battery, European groups were significantly superior to any of the Maori groups.

New Zealand researchers on the whole find that the European group score higher than the Maori. This is true not only on verbal intelligence tests but also on performance intelligence tests. In fact Adcock<sup>(15)</sup> and Walters<sup>(16)</sup> studies indicated the Maori scores were more depressed on the performance test.

On the re-standardisation of the Otis in 1968, Elley<sup>(17)</sup> found that the females did better than the males with a difference of four I.Q. points. This difference was found to be highly significant. As expected the urban sample did better than the rural sample. On the whole the 1968 sample was five I.Q. points higher than the 1936 standardisation. The children whose father's occupation was either on the professional or technical group had higher scores than the children in other groups. There was a steady decrease in I.Q. scores for skilled, semi-

skilled and unskilled groups. In the 22 years since the previous standardisation, farmers' children increased their I.Q. scores approximately ten and a half points and unskilled workers' children increased approximately six and a half points. This compared with only 4.6 I.Q. points for children who were from professional homes.

New Zealand Studies into Scholastic Achievement and Aspirations of European and Maori Children

In Ausubel's study <sup>(18)</sup>, although the children were matched for father's occupation, school class, course, and ability group, Maori children tended to be retarded in arithmetic and English usage. In spite of doing more poorly in terms of scholastic success, Maori boys had a great similarity to the European ones in regard to expressed educational and vocational aspirations. Ausubel felt that his findings "substantiated the impression that many of the traits commonly regarded as Maori in fact largely reflect low occupational and social status, predominantly rural residence, and environmentally stunted verbal intelligence" <sup>(19)</sup>. He also noted that Maori parents tended to be more "laisse faire" with regard to vocational aspirations. Vellekoop <sup>(20)</sup> found in a study of aspirations of adolescent boys that while occupational aspirations were not related to race, educational aspirations were found to be associated with race. Three times as many European pupils as Maori pupils desired to go on to University.

(22)  
Calvert using a small sample found that Europeans not only were superior to the Maori in both verbal and non-verbal intelligence tests but also on reading attainment tests.

(23)  
Smith not only used intelligence tests, but also administered Schonell's Graded Verbal Vocabulary Test and the Silent Reading Test to Maori children in rural, semi-rural and urban areas. She used a control group of European children from rural and semi-rural areas. Children were matched for age, sex, educational classification and father's occupation. Smith found that the Maori urban group achieved significantly higher mean scores than the rural group. Lovegrove<sup>(24)</sup> reports however that the urban group was tested approximately five months after the rural group and that the time lapse could have caused the significant difference to occur. Smith<sup>(25)</sup> found that urban European and Maori children performed comparatively well on all tests. It should be noted that the children used for this study were aged 11 to 18 years. (26)  
McCreary would tend to support Smith. McCreary administered the N.Z.C.E.R. Reading and Arithmetic tests to Maori pupils at Ruatahuna, and found that pupils from Standard 3 to Form II matched up well to Pakeha norms in the N.Z.C.E.R. tests of arithmetic for addition, subtraction and multiplication, however results were lower in division. With Reading Tests at Standard 2 level the Maori norms were down except for Speed Reading. However, by the time the Maori pupils reached Form II there was no

longer a gap in word recognition, but in Word Knowledge and Comprehension the gap eventually widened.

Although Lovegrove<sup>(27)</sup> found that Europeans were superior on tests of intelligence (previously noted), there was no significant difference between the two groups in attitudes towards school achievement. It is to be noted that these groups were matched according to occupational status of the father.

These studies assess some of the differences between Maori and European students. Most of the studies, but not all, find Maori children tend to score lower on intelligence and achievement tests. Many of these differences disappear when groups are matched for socio-economic status. Thus many of the traits commonly regarded as Maori reflect the impact of home environment. American studies of dropouts show the complexity of studying early school leaving. Little research in New Zealand has been carried out in this area.

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### Chapter 3

#### Theoretical Framework: Factors Affecting Early School Leaving

One of the problems encountered in investigating early school leaving is the large number of factors that affect dropping out of school. Sex, location of school, family size, health, intelligence, scholastic skills, personal and social adjustment, and absenteeism, for example have been found in some studies to affect early school leaving. Many of these are related to socio-economic class. Psychological differences may to some degree be related to child rearing practices. Each of the above variables and its effect on early school leaving are now considered.

#### Sex

When the question of the relationship of sex to early school leaving is considered, it is found that there are a number of factors that tend to act in opposite directions. In the New Zealand cultural setting it is generally thought more important for a boy to get a good education. Three times as many boys as girls gain their University Scholarship, University Bursaries examination, or Higher School Certificate. More girls than boys leave after attaining School Certificate.<sup>(1)</sup> It can be expected that there would be more girls early school leaving than boys at sixth form. However, when those leaving without a recognised attainment are considered, there is very

little difference between the sexes.<sup>(2)</sup> It appears that sex is not a major factor in early school leaving at the age of fifteen. Off setting the expectation in our culture that it is more important for the male to get a good education is the fact that more boys than girls leave school so as to get on with an apprenticeship training. Also acting to encourage more boys to leave earlier than girls, is the fact that boys in a four to one ratio have major reading difficulties.<sup>(3)</sup> The final result is that the above factors work in opposite ways so that the net result is that equal numbers of males and females leave soon after attaining the legal school leaving age.

American drop-out studies do not agree as to whether sex is related to early school leaving. Bledscoe<sup>(5)</sup> found that early school leaving related to sex. Livingstone<sup>(6)</sup> found no relationship.

#### Urban versus Rural Setting

It can be expected that there will be more rural children dropping out of school than children who attend a city school. There are a number of factors that have an influence here. Rural secondary schools are more likely to have problems of finding suitable staff. Since there are fewer pupils attending the rural school a much narrower range of subjects can be offered. Thus it is less likely that pupils will have areas of special interest suitably taught. Likewise the rural library would have much less to offer than

those available in the urban setting. The urban setting also has many other cultural activities to stimulate the secondary student, e.g. Art Galleries, Museums, Music teachers etc. The city also offers many more jobs for the well educated youth. Both parents and pupils are more likely to be aware of the increasing need for higher education in the urban areas. Thus it is expected that there will be more early school leavers in the rural secondary school than the urban secondary system.

#### Family Size

The 1956 census according to the Hunn Report<sup>(6)</sup> found that there are 5.6 Maori occupants per house as contrasted to only 3.6 non-Maori occupants per house. The data showed that the non-Maori has approximately five rooms per house as contrasted to only four rooms for a Maori family. Overcrowding in the home would tend to reduce the chances for proper study conditions for these secondary school pupils. The more children in the family the more the amount of adult verbal stimulation available to each child could be expected to be reduced. The mere fact of belonging to a large family restricts contact with adults and offers fewer opportunities for learning adult speech patterns. Thus the fact that family size is related to social class suggests that children from lower socio-economic homes start school with a verbal disadvantage simply because they are born into a large family where opportunity to communicate with adults is limited. Fraser<sup>(7)</sup> corre-

lating background factors of intelligence and achievement found that parental encouragement, parents' educational reading, and small family size were more significant than other factors e.g. income, newspaper, magazine reading, general book reading, parents educational and vocational aspirations etc.

### Health

Physical health is particularly important not only in affecting the number of days the child will be at school but also influencing the amount of sensory data that is available to the child. For example if the child has a hearing loss, this will tend to reduce his scores on verbal tests. Many Maori children suffer from ear infections and fail hearing tests carried out in the school. General health of the Maori child is inferior to that of the non-Maori child. In the school age period there are about four Maori deaths in proportion to every European child.<sup>(8)</sup>

For the sake of simplicity, this study investigates the audio pass or failure rate as indicated by the school record card. Routine audiology tests carried out in the Auckland Health District show a defective rate of 23 per cent for Maori primary pupils as opposed to only 10 per cent of European primary pupils. Audiology tests carried out in the secondary school indicate that 12 per cent of Maori pupils register defects in hearing as contrasted to only 4 per cent of European secondary pupils. There was a higher rate of audio

defects in urban as opposed to rural Maori babies.<sup>(9) 23</sup>

### Absenteeism

A negative factor which affects educational achievement and at the same time is a symptom of early school leaving is that of irregular attendance. Bowden<sup>(10)</sup> studying school absences of fourth form pupils in the Wanganui district found that even when groups were matched for socio-economic differences the Maori pupil was less likely to attend school regularly than the European child. Ausubel<sup>(11)</sup> studying European and Maori boys in the same area found that the mean rate of absenteeism for the Maori was 10.1 per cent as compared to 5.9 per cent for the European. Ausubel felt that the high rate of absenteeism was due to laxness of not only the Maori parents, but also the school authorities and other Government officials.

### Intelligence

General intelligence as measured by verbal tests such as the Otis has been shown to be a good predictor of scholastic attainments.<sup>(12)</sup> However verbal tests that require reading are unfair to the non-reader or poor reader. This is why verbal I.Q. tests were supplemented by non-verbal I.Q. tests in this study.

There are almost as many different definitions of intelligence put forward as there are tests that claim to measure intelligence. McNemar states "The fact that tests of general intelligence based on different definitions tend to correlate about as highly as their respective reliability permits, indicates that despite the

diversity of definitions the same function or process is being measured. Definitions can be more confusing than enlightening."<sup>(13)</sup>

For purposes of this study it is proposed to use the definition found in the technical manual of the Lorge-Thorndike Intelligence test: "Abstract intelligence is defined as the ability to work with ideas and the relationship among ideas."<sup>(14)</sup>

Hebb<sup>(15)</sup> proposes two different kinds of intelligence. Intelligence A, which cannot be measured by any test, is the true innate potential of the individual for learning. Intelligence A is inherited as potential for growth. It is hypothetical and can never be directly observed. Intelligence B, which can be measured, is the intellectual functioning of the person at the time of testing. This depends not only on intelligence A but also on the cultural experience, which may, or may not, allow the individual to develop to his full potential. Intelligence B is the product of nature and nurture. Thus intelligence B is not static nor fixed for life but rather the child's environmental, educational or personality changes can alter his intelligence level of functioning.

A large body of empirical research supports the assumption that environmental conditions may<sup>(16)</sup> retard intellectual development. Melzack and Scott reared dogs in small cages with no objects to explore and no chance to experience pain. Even though these dogs were physically healthy they were either slow to learn

or failed to learn at all to avoid an electric shock. If the dogs' noses were burned they jerked away reflexively, but they returned to sniff the burning material (lighted match or cigarette) again and again. Dennis<sup>(17)</sup> in a study of a Teheran orphanage, which was so grossly understaffed that the children got little variety or stimulation, found that 58 per cent of the children aged from one to two years could not even sit alone. Only 15 per cent of the children who were between the ages of three and four walked alone, thus it can be seen that the amount of environmental stimulation or deprivation can have a major effect on learning. Bruner writes ".....exposure to a normally enriched environment makes the development of such (cognitive) strategies possible by providing intervening opportunities for truth and error....that there is impairment under a deprived regime seems to be fairly evident." (18) At present the New Zealand Government is realising that pre-school education of both the Maori and European children is of particular significance. A Commission has recently been set up to study pre-school education in New Zealand.

### Scholastic Skills

Those children who have poorly developed scholastic skills can be expected to have a more negative attitude towards school and self than those who are going well. Webster<sup>(19)</sup> writes

It is true, nevertheless, as all studies of pupils and adults show, that achievers are not only better equipped in knowledge and skills, but are better

integrated, more independent, less anxious, less hostile and more realistic as compared with most low achievers. In New Zealand this split between the educational haves and have-nots is rapidly becoming a national problem of grave philosophical, economic and political import.

The problem is increased in the average New Zealand secondary school as the curriculum tends to be quite academically centred. Houston<sup>(20)</sup> contends that only 25 per cent of pupils can manage the traditionally based academic type curriculum of the New Zealand secondary school. Those with poor scholastic skills may have no place in a curriculum that tends to be School Certificate and University Entrance centred. It is not surprising that those with poor scholastic skills become discontented and often become early school leavers.

#### Personal and Social Adjustment

Ego development with gradual growth from dependence toward independence is another major factor affecting academic achievement. The child most likely to succeed in school shifts from outer control to inner control. The child from the middle class home is much more likely to have achieving models with which to identify. The child develops his self-concept with those around him. Merton's self-fulfilling prophecy comes into play.

Rosenthal and Jacobsen<sup>(21)</sup> attempted to demonstrate that one person's expectations can cause behavioural changes in the classroom. To show this the experimenters chose 20 per cent of children at random and reported

to their teachers that these children would show dramatic intellectual growth. Retesting showed that on the average these chosen children actually made I.Q. gains of seven points over the control group. Thorndike does not question the issue of the self-fulfilling prophecy but does challenge the basic data obtained in Rosenthal and Jacobsen's research. Thorndike states....."that the basic data upon which this structure has been raised are so untrustworthy that any conclusions based upon them must be suspect. The conclusions may be correct but if so it must be considered a fortunate coincidence."(22)

If others attribute positive concepts to the various aspects of the child's personality, the child comes to believe he is developing positive concepts and lives up to others expectations of himself. Unfortunately the reverse is also true so that the child can develop negative self-concepts because of others. These self-concepts tend to affect the pupil's personal and social adjustment. The child who has a very poor sense of personal worth, poor sense of personal freedom, poor sense of feeling of belonging, and who may have withdrawing tendencies or symptoms, is not likely to enjoy school and thus can be expected to be an early school leaver.

Robert Havighurst<sup>(23)</sup> sees life not as one gradual increase in learning but rather as a series of developmental tasks easy at certain stages which are the plateaux, spaced between learning situations where

effort is severe. He defines the developmental task as one which arises at a certain period in the life of the individual and requires successful achievement to ensure the happiness and success of the individual in later tasks. The developmental tasks of middle childhood (the areas where school has its first influence in most cases) are of particular importance if the child is going to develop skills that will be needed in later life. Developmental tasks of normal childhood include physical skills, having wholesome attitudes towards oneself, learning to get along with age mates, learning an appropriate masculine or feminine role, developing fundamental skills in reading, writing and calculating etc.

White's<sup>(24)</sup> theory of competence sees the importance of the individual's having the ability and fitness to dwell in and to cope with the environment. Competence is built out of interactions with the environment. Thus confidence is accumulated and increases throughout life. It is very similar to Erikson's<sup>(25)</sup> stages, particularly, the stages of industry versus inferiority (6-12 years). After the child achieves a sense of trust, a sense of autonomy, and a sense of initiative, the child is ready to tackle a fourth stage of industry and learn a sense of accomplishment. The chief danger of this period is that the environmental conditions may lead to the development of a sense of inadequacy and inferiority. If the child develops a negative self-concept at this stage he

will find it more difficult to move on to the next stage: "identity versus role diffusion." The identity crisis occurs in adolescence. It is at this stage that the secondary school pupil seeks to find his own identity. If a person has been able to pass through previous stages meeting success, he is able to obtain a sense of identity. Loss of identity however exposes the individual to his childhood conflicts and leads to emotional upsets so that he is no longer able to cope satisfactorily with this stage of life. Many of the school drop-outs, but not all, are experiencing role diffusion. A large number of the early school leavers have not been able to achieve a sense of competency or identity.

#### Other Socio-Economic Factors

The family from the lower socio-economic group will have less money to spend on housing, medical care, magazines, newspapers, books, and recreation etc. Also the lower socio-economic group is inclined to have larger families (see previous section Family Size). Even more important in terms of language development the child from the lower socio-economic group will be greatly handicapped in the educational system right from the time he enters the Primers. Language used in the school is formal language. This requires precision and a variation in form and syntax to clarify meanings and to make it explicit. In the middle-class home the child grows up hearing this

type of language often.

Bernstein<sup>(26)</sup> found that this formal type of language was not used in lower socio-economic families. Here all communication that was carried on was "public language." The big handicap of public language is that it is almost completely limited to social communication within a community of common understanding and values. Thus when the lower socio-economic child arrives at school he finds great difficulty in expressing himself in abstract or symbolic reasoning. Most of the Maori children come from low socio-economic groups and find that they have an inferior set of verbal techniques to apply to their learning and problem solving situations.

Values and aspirations have also been found to be related to socio-economic status. Hyman<sup>(27)</sup> found that among the lower socio-economic groups there was less striving for success, and lack of awareness of opportunity, and a lack of value of education. Rosen<sup>(28)</sup> found that middle-class groups were higher than lower class groups in need achievement as measured by tests such as the T.A.T. Rosen feels that some of the different values can be traced to various methods of upbringing. Middle class parents are more likely to value scholastic achievement as well as being models for scholastic achievement. Middle class mothers make more demands at an earlier stage, particularly with respect to independence,

maturity and achievement. (See also previously mentioned studies Ausubel<sup>(29)</sup> and Vellekoop<sup>(30)</sup>).

### Other Psychological Factors

Many of the seeming differences between the European and Maori student may disappear when the students are matched for socio-economic factors. However, previous studies Ausubel<sup>(31)</sup>, Smith<sup>(32)</sup>, and Lovegrove<sup>(33)</sup> have found that in spite of socio-economic matching some differences can be expected to remain between the European and Maori pupil.

Psychological factors that have been studied amongst the Maori will now be considered. James Ritchie in studying the Maori in Rakau found that the new born child is the centre of the family stage. However when the next child comes along, the first child tends to be rejected.

The independence thrown on to the young Maori child has no parallel in European society till late adolescence when the child is considered better equipped to withstand it. But in all these cases the breaking of an initial major parent-child tie, it is not the event so much as the solution to the anxiety, isolation, the loneliness of the situation in which the child is left, which is of great significance. During the actual rejection period itself, the familiar smiling face for the first two years changes into a weepy, ailing child who is at first almost a nuisance inside the house. (34)

From this stage on the child's siblings act as surrogate parents. Peer group and siblings are much more important than in the European household.

James Ritchie found that the adolescents in Rakau were very dependent upon the approval of others and

that a great deal of time was spent seeking responsiveness from others. Ritchie also found that "Children who aspire too high are cut down to size by their friends, and a child who gets himself into difficulty by showing off or attempting something beyond his capacity will be laughed at and teased." (35) The Maori child learns rapidly to conform rather than seek to excel. The level of the group tends to limit achievement to which any number can excel. Williams<sup>(36)</sup> in studying Maori achievement and motivation found that Maori Training College subjects displayed a similar level and pattern of achievement and motivation as the Pakeha control group. This contradiction to Ritchie's finding can be explained in that there is a dichotomy of achiever and non-achiever and that the achiever forms a very small proportion of the population. Ritchie states "Thus achievement is only an important motive for a few Rakau individuals, most of whom are members of atypical families and have an unusual development history."<sup>(37)</sup> Most of the above findings have been theorised from studying the isolated rural Maori. The degree to which these findings are true for the town dwelling Maori or the city dwelling Maori needs to be investigated by future researchers.

Bray<sup>(38)</sup> in a study of New Zealand adolescents found that the male Maori showed significantly less

tendency to delay gratification and that there was a shorter future time orientation in respect to major goals than male 'European' New Zealanders. The findings amongst female pupils were less conclusive. It was found that the female Maori had a shorter time orientation and showed less tendency to delay gratification than European females. These results would indicate that the Maori pupil because of his shorter future time orientation would be less concerned with the long term benefits of higher education. He is more likely to seek his gratification in the present by becoming an early school leaver than the non-Maori. Good pay in the present for non-skilled work seems better for the Maori adolescent than remaining at school to obtain more skills so as to obtain more job security or perhaps better pay at some future time.

#### Other Sociological Factors

Boocock<sup>(39)</sup> carried out a selective review of the existing research in the area of sociology of education. Student peer groups were found to be of great importance. It was generally found that students will not apply their best efforts unless this is consistent with the norms of their friendship groups and informal cliques. Thus for most Maori youth this would be negative in that most of their friends would have little interest in achieving scholastically.

When the school and its surrounding community

are considered, it was found that environments that value intellectualism and academic achievement tend to increase learning productivity. Few Maori children grow up in this type of atmosphere and thus right from the start they are at a disadvantage. Like other lower status children the Maori is caught in a vicious cycle that dooms most Maori children to academic failure.

#### Summary

Many of the factors discussed are directly related to socio-economic background. Thus the Maori child like the child of unskilled parents is at a disadvantage from the moment of his birth. Long before the child reaches school age he has had five years of being disadvantaged. School years discourage many lower socio-economic children so that it can be expected that they will make up a large proportion of the early school leavers.

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## Chapter 4

### Hypotheses

Analysis of relevant research of American Drop-outs and New Zealand research into Maori and non-Maori differences has led to general theoretical consideration. Both theory and analysis of literature have led to the following hypotheses. These hypotheses have been used to determine the design and scope of this study.

### Expected Findings and Hypothetical Constructs

1. Maori pupils will have poorer reading comprehension than non-Maori pupils.
2. Non-Maori pupils will obtain better scores than Maori pupils on verbal and performance intelligence tests.
3. More Maori than non-Maori pupils will drop out of school at the age of fifteen. However when socioeconomic status is controlled by matching, there will be a lessening of relationship between race and dropping out.
4. There will be no relationship between early school leaving and the sex of leaver at the age of fifteen.
5. More early school leavers will come from rural than urban areas.
6. There will be a negative relationship between scores on intelligence tests and early school leaving.
7. There will be a negative relationship between reading ability and early school leaving.

8. Early school leavers will score significantly higher on the negative items dealing with school interest than pupils who continue after reaching the school leaving age.
9. There will be a negative relationship between positive attitudes toward school and dropping out of school.
10. There will be a positive relationship between plans (at fourteen) to have three years at high school and continuing at school after attaining the age of fifteen.
11. When compared to pupils who continue at school, the early school leaver will come from a home with a larger number of children in the family.
12. There will be no difference between early school leavers and continuers with regard to their mother's employment.
13. Early school leavers will be more likely to see their parents as wanting them to leave school or not caring whether they continue at school after having reached the age of fifteen.
14. The father's of early school leavers are more likely to be 'blue collar' (unskilled or semi-skilled workers) than 'white collar' (sales, office, manager, or professional worker.)
15. Those pupils who have a history of audio deficiency are more likely to be early school leavers than continuers.

16. There will be a positive relationship between poor school attendance and dropping out of school.
17. There will be a positive relationship between form retardation and early school leaving.
18. Early school leavers are more likely to have lower vocational aspirations than continuers. Continuers are more likely to aspire to vocations that require some form of higher education.
19. Fewer early school leavers than continuers will plan to attempt School Certificate Examinations.
20. There will be a negative relationship between early school leaving and personality adjustment.

## SECTION 2

### Methodology

#### Chapter 5

#### Population Setting and

#### Sample Setting

The present study takes its sample from four co-educational high schools located in the Manawatu, Wanganui-Rangitikei regions. Two rural secondary schools were included in the sample, the first from Foxton and the second from Marton. Two urban High Schools were also used in the sample the first from Wanganui, the second from Palmerston North. Each of the towns or cities had its own particular character. This in turn had an indirect influence on the sample obtained from the High School.

The Wanganui High School was selected as it was the only co-educational High School in New Zealand's seventh largest city. Wanganui, for a long time, was New Zealand's fifth largest centre but its growth has been relatively stable since the depression. Maori population is 2,200 (6 per cent) out of Wanganui's 35,629<sup>(1)</sup> total population. There have always been a number of Maoris living in the Pa within the city of Wanganui itself. Since the Second World War there has been a gradual movement of Maoris from the surrounding countryside into the city itself. Large numbers have found

work in farming-related industries such as freezing works, woollen mills, fertiliser works, as well as railway workshops, and local construction firms. Wanganui itself is an important education centre for the district with a number of private and state boarding schools in the city. The city is an important shopping area for the pastoral area surrounding it. The river which was so important to the Maori as well as the early settler is little used today.

Palmerston North, New Zealand's sixth largest city, has fewer Maoris than Wanganui. In fact there were only 1,362 Maoris (approximately 3 per cent of a population of 46,832) in the 1966 census <sup>(2)</sup>. Palmerston North was not settled until about thirty years after Wanganui and did not surpass it in growth until the 1950's. It too is a main centre for regional marketing. Palmerston North is a main rail junction and a large number of commercial and manufacturing firms provide employment. There are flour mills, clothing factories, freezing works, engineering works, and breweries. Palmerston North is also an educational centre. It includes a Teachers' College and Massey University. A New Zealand Dairy Research Institute, and the Grasslands Division and Plant Chemistry section of the Department of Scientific and Industrial Research are located here. Palmerston North contains two co-educational secondary schools. Queen Elizabeth College was selected for this study as it had a higher proportion

of Maori pupils.

Foxton, like Wanganui, lies at the mouth of a river. In the early days Foxton was a commercial port of some importance. Shipping gradually fell off as the main trunk line was completed to serve the Manawatu area. The depression of the 1930's led to a further drop in shipping. By 1951 Foxton ceased to be a commercial port. Market gardening, dairying, and sheep farming are carried out near the town. The town also has the processing of flax as a major industry along with milling, clothing, and wool-pack manufacturing. Foxton has a high percentage of Maori to European with 512 Maoris (18 per cent) out of a total population of 2819<sup>(3)</sup>. Manawatu College serves the area.

Marton is located approximately 27 miles north of Palmerston North and 23 miles south of Wanganui. Like Foxton it has a high Maori proportion with 543 (11½ per cent) out of a total population of 4,731 recorded in the 1966 census<sup>(4)</sup>. This district too has sheep farming and dairy farming. Marton is a serving area for the farming community and secondary industries located in Marton itself. There are saw milling, joinery and furniture making, manufacture of clothing and textiles, wool scouring, and flour milling. Marton is a major junction on the main trunk railway line. Rangitikei College not only serves Marton itself but pupils travel long distances by bus

into the College from the surrounding countryside.

#### Population Sample

It was decided to have an equal number of pupils from urban and rural areas. Head Teachers from each of the four schools were contacted and their permission was obtained to carry out the study. The sample selected for this study was not a random one as this would have made the number of Maori included in the sample "small". Therefore all the Maori fourteen year olds were included in Foxton, Queen Elizabeth College, and Wanganui High School. Because of the need to reduce the size of the rural Maori sample (so that it would not be too out of proportion to the urban Maori sample), random selection was made of Maori pupils at Rangitikei College. A random selection of fourteen year old European students was necessary to reduce the size of sample in all four secondary schools.

Most students were very co-operative and on the whole they enjoyed the change in the routine. No attempt was made to follow up pupils absent the day that the tests were administered. In several cases pupils who were sitting were unable to complete the tests because of illness or, in one case, a previous dental appointment. Where it was only a question of one section of the test that was not completed the data was used. However, if several tests were missed then the data was excluded from calculations. Thus the number of 232 represented the maximum number of pupils

in the study who completed the questionnaire.

Footnotes to - Chapter 5

(1) Department of Statistics, New Zealand  
Census of Population and Dwellings, Vol.10  
(Wellington: Government Printer, 1969), p.123.

(2) Ibid.

(3) Ibid.

(4) Ibid.

## Chapter 6

### Design of Research

#### Definitions

The early school leaver is defined as a student who fails to remain in school after he or she has turned fifteen. Schools were contacted a year after initial testing of the fourteen year olds to determine which pupils were the leavers and who were the pupils continuing.

'Urban school sample' refers to all pupils attending school in the cities e.g. Palmerston North and Wanganui. 'Rural school sample' refers to all pupils attending school in the smaller towns and country areas they serve, e.g. Foxton and Marton.

'Intelligence' is concerned with, in the terms used by Lorge and Thorndike "...the ability to work with ideas and the relationship among ideas." (1)

For purposes of this study a Maori is defined as any pupil so indicated on the school register.

'European' or 'Non-Maori' is defined as any student who is not indicated to be a Maori in the school register and is not obviously of Chinese or of Indian ancestry.

'Hearing deficiency' is defined in terms of the results of audio tests indicated on the school record card. A failure on one of the audio tests during primary or secondary years was taken as an indication of hearing deficiency.

'Personal and social adjustment' are gauged for this study by the raw scores on the California Test of Personality.

'Positive attitudes toward school' is defined in terms of the pupil liking most of the subjects taken, having a general feeling that school is satisfactory or very satisfactory, and having the desire to continue at school.

'Form retardation' is defined for purposes of this study as a pupil, aged 14 on or before the 31st of June 1969, who was at that time classified as being a third former.

'Socio-economic groups' are classified by the system used by Congalton and Havighurst<sup>(2)</sup> that of using occupational status of the father. Seven occupational groupings were used. These were unskilled repetitive workers, semi-skilled workers, skilled manual workers, office and sales workers, farmers, proprietors and managers, and professionals. These categories were used in socio-economic matching between the Maori and European.

The term 'Blue Collar' in this study was used to refer to unskilled and semi-skilled workers. The term 'White Collar' was used to refer to fathers who were sales or office workers, proprietors or managers, and professionals in their occupations.

#### Instrumentation

The questionnaire developed by Evans<sup>(3)</sup> was adapted for use in the New Zealand school system. The wording

had to be changed on individual items to suit the New Zealand scene as well as sections deleted because they did not directly suit the purposes of this study.

The reading comprehension section of the Progressive Achievement Test was used. Research Form C was obtained from the New Zealand Council for Educational Research.<sup>(4)</sup> The tests are intended for use with pupils between Standard 2 and Form 4. The comprehension section indicates the difficulty of material which a pupil can read with understanding. Scores are given in levels of achievement as well as percentile norms. Percentile norms are the most convenient to use for this study. Split-half reliability coefficients on the reading comprehension tests are .89, and with equivalent forms .85. With raw scores there is a standard deviation of nine and a mean of approximately thirty. To ensure construct validity, teachers, inspectors, psychologists, reading advisers, and other officers of the Department of Education participated in the planning and developmental stages. Approximately 1500 items were prepared and these were reviewed, selected, and revised. Item analysis was carried out. At the standard four level there was a correlation with the A.C.E.R. Reading for Meaning Test of .75. The Reading Comprehension section of the Progressive Achievement Test is the only New Zealand standardised reading test which covers the Form 3 and 4 area of the Secondary School.

The Lorge-Thorndike Intelligence Test was selected as it had parallel verbal and non-verbal sections. The verbal section was made up of five sub-tests; Word Knowledge, Sentence Completion, Verbal Classification, Verbal Analogies, and Arithmetic Reasoning. The non-verbal battery is entirely pictorial, diagrammatic, or numerical. The sub-tests are Figure Analogies, Figure Classification, and Number Series. The biggest disadvantage of this test is that it has not been standardised for New Zealand. Lorge and Thorndike claim that the verbal test battery correlated highly with the California Test of Mental Maturity, the Otis, and the Kuhlman-Anderson Intelligence Test (.77, .79, and .84). The non-verbal battery correlated somewhat lower with the same three tests (.65, .71 and .74). The tests are primarily power tests so that time is not of prime importance. Freeman<sup>(5)</sup> writing in Buros reports that the reliability of alternate forms was .86 on the verbal battery, and .88 on the non-verbal battery. Test-retest reliability coefficients varied between .50 and .62 for non-verbal sub-tests and .71 and .88 for verbal sub-tests. The verbal and non-verbal batteries correlated from .65 to .75. Freeman writes that this test is among the best group tests available.

The school interest inventory is based on 150 items. The test was administered to 25,000 students in America. Two years later records were examined and

and 800 of these students were found to be drop-outs. These 800 were used as a criterion for item analysis. Separate scales for males and females were developed; (90 items for boys and 86 items for girls). The validity of the scale was established by matching groups of drop-outs and stay-ins.

In a pilot project using the school interest inventory for the present study, test re-test reliability at an interval of a month, was found to be .93 for a small sample of 11 girls and .65 for a slightly larger sample of 18 boys. A few of the items had to be modified slightly for New Zealand use, e.g. High School Diploma - School Certificate, home-room - form room etc. High scores in this test, for example 30 or more, are a strong indication of dropping out. Relatively few students who scored below 20 were found to drop out of school in the American sample.<sup>(6)</sup>

The California Test of Personality was formulated on the concept of life adjustment being a balance between personal and social adjustment. The first half of the test deals with personal adjustment and sub-sections deal with self-reliance, sense of personal worth, sense of personal freedom, feeling of belonging, freedom from withdrawal tendencies, and freedom from nervous symptoms. The second half of the test deals with social adjustment and sub-sections seek to measure social standards, social skills, freedom from anti-social tendencies, family relations, school relations,

and community relations.

Research carried out in America found the reliability coefficients computed by the Kuder-Richardson formula ranged between .70 and .96. The correlation between the final section, personal adjustment, and the second section, social adjustment, varied from .63 to .77. This was sufficiently low enough to emphasise the desirability of giving both halves of the test.<sup>(6)</sup>

V. Sims<sup>(7)</sup> reviews the California Test of Personality by saying -

an attempt has been made to word the questions so that they reduce to a minimum any suggestion that they should be answered in a certain way. In spite of this effort the right answer to many items is probably obvious to all except the very naive ..... Thus the validity will vary with the degree of rapport established with the testee. All in all, in spite of this criticism as personality inventories go, the California Test of Personality would appear to be among the better ones available.

A problem that has to be faced is that self-inventories depend to a large degree on the amount of self-understanding, and desire to report things as they are seen. A major disadvantage is that this test has not been standardised nor validated for New Zealand.

A pilot study using the "Intermediate Form" was carried out to see if the use of the California Test of Personality had some validity in New Zealand. Item analysis was carried out using a sample of 62 students. Only twelve items had a phi coefficient of .19 or below. This is a similar result to that of an analysis carried

out in America. Test re-test reliability carried out at a fortnightly interval obtained the following results;

Table II

Pilot Study - Test Re-Test Reliability of the California Test of Personality.

|                                     |     |
|-------------------------------------|-----|
| A total personal adjustment         | .81 |
| Self reliance                       | .40 |
| Personal worth                      | .74 |
| Personal freedom                    | .79 |
| Feeling of belonging                | .62 |
| Freedom from withdrawal             | .77 |
| Freedom from nervous symptoms       | .85 |
| Total social adjustment             | .68 |
| Social standards                    | .54 |
| Social skills                       | .58 |
| Freedom from anti-social tendencies | .73 |
| Family relations                    | .60 |
| School relationships                | .38 |
| Community relationships             | .41 |
| Grand total of all tests            | .95 |

As the results are to be used for studies of groups rather than the individual, these results are considered to be satisfactory for this research project.

Data Collection

In August 1969 each of the schools were visited. After obtaining the permission of the Head Teacher, school rolls were checked to select those pupils that would be fourteen in September 1969. In all of the schools, random selection was used to reduce the size of the sample. Record cards were checked and information was gathered on audio tests as well as the attendance for 1968.

Arrangements were made with the school so that the battery of tests and the questionnaire could be administered during one school day. The researcher administered the tests according to the Manuals. On each occasion a research assistant was present to help with clerical details and general monitoring. All testing was carried out between the 15th of September and the 29th of September 1969.

Schools were contacted again in October 1970 so that school leavers could be identified. Pupils who had transferred from schools were traced as far as possible to ascertain whether they were school leavers.

Footnotes to - Chapter 6

(1) T. Lorge and R. Thorndike, Technical Manual; Lorge-Thorndike Intelligence Tests, (Boston: Houghton-Mifflin Co., 1962), p.1.

(2) A. Congalton and R.J. Havighurst, "Status Ranking of Occupations in New Zealand," Australian Journal of Psychology, Vol.6 (June, 1954), 10-15.

(3) N. Evans, "How to Conduct a High School Drop-Out Study," Bulletin of the National Association of Secondary School Principals, Vol. 38 (February, 1954), 34-41.

(4) W.B. Elley and N.A. Reid, Teachers' Manual for Progressive Achievement Tests, (Wellington; New Zealand Council for Educational Research, 1969).

(5) F.S. Freeman, "Lorge-Thorndike Intelligence Tests," Fifth Mental Measurement Year Book, Ed. by O.K. Buros (Highland, New Jersey: Gryphon Press, 1959), p.350.

(6) W.C. Cottle, Examiner's Manual for the School Interest Inventory, (Boston: Houghton Mifflin, 1966), pp.8-10.

(7) L.P. Thorpe, W. Clark, E. Tiegs Manual; California Test of Personality, (Monterey, California: McGraw Hill, 1953), pp.4-6.

(8) V. Sims, "California Test of Personality," in Fifth Mental Measurement Yearbook, Ed. by O.K.Buros (Highland, New Jersey: (Gryphon Press 1959), pp.102-3.

## CHAPTER 7

### Statistical Procedures

Item analysis was carried out in the pilot study for the California Test of Personality. Item analysis used the biserial correlation. Total sample for the pilot study included 62 third and fourth formers. The top 27 per cent and the bottom 27 per cent (17 in each group) were determined. On each item a tally was taken of the number in the top group which passed the items as well as a separate tally for the bottom group that passed each item. These numbers were converted into percentages. A table of normalised biserial coefficients of correlation was then used to find the difficulty index of the item. As previously mentioned, of the 150 items, only 11 failed to come up to an acceptable level; (.20 or better). As these were well spread throughout the test there was no need to delete a section from the testing programme.<sup>(1)</sup>

In the pilot study, test-retest reliability was carried out for the California Test of Personality (see Table II). Reliability was also determined for the School Interest Inventory by this method. The test concerned was neither speed nor power tests, but rather a personality and interest type of test. Thus it was not of great concern that memory effects, and practice would greatly change the test result. Because of this the test retest method was used to measure the extent of agreement between repeated observation.<sup>(2)</sup>

For non-parametric statistics, the chi square test was used. Data was grouped into two by two contingency tables. A Yates correction figure was used where there was any cell with a figure of 5 or less.<sup>(3)</sup>

Hays<sup>(4)</sup> gives the formula with and without Yates correction. These compare the expected frequency of occurrence with the frequency of observed facts. By contrasting the expected or hypothetical frequencies with observed frequencies, chi square indicates whether the sample departs significantly from normality. The greater the difference between the observed and the expected frequency the greater chi becomes. All the chi square tests carried out for this study had one degree of freedom. The value obtained for chi was then compared for the value given in the chi square table<sup>(5)</sup>. A significance level of .05 was chosen to reject the null hypothesis and to accept the research hypothesis.

In setting the level of significance two kinds of errors need to be avoided. Type one error is made when the null hypothesis is wrongly rejected. This happens if there is no real relationship between the variables under study but because of the significance test the hypothesis was rejected. This type of error can be avoided by lowering the level of significance. This way the true null hypothesis is less likely to be rejected, but in doing this the chances of committing a type two error are increased. The type two error is

made by not rejecting the null hypothesis when it is false. This occurs if criterion for accepting is too lax so that after the test of significance it has not been rejected.<sup>(6)</sup> In the present study where the characteristics of early school leavers and continuers was the aim of the study, it was felt that it was better to error on the side of the Type one error rather than Type two. Thus a .05 rejection level was chosen rather than .01 or some other stricter level. Hays points out that in some cases it is important to avoid the Type one error in some contexts such as the study of the safety of a new medicine but

on the other hand in some types of psychological research it is very hard to see exactly why the particular hypothesis tested, or the null hypothesis should be the one we are so loath to abandon and Type 1 errors necessarily have this drastic character. Granting that scientific discretion is commendable, the mistaken conclusion that 'something really happened' is not necessarily worse than overlooking a real experimental phenomenon. (7)

Wherever possible, however, a t test was used for determining the significance between means. A null hypothesis was tested. The t test was used as the distribution approximates a normal curve. The significance of the difference compares the size of variance within the groups and between the groups. The t distribution does not differ greatly from norm unless the number is quite small. "A sample size  $N$  grows large, the distribution of  $t$  approaches the standardised normal distribution. The large numbers of degrees of freedom, and the exact probabilities of intervals in the t distribution can be approximated

closely by normal probabilities." Significance of the results was then obtained by t table.<sup>(9)</sup>

Guilford warns that if the two samples have markedly differing variances then the test is questionable. He also warns that there should be some hesitation in using t tests if the N's in the samples differ greatly. Guilford concluded his discussion by stating, "On the whole, t is not markedly affected except by rather strong violations, unless N is very small."<sup>(10)</sup> Examination of the variances with F test do not indicate that sample variances are not significantly different at the .01 level.

As the researcher made predictions as to the direction of the results of the study a one-tailed test of significance was used. It was predicted that the early school leaver would have poorer results than pupils who continued on at school. This was justified by research studies of drop-outs in other countries. This test is more powerful than the two-tailed test and increases the likelihood of rejecting the null hypothesis. Thus the chance of committing a Type 1 error is increased and a Type two error decreased. This agrees with the previous discussion with two kinds of errors that it was better in this research to err on the side of Type one errors so as to reduce the likelihood of committing a Type two error.

#### Limitations of the Study

The small size of the sample, and particularly the Maori section of the sample, limits the number of deductions that can be made from the study. Another

limitation is that the survey was carried out only in the Manawatu and Wanganui regions and thus may or may not be applicable to other regions of New Zealand. Different results might be expected if the larger centres such as Auckland or Wellington can be used in comparison with really isolated rural areas such as the East Cape. A third limitation is that the sample taken was a cross section of the school on a typical day. Thus no follow up was made to include any pupil who was absent on the day that testing was carried out. Caution must be used in generalising from these results because of these limitations.

Footnotes to Chapter 7

(1) H.E. Garrett, Statistics in Psychology and Education, (5th Ed.; London: Longmans, 1965), pp. 365-368.

(2) W.E. Tate, Statistics in Education, (New York: Macmillan, 1955), p.335.

(3) Garrett, *ibid.*, p.265.

(4) W.L. Hays, Statistics for Psychologists, (New York: Holt Rinehart and Winston, 1963), p.596.

(5) *Ibid.*, pp.675-676.

(6) W.J. Popham, Educational Statistics: Use and Interpretation, (New York: Harper and Row, 1967), pp. 54-55.

(7) Hays, *ibid.*, p.281.

(8) *Ibid.*, p.307.

(9) *Ibid.*, p.674.

(10) J.P. Guilford, Fundamental Statistics in Psychology and Education, (4th Ed.; New York: McGraw-Hill, 1965) p. 183.

(11) Popham, *ibid.*, pp.56-58.

### SECTION 3

#### Results

#### CHAPTER 8

##### Composition of the Sample

The total sample is not a true cross section of all fourteen year olds as a larger proportion of Maori pupils are included to increase the size of the Maori sample. The non-Maori pupils were chosen by random selection while all fourteen Maori pupils were included so that 75 per cent of the sample is non-Maori and 25 per cent Maori.

On the reading comprehension section of the Progressive Achievement Test, which has recently been developed for use in New Zealand, the total sample scored at the 45th percentile with a standard deviation of 29. (Maori and non-Maori differences in reading comprehension are analysed in hypothesis 1, Chapter 10.)

The total sample obtained scored above 100 on both verbal and nonverbal sections of the Lorge-Thorndike Intelligence Tests. American norms were used as no standardisation has been carried out for this test in New Zealand. The total sample obtained a Lorge-Thorndike verbal I.Q. of 105 with a standard deviation of 17, and a performance I.Q. of 103 with a standard deviation of 16. (Maori and non-Maori differences in I.Q. scores are analysed in hypothesis 2, Chapter 10.)

Table III shows that in September 1969, the time of testing, 66 per cent of the sample were third formers and 34 per cent were fourth formers. More non-Maori pupils (38 per cent) than Maori pupils (23 per cent)

were fourth formers.

TABLE III

Composition of the Sample by Forms

|             | <u>Maori</u> |     | <u>Non-Maori</u> |     | <u>Total Sample</u> |     |
|-------------|--------------|-----|------------------|-----|---------------------|-----|
|             | No.          | %   | No.              | %   | No.                 | %   |
| Third Form  | 44           | 77  | 108              | 62  | 152                 | 66  |
| Fourth Form | 13           | 23  | 67               | 38  | 80                  | 34  |
| Grand Total | 57           | 100 | 175              | 100 | 232                 | 100 |

Third formers, at the time of collection of data, were considered form retarded if they were 14 on or before 31st of June. Table IV shows that 56 per cent of the Maori sample is form retarded as compared to only 27 per cent of the non-Maori sample. Only 34 per cent of the total sample is by definition considered to be form retarded.

TABLE IV

Composition of the Sample by Form Retardness

|               | <u>Maori</u> |     | <u>Non-Maori</u> |     | <u>Total Sample</u> |     |
|---------------|--------------|-----|------------------|-----|---------------------|-----|
|               | No.          | %   | No.              | %   | No.                 | %   |
| Form retarded | 32           | 56  | 48               | 27  | 80                  | 34  |
| Normal        | 25           | 44  | 127              | 73  | 152                 | 66  |
| Grand Total   | 57           | 100 | 175              | 100 | 232                 | 100 |

Table V shows the compositions of the sample by urban - rural high school to be approximately balanced with 50 per cent each. The majority of the Maori sample, 60 per cent come from rural areas, and 40 per cent from urban areas. Only minor differences are found in the

non-Maori sample with 52 per cent of this sample coming from urban areas and 48 per cent from rural areas.

TABLE V

Composition of the Sample by Urban - Rural

Location of High School

|              | <u>Maori</u> |     | <u>Non-Maori</u> |     | <u>Total Sample</u> |     |
|--------------|--------------|-----|------------------|-----|---------------------|-----|
|              | No.          | %   | No.              | %   | No.                 | %   |
| Rural        | 34           | 60  | 83               | 48  | 117                 | 50  |
| Urban        | 23           | 40  | 92               | 52  | 115                 | 50  |
| Grand Totals | 57           | 100 | 175              | 100 | 232                 | 100 |

Table VI shows that the sample contains slightly more females (53 per cent) than males (47 per cent). There are more Maori males (56 per cent) than Maori females (44 per cent). The non-Maori sample shows the reverse with more females (56 per cent) than males (44 per cent).

TABLE VI

Composition of the Sample by Sex

|              | <u>Maori</u> |     | <u>Non-Maori</u> |     | <u>Total Sample</u> |     |
|--------------|--------------|-----|------------------|-----|---------------------|-----|
|              | No.          | %   | No.              | %   | No.                 | %   |
| Male         | 32           | 56  | 78               | 44  | 110                 | 47  |
| Female       | 25           | 44  | 97               | 56  | 122                 | 53  |
| Grand Totals | 57           | 100 | 175              | 100 | 232                 | 100 |

Socio-economic status, as determined by the occupation of the father found all socio-economic groups to be represented. Table VII shows that 21 per cent of occupations are unskilled, 15 per cent semi-skilled, 28

per cent skilled manual workers, 13 per cent office and sales workers, 4 per cent managers and proprietors, 13 per cent farmers, and 9 per cent professionals. None of the Maori fathers are professional and there are over twice as many unskilled workers in the Maori sample than the non-Maori sample. Skilled workers and managers and proprietors are equally present in both groups. Farmers are three times more common in the non-Maori sample, while office and clerical workers are four times more likely to be non-Maori than Maori.

TABLE VII  
Occupation of Fathers

|                             | <u>Maori</u> |     | <u>Non-Maori</u> |     | <u>Total Sample</u> |     |
|-----------------------------|--------------|-----|------------------|-----|---------------------|-----|
|                             | No.          | %   | No.              | %   | No.                 | %   |
| Unskilled                   | 21           | 37  | 28               | 16  | 49                  | 21  |
| Semi-skilled                | 12           | 21  | 22               | 13  | 34                  | 15  |
| Skilled                     | 15           | 25  | 49               | 28  | 64                  | 28  |
| Office and<br>sales workers | 2            | 4   | 29               | 17  | 31                  | 13  |
| Managers and<br>Proprietors | 2            | 4   | 8                | 5   | 10                  | 4   |
| Farmers                     | 3            | 5   | 27               | 15  | 30                  | 13  |
| Professionals               | 0            | 0   | 11               | 6   | 11                  | 5   |
| No fathers                  | 2            | 4   | 1                | 0   | 3                   | 1   |
| Grand Totals                | 57           | 100 | 175              | 100 | 232                 | 100 |

The total sample is made up of 232 fourteen year olds (at the time of examination in September, 1969.) Urban and rural pupils are equally represented. When the composition of the sample is examined, there are approximately equal

numbers of males and females. All socio-economic groups are represented. At the time of examination most of the pupils (two out of three) were third formers. When form retardness is considered, one out of three were form retarded. The average pupil had a mean for reading comprehension slightly below average and an I.Q. on both verbal and performance tests just slightly above 100.

## Chapter 9

### Data Analysed

#### Hypotheses dealing with Maori and European Differences

Hypothesis 1. Maori pupils will have poorer reading comprehension than non-Maori pupils.

Results confirmed this hypothesis. Differences between the male Maori and non-Maori are at the .05 level and at the .001 level for female Maori and non-Maori. Table VIII shows that results of the reading comprehension test are very significantly in favour of the non-Maori when all the Maori pupils are compared to all the non-Maori pupils. Hypothesis 1 is upheld.

Table VIII

#### Maori and non-Maori Differences in Reading Comprehension

|                 | <u>Male</u>  |                  | <u>Female</u> |                  | <u>Total</u> |                  |
|-----------------|--------------|------------------|---------------|------------------|--------------|------------------|
|                 | <u>Maori</u> | <u>Non-Maori</u> | <u>Maori</u>  | <u>Non-Maori</u> | <u>Maori</u> | <u>Non-Maori</u> |
| Percentile mean | 31.06        | 44.53            | 24.48         | 55.84            | 28.18        | 50.79            |
| S.D.            | 26.24        | 27.85            | 19.50         | 27.29            | 23.74        | 28.13            |
| Number          | 32           | 78               | 25            | 97               | 57           | 175              |
|                 | t=2.35 *     |                  | t=19. ***     |                  | t=5.45 ***   |                  |

One tailed test

df = 109

df = 121

df = 231

\* sig. for  $p = 0.05$  \*\*\* sig. for  $p = 0.001$

Hypothesis 2. Non-Maori pupils will obtain better scores than Maori pupils on both verbal and performance intelligence tests.

Table IX indicates that the Maori pupil obtains significantly lower scores than the Non-Maori. This pattern is evident on both the verbal and performance sections of the Lorge-Thorndike. Only minor differences

are noted in the scores between the verbal and performance I.Q. tests for the Maori. (Less than 1 I.Q. point). The results on both forms of the Lorge-Thorndike show the non-Maori pupil to be the higher scorer. Hypothesis 2 is strongly supported.

Table IX

Maori and Non-Maori Differences on Intelligence Tests

Verbal

|                 | <u>Male</u>  |                  | <u>Female</u> |                  | <u>Total</u> |                  |
|-----------------|--------------|------------------|---------------|------------------|--------------|------------------|
|                 | <u>Maori</u> | <u>Non-Maori</u> | <u>Maori</u>  | <u>Non-Maori</u> | <u>Maori</u> | <u>Non-Maori</u> |
| Mean            | 97.47        | 105.59           | 89.49         | 111.44           | 93.96        | 108.83           |
| S.D.            | 13.66        | 15.72            | 20.45         | 15.05            | 17.46        | 15.64            |
| Number          | 32           | 78               | 25            | 97               | 57           | 175              |
|                 | t=2.56 **    |                  | t=6.10 ***    |                  | t=5.06 ***   |                  |
| One tailed test | df = 109     |                  | df = 121      |                  | df = 231     |                  |

Performance

|                 |             |        |            |        |            |        |
|-----------------|-------------|--------|------------|--------|------------|--------|
| Mean            | 96.38       | 104.00 | 90.00      | 106.90 | 93.58      | 105.61 |
| S.D.            | 18.63       | 18.11  | 9.72       | 13.06  | 15.71      | 15.56  |
| Number          | 32          | 78     | 25         | 97     | 57         | 175    |
|                 | t=1.99 N.S. |        | t=6.14 *** |        | t=5.06 *** |        |
| One tailed test | df = 109    |        | df = 121   |        | df = 231   |        |

\* sig. for p = 0.05    \*\* sig. for p = 0.01

\*\*\* sig. for p = 0.001

### Hypotheses on Early School Leavers

Who are the early school leavers? The first three hypotheses to be tested predict who the early school leavers will be.

Hypothesis 3. More Maori pupils than Non-Maori pupils will drop out of school at the age of fifteen. However when socio-economic status is controlled by matching, there will be a lessening of relationship between race and dropping out.

In spite of three quarters of the sample being European and only one quarter Maori, there are almost equal numbers of Maori and European school leavers. Table X shows that approximately one out of every nine non-Maori is an early school leaver as contrasted to one out of every three Maori pupils. The Maori drop-out rate is three times that of the European rate.

Table X

#### Percentages of Early School Leavers by Race

|           | <u>No. of<br/>Leavers</u> | <u>No. in<br/>Group</u> | <u>Percentage<br/>of Group</u> |
|-----------|---------------------------|-------------------------|--------------------------------|
| Maori     | 21                        | 57                      | 36.8 of Maori pupils           |
| Non-Maori | 20                        | 175                     | 11.4 of European pupils        |
| Total     | 41                        | 232                     | 17.7 of All pupils             |

Maori and European leavers are compared. Table XI shows that the significance of the deviation from expected observations for males was at .01, for females .01, and for all leavers was at the .001 level. The first part of hypothesis 3 (that more Maori than non-Maori will become early school leavers) is confirmed.

Table XIMaori and Non-Maori Early School LeaversWhole Sample

| <u>Male</u> | <u>Leavers</u> | <u>Continuers</u> | <u>Total</u> |
|-------------|----------------|-------------------|--------------|
| Maori       | 12             | 20                | 32           |
| Non-Maori   | <u>9</u>       | <u>69</u>         | <u>78</u>    |
| Sub-total   | 21             | 89                | 110          |

df = 1

chi square = 9.90 \*\*

| <u>Female</u> | <u>Leavers</u> | <u>Continuers</u> | <u>Total</u> |
|---------------|----------------|-------------------|--------------|
| Maori         | 9              | 16                | 25           |
| Non-Maori     | <u>11</u>      | <u>86</u>         | <u>97</u>    |
| Sub-total     | 20             | 102               | 122          |

df = 1

chi square = 8.62 \*\*

| <u>All Leavers</u> | <u>Leavers</u> | <u>Continuers</u> | <u>Total</u> |
|--------------------|----------------|-------------------|--------------|
| Maori              | 21             | 36                | 57           |
| Non-Maori          | <u>20</u>      | <u>155</u>        | <u>175</u>   |
| Sub-total          | 41             | 191               | 232          |

df = 1

chi square = 19.09 \*\*\*

\*\* sig. for p = 0.01

\*\*\* sig. for p = 0.001

Table XII shows that when Maori pupils are compared to socio-economically matched Non-Maori pupils chi square is reduced. However, probability for all the groups remains significant (if Yates correction is not used for the smaller female numbers). Thus socio-economic matching only slightly reduces the influence of race as a factor in early school leaving. Therefore the second section of

hypothesis 3 can not be upheld.

Table XII

Socio-Economic Matching by Father's Occupation and Early

School Leaving

Matched (Socio-economic) Sample

|             | <u>Leavers</u> | <u>Continuers</u> | <u>Total</u> |
|-------------|----------------|-------------------|--------------|
| <u>Male</u> |                |                   |              |
| Maori       | 12             | 11                | 31           |
| Non-Maori   | <u>5</u>       | <u>26</u>         | <u>31</u>    |
| Sub-totals  | 17             | 47                | 62           |

df = 1

chi square = 7.06 \*\*

Female

|            |          |           |           |
|------------|----------|-----------|-----------|
| Maori      | 8        | 15        | 23        |
| Non-Maori  | <u>2</u> | <u>21</u> | <u>23</u> |
| Sub-totals | 10       | 36        | 46        |

df = 1

chi square = 4.60 \*

All Sample

|            |          |           |           |
|------------|----------|-----------|-----------|
| Maori      | 20       | 34        | 54        |
| Non-Maori  | <u>7</u> | <u>47</u> | <u>54</u> |
| Sub-totals | 27       | 81        | 108       |

df = 1

chi square = 8.35 \*\*

\* sig. for p = 0.05

\*\* sig. for p = 0.01

Hypothesis 4.

There will be no relationship between early school leaving and the sex of the leaver at the age of fifteen.

Reference to Table XIII shows no difference between

the male and female non-Maori. Both are approximately at the 11 per cent level. There are just slightly more Maori male leavers (37.9 per cent) than female Maori leavers (36 per cent).

As expected none of the chi squares are significant between the sexes in either the Maori, non-Maori or total groupings. These results show there is no relationship between sex and early school leaving at the 15 year level. Hypothesis 4 is supported.

Table XIII

The Factor of Sex and Early School Leaving

|                  | <u>No. of<br/>Leavers</u> | <u>No. of<br/>Continuers</u> | <u>Total<br/>in<br/>Group</u> | <u>Percentage<br/>of Leavers<br/>in Group</u> |
|------------------|---------------------------|------------------------------|-------------------------------|---|
| Maori males      | 12                        | 20                           | 32                            | 37.5  |
| Maori females    | <u>9</u>                  | <u>16</u>                    | <u>25</u>                     | 36.0  |
| Sub totals       | 21                        | 36                           | 57                            |   |
| df = 1           |                           |                              |                               |   |
| chi square = .01 |                           |                              |                               | N.S.  |
| Non-Maori male   | 9                         | 69                           | 78                            | 11.54   |
| Non-Maori female | <u>11</u>                 | <u>86</u>                    | <u>97</u>                     | 11.34   |
| Sub totals       | 20                        | 155                          | 175                           |   |
| df = 1           |                           |                              |                               |   |
| chi square = .00 |                           |                              |                               | N.S.  |
| All males        | 21                        | 89                           | 110                           | 19.1  |
| All females      | <u>20</u>                 | <u>102</u>                   | <u>122</u>                    | 16.4  |
| Sub totals       | 41                        | 191                          | 232                           |   |
| df = 1           |                           |                              |                               |   |
| chi square = .29 |                           |                              |                               | N.S.  |

Hypothesis 5. More Early School Leavers will come from rural than urban areas.

This hypothesis is rejected as Table XIV indicates.

Results show that for both Maori and total samples, leavers are significantly more often from urban areas than rural areas. The difference in early leaving between rural and urban non-Maori pupils is not significant. Hypothesis 5 is not supported.

Table XIV

Location of School and Early School Leaving

| <u>Maori</u>           | <u>Continuers</u> | <u>Leavers</u> | <u>Totals</u> |
|------------------------|-------------------|----------------|---------------|
| Rural                  | 27                | 7              | 34            |
| Urban                  | <u>9</u>          | <u>14</u>      | <u>23</u>     |
| Sub-totals             | 36                | 21             | 57            |
| chi square = 9.57 **   |                   | df = 1         |               |
| <u>Non-Maori</u>       |                   |                |               |
| Rural                  | 76                | 7              | 83            |
| Urban                  | <u>79</u>         | <u>13</u>      | <u>92</u>     |
| Sub-totals             | 155               | 20             | 175           |
| chi square = 1.40 N.S. |                   | df = 1         |               |
| <u>Total</u>           |                   |                |               |
| Rural                  | 103               | 14             | 117           |
| Urban                  | <u>88</u>         | <u>27</u>      | <u>115</u>    |
| Sub-totals             | 191               | 41             | 232           |
| chi square = 5.28 *    |                   | df = 1         |               |

\* sig. for  $p = 0.05$

\*\* sig. for  $p = 0.01$

Factors of Intelligence and Attainments

Factors of Intelligence

Hypothesis 6. There will be a negative relationship between scores on intelligence tests and early school leaving.

Table XV shows that the hypothesis is upheld when

I.Q. scores are examined by sex. Male leavers scored significantly lower on both verbal and performance intelligence tests than male continuers. The same pattern is in evidence when female early school leavers are compared on both verbal and performance intelligence tests to females who are continuing their schooling.

Table XV

I.Q.'s of Early School Leavers and Continuers by Sex

|                  | <u>Male</u>    |                   | <u>Female</u>  |                   |
|------------------|----------------|-------------------|----------------|-------------------|
|                  | <u>Leavers</u> | <u>Continuers</u> | <u>Leavers</u> | <u>Continuers</u> |
| Verbal I.Q.      | 94.33          | 105.33            | 99.65          | 108.37            |
| S.D.             | 11.94          | 15.59             | 15.69          | 18.69             |
| Number           | 21             | 89                | 20             | 102               |
|                  | t=3.13 **      |                   | t=2.47 *       |                   |
| One tailed test  | df = 109       |                   | df = 121       |                   |
| Performance I.Q. | 91.76          | 104.15            | 93.95          | 105.29            |
| S.D.             | 13.69          | 18.79             | 12.50          | 13.82             |
| Number           | 21             | 89                | 20             | 102               |
|                  | t=2.94 **      |                   | t=3.37 ***     |                   |
| One tailed test  | df = 109       |                   | df = 121       |                   |

\* sig. for p = 0.05

\*\* sig. for p = 0.01

\*\*\* sig. for p = 0.001

When the hypothesis is tested by comparing Maori leavers to Maori continuers the differences between them are not significant on verbal I.Q. tests but are significant for performance I.Q. tests. Table XVI indicates that non-Maori leavers scored significantly lower than non-Maori continuers in both verbal and

performance intelligence tests.

All school leavers are significantly lower on both verbal and performance I.Q. tests than continuers. Hypothesis 6 is on the whole confirmed by these results.

Table XVI

I.Q.'s of Early School Leavers and Continuers by Race

|                    | <u>Maori</u>   |                         | <u>Non-Maori</u> |                         | <u>All</u>     |                         |
|--------------------|----------------|-------------------------|------------------|-------------------------|----------------|-------------------------|
|                    | <u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Leavers</u>   | <u>Cont-<br/>inuers</u> | <u>Leavers</u> | <u>Cont-<br/>inuers</u> |
| Verbal             |                |                         |                  |                         |                |                         |
| I.Q.               | 93.58          | 94.89                   | 101.70           | 109.75                  | 96.93          | 106.95                  |
| S.D.               | 9.85           | 20.55                   | 16.49            | 15.29                   | 14.26          | 17.40                   |
| Number             | 21             | 36                      | 20               | 155                     | 41             | 191                     |
|                    | t= .31         | N.S.                    | t=2.28 *         |                         | t=2.99 **      |                         |
| One tailed<br>test | df = 56        |                         | df = 174         |                         | df = 231       |                         |
| Performance        |                |                         |                  |                         |                |                         |
| I.Q.               | 87.38          | 97.19                   | 98.55            | 106.52                  | 92.83          | 104.76                  |
| S.D.               | 9.22           | 17.52                   | 14.22            | 15.50                   | 13.16          | 16.35                   |
| Number             | 21             | 36                      | 20               | 155                     | 41             | 191                     |
|                    | t=2.31 *       |                         | t=2.26 *         |                         | t=4.95 ***     |                         |
| One tailed<br>test | df = 56        |                         | df = 174         |                         | df = 231       |                         |

\* sig. for p = 0.05

\*\* sig. for p = 0.01

\*\*\* sig. for p = 0.001

Hypothesis 7. There will be a negative relationship between reading ability and early school leaving.

Early school leavers scored significantly lower on tests of reading comprehension than continuers. Reference to Table XVII shows that Maori early leavers are poorer readers than Maori pupils staying on. Non-Maori leavers also have poorer reading comprehension

than non-Maori continuers. When the sex of the early school leaver is considered, male early school leavers are found to be significantly lower than male continuers. The difference between female leavers and female continuers is also significant. When all the leavers are compared to all the continuers it is found that early school leavers are significantly poorer readers than pupils continuing. Hypothesis 7 is supported by the results.

Table XVII

Reading Comprehension and Early School Leaving

| <u>Sex</u>       | <u>Male</u>    |                         | <u>Female</u>    |                         |                |                         |
|------------------|----------------|-------------------------|------------------|-------------------------|----------------|-------------------------|
|                  | <u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Leavers</u>   | <u>Cont-<br/>inuers</u> |                |                         |
| Percentile mean  | 21.52          | 45.13                   | 33.60            | 52.51                   |                |                         |
| S.D.             | 17.57          | 28.16                   | 23.78            | 28.71                   |                |                         |
| Number           | 21             | 89                      | 20               | 102                     |                |                         |
|                  | t=3.80 ***     |                         | t=2.74 **        |                         |                |                         |
| One tailed tests | df = 109       |                         | df = 121         |                         |                |                         |
| <u>Race</u>      | <u>Maori</u>   |                         | <u>Non-Maori</u> |                         | <u>All</u>     |                         |
|                  | <u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Leavers</u>   | <u>Cont-<br/>inuers</u> | <u>Leavers</u> | <u>Cont-<br/>inuers</u> |
| Percentile mean  | 20.38          | 32.72                   | 34.80            | 52.86                   | 27.41          | 49.05                   |
| S.D.             | 18.35          | 25.31                   | 22.45            | 28.11                   | 21.69          | 22.42                   |
| Number           | 21             | 36                      | 20               | 155                     | 41             | 191                     |
|                  | t=1.90 *       |                         | t=2.86 **        |                         | t=5.14 ***     |                         |
| One tailed tests | df = 56        |                         | df = 174         |                         | df = 231       |                         |

\* sig. for  $p = 0.05$  \*\* sig. for  $p = 0.01$

\*\*\* sig. for  $p = 0.001$

### Prediction of Early School Leaving

Hypothesis 8. Early school leavers will score significantly higher on the negative items dealing with school interest than pupils who continue after reaching the school leaving age.

Table XVIII compares the scores on the School Interest Inventory of the early school leaver with the pupils that continue. Maori male leavers scored significantly higher than Maori male continuers. The difference between Non-Maori male leavers and continuers is also significant. Significant differences are found for all the male leavers when compared to all the male continuers. The difference between non-Maori female leavers and continuers is not significant, nor was the difference between Maori female leavers and Maori female continuers. The hypothesis is partially upheld as all female and all male leavers scored significantly higher on negative items of school interest. Hypothesis 8 is only partially supported.

Table XVIIISchool Interest and Early School Leaving

| <u>Male</u>            | <u>Maori</u>   |                         | <u>Non-Maori</u> |                         | <u>Total</u>   |                         |
|------------------------|----------------|-------------------------|------------------|-------------------------|----------------|-------------------------|
|                        | <u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Leavers</u>   | <u>Cont-<br/>inuers</u> | <u>Leavers</u> | <u>Cont-<br/>inuers</u> |
| Mean                   | 38.67          | 28.15                   | 30.67            | 24.41                   | 35.24          | 25.25                   |
| S.D.                   | 7.36           | 10.75                   | 6.31             | 9.31                    | 7.99           | 9.77                    |
| Number                 | 12             | 20                      | 9                | 69                      | 21             | 89                      |
|                        | t=2.92 **      |                         | t=1.91 *         |                         | t=4.50 ***     |                         |
| One<br>Tailed<br>tests | df = 31        |                         | df = 77          |                         | df = 109       |                         |
| <u>Female</u>          |                |                         |                  |                         |                |                         |
| Mean                   | 34.73          | 29.75                   | 22.55            | 20.49                   | 28.05          | 21.94                   |
| S.D.                   | 9.45           | 8.10                    | 8.93             | 7.63                    | 11.01          | 8.41                    |
| Number                 | 9              | 16                      | 11               | 86                      | 20             | 102                     |
|                        | t=1.35 N.S.    |                         | t=.85 N.S.       |                         | t=2.78 **      |                         |
| One<br>Tailed<br>tests | df = 24        |                         | df = 96          |                         | df = 121       |                         |

\* sig. for  $p = 0.05$     \*\* sig. for  $p = 0.01$

\*\*\* sig. for  $p = 0.001$

Hypothesis 9. There will be a negative relationship between positive attitudes toward school and dropping out of school.

Positive attitudes toward school were defined as a pupil liking most of his subjects, having a feeling about school that it is satisfactory or very satisfactory, and having a desire to continue at school. Tables XIX, XX, and XXI show the results of the three questions. Table XIX indicates no significant differences are found between the school leaver and the pupils that continued in regard to the percentage of subjects liked except male continuers like more subjects than leavers.

Table XIXThe Percentage of subjects liked and Early School Leaving

| <u>By Sex</u>    | <u>Male</u>    |                   | <u>Female</u>  |                   |
|------------------|----------------|-------------------|----------------|-------------------|
|                  | <u>Leavers</u> | <u>Continuers</u> | <u>Leavers</u> | <u>Continuers</u> |
| Mean             | 48.10          | 63.11             | 72.42          | 63.41             |
| S.D.             | 18.24          | 24.52             | 29.39          | 21.07             |
| Number           | 20             | 89                | 19             | 100               |
|                  | t=2.74         | **                | t=1.45         | N.S.              |
| One tailed tests | df = 108       |                   | df = 118       |                   |

  

| <u>By Race</u>   | <u>Maori</u>   |                         | <u>Non-Maori</u> |                         | <u>All</u>     |                         |
|------------------|----------------|-------------------------|------------------|-------------------------|----------------|-------------------------|
|                  | <u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Leavers</u>   | <u>Cont-<br/>inuers</u> | <u>Leavers</u> | <u>Cont-<br/>inuers</u> |
| Mean             | 52.45          | 56.83                   | 67.74            | 64.01                   | 59.90          | 63.27                   |
| S.D.             | 28.45          | 29.32                   | 23.31            | 25.20                   | 27.17          | 25.21                   |
| Number           | 20             | 36                      | 19               | 153                     | 39             | 189                     |
|                  | t=.61          | N.S.                    | t=.63            | N.S.                    | t=.63          | N.S.                    |
| One tailed tests | df = 55        |                         | df = 171         |                         | df = 227       |                         |

\*\* sig. for p = 0.01

Table XX shows no significant differences are found between leavers and continuers when they are asked how they felt about high school - very satisfied, satisfied, indifferent or dissatisfied.

Table XXAttitude towards High School and Early School Leaving

| <u>Sex</u>                           | <u>Male</u>    |                   | <u>Female</u>     |                   |
|--------------------------------------|----------------|-------------------|-------------------|-------------------|
|                                      | <u>Leavers</u> | <u>Continuers</u> | <u>Leavers</u>    | <u>Continuers</u> |
| Satisfied or<br>Very sat-<br>isfied. | 17             | 74                | 14                | 90                |
| Indifferent<br>or<br>dissatisfied    | <u>4</u>       | <u>15</u>         | <u>6</u>          | <u>12</u>         |
| Number                               | 21             | 89                | 20                | 102               |
| chi square = .00                     | N.S.           |                   | chi square = 3.09 | N.S.              |
|                                      | df = 1         |                   | df = 1            |                   |

| <u>Race</u>                          | <u>Maori</u>   |                         | <u>Non-Maori</u> |                         | <u>All</u>     |                         |
|--------------------------------------|----------------|-------------------------|------------------|-------------------------|----------------|-------------------------|
|                                      | <u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Leavers</u>   | <u>Cont-<br/>inuers</u> | <u>Leavers</u> | <u>Cont-<br/>inuers</u> |
| Satisfied or<br>very sat-<br>isfied. | 15             | 29                      | 16               | 135                     | 31             | 164                     |
| Indifferent<br>or<br>dissatisfied    | <u>6</u>       | <u>7</u>                | <u>4</u>         | <u>20</u>               | <u>10</u>      | <u>27</u>               |
| Number                               | 21             | 36                      | 20               | 155                     | 41             | 191                     |
| chi square = .63                     | N.S.           |                         | chi square = .27 | chi square = 2.65       | N.S.           |                         |
|                                      | df = 1         |                         | df = 1           | df = 1                  | N.S.           |                         |

Table XXI shows that the only question showing any tendency at all to uphold the hypothesis is "if the choice were entirely yours would you quit high school right now?". Female leavers answered this question differently than female pupils continuing. However when all other groups of leavers are compared to continuers significant differences are found. No significant differences are found in the question where quitting high school is considered between Maori leavers and continuers, non-Maori leavers and continuers, or when male leavers

are compared to male continuers. These results indicate that Hypothesis 9 is only partially upheld.

Table XXI

The Desire to Leave School at Fourteen and Leaving at Fifteen

"If the choice were entirely yours would you quit high school right now?"

| <u>Leavers by sex</u> | <u>Male</u>    |                   | <u>Female</u>     |                   |
|-----------------------|----------------|-------------------|-------------------|-------------------|
|                       | <u>Leavers</u> | <u>Continuers</u> | <u>Leavers</u>    | <u>Continuers</u> |
| Yes or not sure       | 7              | 14                | 8                 | 12                |
| No                    | <u>14</u>      | <u>75</u>         | <u>12</u>         | <u>90</u>         |
| Number                | 21             | 89                | 20                | 102               |
| chi square = 3.41     | N.S.           |                   | chi square = 9.73 | **                |
|                       | df = 1         |                   | df = 1            |                   |

| <u>Leavers by</u> | <u>Maori</u>   |                         | <u>Non-Maori</u>  |                         | <u>All</u>     |                         |
|-------------------|----------------|-------------------------|-------------------|-------------------------|----------------|-------------------------|
|                   | <u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Leavers</u>    | <u>Cont-<br/>inuers</u> | <u>Leavers</u> | <u>Cont-<br/>inuers</u> |
| Yes or not sure   | 11             | 10                      | 4                 | 16                      | 15             | 26                      |
| No                | <u>10</u>      | <u>26</u>               | <u>16</u>         | <u>139</u>              | <u>26</u>      | <u>165</u>              |
| Number            | 21             | 36                      | 20                | 155                     | 41             | 191                     |
| chi square = 3.45 | N.S.           |                         | chi square = 1.64 | N.S.                    |                | chi square = 12.24 ***  |
|                   | df = 1         |                         | df = 1            |                         | df = 1         |                         |

\*\* sig. for p = 0.01

\*\*\* sig. for p = 0.001

Hypothesis 10. There will be a positive relationship between plans (at fourteen) to have three years at high school and continuing at school after attaining the age of fifteen.

Results as shown in Table XXII indicates that school continuers are able to say much more successfully than school leavers what their plans will be in a year's time.

Significant differences are found for male continuers, female continuers and all continuers when compared to school leavers. The non-Maori continuer is significantly more able to predict his actual educational behaviour than the non-Maori leaver. These results would indicate that although on the whole the school continuers are able to predict successfully their educational behaviour, the early school leavers are on the whole not able to predict whether they will remain or leave school. The results are not significant for Maori pupils but all other categories upheld Hypothesis 10.

Table XXII

Plans to Spend 3 years at High School and Early School

Leaving

"Do you plan to spend three years at High School?"

| <u>Sex</u>     | <u>Male</u><br><u>Leavers</u> | <u>Continuers</u> | <u>Female</u><br><u>Leavers</u> | <u>Continuers</u> |
|----------------|-------------------------------|-------------------|---------------------------------|-------------------|
| Yes            | 11                            | 77                | 12                              | 83                |
| No or not sure | <u>10</u>                     | <u>12</u>         | <u>8</u>                        | <u>19</u>         |
| Number         | 21                            | 89                | 20                              | 102               |

chi square = 12.37\*\*\* df = 1    chi square = 4.43\* df = 1

| <u>Race</u>    | <u>Maori</u><br><u>Leavers</u> | <u>Cont-</u><br><u>inuers</u> | <u>Non-Maori</u><br><u>Leavers</u> | <u>Cont-</u><br><u>inuers</u> | <u>All</u><br><u>Leavers</u> | <u>Cont-</u><br><u>inuers</u> |
|----------------|--------------------------------|-------------------------------|------------------------------------|-------------------------------|------------------------------|-------------------------------|
| Yes            | 9                              | 24                            | 14                                 | 136                           | 23                           | 160                           |
| No or not sure | <u>12</u>                      | <u>12</u>                     | <u>6</u>                           | <u>19</u>                     | <u>18</u>                    | <u>31</u>                     |
| Number         | 21                             | 36                            | 20                                 | 155                           | 41                           | 191                           |

chi square = 3.08 N.S.    chi square = 4.55 \*    chi square = 15.51 \*\*\*

df = 1

df = 1

df = 1

\* sig. for p = 0.05    \*\*\* sig. for P = 0.001

## Hypotheses Regarding the Family of the Early School

### Leaver

Hypothesis 11. When compared to pupils who continue at school the early school leaver will come from a home with a larger number of children in the family.

Table XXIII shows that the hypothesis is upheld. Non-Maori leavers have significantly larger numbers of children in the family than non-Maori pupils who continued in high school. The difference between Maori leavers and Maori continuers is also significant. The number of children per family is particularly significant when all leavers are compared to all continuers. Hypothesis 11 is supported.

Table XXIII

### The Number of Children in the Family and Early School

|        | <u>Maori</u>   |                         | <u>Leaving.</u><br><u>Non-Maori</u> |                         | <u>All</u>     |                         |
|--------|----------------|-------------------------|-------------------------------------|-------------------------|----------------|-------------------------|
|        | <u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Leavers</u>                      | <u>Cont-<br/>inuers</u> | <u>Leavers</u> | <u>Cont-<br/>inuers</u> |
| Mean   | 7.81           | 6.11                    | 6.50                                | 4.45                    | 7.17           | 4.76                    |
| S.D.   | 3.23           | 3.31                    | 4.64                                | 1.27                    | 4.04           | 1.96                    |
| Number | 21             | 36                      | 20                                  | 155                     | 41             | 191                     |
|        | t = 1.83 *     |                         | t = 4.53 ***                        |                         | t = 6.44 ***   |                         |
|        | df = 56        |                         | df = 174                            |                         | df = 231       |                         |

\* sig. for  $p = 0.05$

\*\*\* sig. for  $p = 0.001$

Hypothesis 12. There will be no difference between school leavers and pupils continuing with regard to their mother's employment.

Table XXIV shows that there are no significant differences between the employment of mothers of leavers and continuers. Hypothesis 12 is supported.

Table XXIV

Mother's Employment and Early School Leaving"Has your mother a paid job?"

| <u>Sex</u> | <u>Male</u>    |                   | <u>Female</u>  |                   |
|------------|----------------|-------------------|----------------|-------------------|
|            | <u>Leavers</u> | <u>Continuers</u> | <u>Leavers</u> | <u>Continuers</u> |
| Yes        | 10             | 40                | 8              | 43                |
| No         | <u>11</u>      | <u>46</u>         | <u>11</u>      | <u>56</u>         |
| Number     | 21             | 86                | 19             | 99                |

chi square = .01 N.S.      chi square = .01 N.S.

df = 1

df = 1

| <u>Race</u> | <u>Maori</u>   |                         | <u>Non-Maori</u> |                         | <u>All</u>     |                         |
|-------------|----------------|-------------------------|------------------|-------------------------|----------------|-------------------------|
|             | <u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Leavers</u>   | <u>Cont-<br/>inuers</u> | <u>Leavers</u> | <u>Cont-<br/>inuers</u> |
| Yes         | 9              | 15                      | 9                | 68                      | 18             | 83                      |
| No          | <u>12</u>      | <u>18</u>               | <u>10</u>        | <u>84</u>               | <u>22</u>      | <u>102</u>              |
| Number      | 21             | 33                      | 19               | 152                     | 40             | 185                     |

chi square = .04 N.S.      chi square = .05 N.S.      chi square = .00 N.S.

df = 1

df = 1

df = 1

Hypothesis 13. Early school leavers will be more likely to see their parents as wanting them to leave school or not caring whether they continue at school after having reached the age of fifteen.

Table XXV shows that the parents' attitude as seen by the pupil is clearly related to the early school leaving of the Non-Maori pupil. This is not found to be true for the Maori early school leaver. The results for the leaver, the female leaver, and all leavers, are not statistically significant when they are compared to the continuer. Hypothesis 13 can only be upheld for non-Maori pupils.

Table XXVPupils View of Parents Attitude toward Early School

|                         | <u>Leaving</u>                |                   |                                 |                   |
|-------------------------|-------------------------------|-------------------|---------------------------------|-------------------|
| <u>Sex</u>              | <u>Male</u><br><u>Leavers</u> | <u>Continuers</u> | <u>Female</u><br><u>Leavers</u> | <u>Continuers</u> |
| Three years             | 8                             | 51                | 11                              | 67                |
| Do not care<br>or leave | <u>13</u>                     | <u>38</u>         | <u>9</u>                        | <u>35</u>         |
| Number                  | 21                            | 89                | 20                              | 102               |
| Chi square = 2.52 N.S.  |                               |                   | Chi square = .83 N.S.           |                   |
| df = 1                  |                               |                   | df = 1                          |                   |

  

| <u>Race</u>               | <u>Maori</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Non-Maori</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>All</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u>   |
|---------------------------|--------------------------------|-------------------------|------------------------------------|-------------------------|------------------------------|---------------------------|
| Three years               | 7                              | 20                      | 12                                 | 98                      | 19                           | 115                       |
| Do not care<br>or leave   | <u>14</u>                      | <u>16</u>               | <u>8</u>                           | <u>57</u>               | <u>22</u>                    | <u>73</u>                 |
| Number                    | 21                             | 36                      | 20                                 | 155                     | 41                           | 188                       |
| chi<br>square = 2.63 N.S. |                                |                         | chi<br>square = 27.08 ***          |                         |                              | chi<br>square = 3.33 N.S. |
| df = 1                    |                                |                         | df = 1                             |                         |                              | df = 1                    |

\*\*\* sig. for  $p = 0.001$

Hypothesis 14. The father's of early school leavers rather than continuers are more likely to be "bluecollar" (unskilled or semi-skilled workers) than "whitecollar" (sales, office, manager, or professional worker.)

Table XXVI shows that the Maori children of "white collar" workers are all found to be continuers. However such a large number of leavers and continuers are the children of "blue collar" workers that the differences between the two groups is not significant. Nor are there significant differences between the non-Maori leavers and continuers. Only when all the leavers and continuers

are considered does the "blue or white collariness" of their father's occupation even approach a significant level. Hypothesis 14 is not confirmed.

Table XXVI

Father's Occupation and Early School Leavers

| <u>Race</u>       | <u>Maori</u>      |                         | <u>Non-Maori</u>   |                         | <u>All</u>     |                         |
|-------------------|-------------------|-------------------------|--------------------|-------------------------|----------------|-------------------------|
|                   | <u>Leavers</u>    | <u>Cont-<br/>inuers</u> | <u>Leavers</u>     | <u>Cont-<br/>inuers</u> | <u>Leavers</u> | <u>Cont-<br/>inuers</u> |
| Blue Collar       | 12                | 21                      | 6                  | 28                      | 18             | 49                      |
| White Collar      | <u>0</u>          | <u>4</u>                | <u>5</u>           | <u>39</u>               | <u>5</u>       | <u>43</u>               |
| Number            | 12                | 25                      | 11                 | 67                      | 23             | 92                      |
| chi               | chi               |                         | chi                |                         | chi            |                         |
| square = .81 N.S. | square = .21 N.S. |                         | square = 3.50 N.S. |                         |                |                         |
| df = 1            | df = 1            |                         | df = 1             |                         |                |                         |

Factors Relating to Health and Early School Leaving

Hypothesis 15. Those pupils who have a history of hearing deficiency are more likely to be early school leavers than continuers.

This prediction is only partially upheld. Table XXVII shows it is upheld for male leavers but not female leavers. Maori early leavers neared significance for audio-history but less relationship is found for the non-Maori leaver. When all leavers are considered, leavers are more likely to have a history of a hearing loss than pupils who continue on at school. The results do not confirm the hypothesis for females, Maori, or non-Maori leavers. The hypothesis is upheld for male leavers when compared to male continuers, and also upheld when all leavers are compared to all continuers.

Hypothesis 15 is partially upheld.

Table XXVIIAudio History and Early School Leaving

| <u>Sex</u> | <u>Male</u><br><u>Leavers</u> | <u>Continuers</u> | <u>Female</u><br><u>Leavers</u> | <u>Continuers</u> |
|------------|-------------------------------|-------------------|---------------------------------|-------------------|
|------------|-------------------------------|-------------------|---------------------------------|-------------------|

|                             |   |   |   |   |
|-----------------------------|---|---|---|---|
| History of<br>Audio failure | 6 | 6 | 2 | 4 |
|-----------------------------|---|---|---|---|

|                        |           |           |           |           |
|------------------------|-----------|-----------|-----------|-----------|
| Clear audio<br>history | <u>13</u> | <u>74</u> | <u>17</u> | <u>90</u> |
|------------------------|-----------|-----------|-----------|-----------|

|        |    |    |    |    |
|--------|----|----|----|----|
| Number | 19 | 80 | 19 | 94 |
|--------|----|----|----|----|

chi square = 8.36 \*\*      chi square = 1.24 N.S.

df = 1                      df = 1

| <u>Race</u> | <u>Maori</u><br><u>Leavers</u> | <u>Cont-</u><br><u>inuers</u> | <u>non-Maori</u><br><u>Leavers</u> | <u>Cont-</u><br><u>inuers</u> | <u>All</u><br><u>Leavers</u> | <u>Cont-</u><br><u>inuers</u> |
|-------------|--------------------------------|-------------------------------|------------------------------------|-------------------------------|------------------------------|-------------------------------|
|-------------|--------------------------------|-------------------------------|------------------------------------|-------------------------------|------------------------------|-------------------------------|

|                             |   |   |   |   |   |    |
|-----------------------------|---|---|---|---|---|----|
| History of<br>Audio failure | 6 | 2 | 2 | 8 | 8 | 10 |
|-----------------------------|---|---|---|---|---|----|

|                        |           |           |           |            |           |            |
|------------------------|-----------|-----------|-----------|------------|-----------|------------|
| Clear audio<br>history | <u>15</u> | <u>32</u> | <u>15</u> | <u>132</u> | <u>30</u> | <u>164</u> |
|------------------------|-----------|-----------|-----------|------------|-----------|------------|

|        |    |    |    |     |    |     |
|--------|----|----|----|-----|----|-----|
| Number | 21 | 34 | 17 | 140 | 38 | 174 |
|--------|----|----|----|-----|----|-----|

|                           |                          |                         |
|---------------------------|--------------------------|-------------------------|
| chi<br>square = 3.71 N.S. | chi<br>square = .19 N.S. | chi<br>square = 9.40 ** |
|---------------------------|--------------------------|-------------------------|

|        |        |        |
|--------|--------|--------|
| df = 1 | df = 1 | df = 1 |
|--------|--------|--------|

\*\* sig. for p = 0.01

Hypothesis 16.      There will be a positive relationship  
between poor school attendance and dropping out of  
school.

Results as given in Table XXVIII fail to confirm the hypothesis. Although leavers on the whole are poorer school attenders than those who continue, the differences between them are not significant. Hypothesis 16 is not supported.

Table XXVIIIAttendance and Early School Leaving

| <u>Sex</u>        | <u>Male</u><br><u>Leavers</u> | <u>Continuers</u> | <u>Female</u><br><u>Leavers</u> | <u>Continuers</u> |
|-------------------|-------------------------------|-------------------|---------------------------------|-------------------|
| Mean in half days | 11.76                         | 11.85             | 14.05                           | 12.31             |
| S.D.              | 13.87                         | 17.48             | 13.11                           | 16.46             |
| Number            | 21                            | 89                | 20                              | 100               |
|                   | t = .03 N.S.                  |                   | t = .45 N.S.                    |                   |
| Two tailed tests  | df = 109                      |                   | df = 119                        |                   |

| <u>Race</u>       | <u>Maori</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Non-Maori</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>All</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> |
|-------------------|--------------------------------|-------------------------|------------------------------------|-------------------------|------------------------------|-------------------------|
| Mean in half days | 14.05                          | 16.28                   | 11.65                              | 11.26                   | 12.88                        | 11.97                   |
| S.D.              | 14.13                          | 18.48                   | 12.85                              | 16.47                   | 13.58                        | 16.90                   |
| Number            | 21                             | 36                      | 20                                 | 153                     | 41                           | 189                     |
|                   | t = .46 N.S.                   |                         | t = .11 N.S.                       |                         | t = .54 N.S.                 |                         |

|                  |         |          |          |
|------------------|---------|----------|----------|
| Two tailed tests | df = 56 | df = 172 | df = 229 |
|------------------|---------|----------|----------|

Other School Factors Related to Early School Leaving

Hypothesis 17. There will be a positive relationship between form retardation and early school leaving.

It can be seen in Table XXIX that there are no significant differences for form retardation between school leavers and continuers except for female. Significant differences are not found for male leavers, Maori leavers, non-Maori leavers, nor total leavers when compared to continuers. Thus on the whole hypothesis 17 is not upheld.

Table XXIXForm Retardation and Early School Leaving

| <u>Sex</u>    | <u>Male</u><br><u>Leavers</u> | <u>Continuers</u> | <u>Female</u><br><u>Leavers</u> | <u>Continuers</u> |
|---------------|-------------------------------|-------------------|---------------------------------|-------------------|
| Form Retarded | 9                             | 33                | 8                               | 27                |
| Normal Form   | <u>12</u>                     | <u>56</u>         | <u>12</u>                       | <u>75</u>         |
| Number        | 21                            | 89                | 20                              | 102               |

chi square = .24 N.S. chi square = 15.18 \*\*\*

df = 1

df = 1

| <u>Race</u>   | <u>Maori</u><br><u>Leavers</u> | <u>Cont-</u><br><u>inuers</u> | <u>Non-Maori</u><br><u>Leavers</u> | <u>Cont-</u><br><u>inuers</u> | <u>All</u><br><u>Leavers</u> | <u>Cont-</u><br><u>inuers</u> |
|---------------|--------------------------------|-------------------------------|------------------------------------|-------------------------------|------------------------------|-------------------------------|
| Form Retarded | 12                             | 18                            | 5                                  | 42                            | 17                           | 60                            |
| Normal Form   | <u>9</u>                       | <u>18</u>                     | <u>15</u>                          | <u>113</u>                    | <u>24</u>                    | <u>131</u>                    |
| Number        | 21                             | 36                            | 20                                 | 155                           | 41                           | 191                           |

chi square = .27 N.S. chi square = .00 N.S. chi square = 1.54 N.S.

df = 1

df = 1

df = 1

\*\*\* sig. for p = .001

Hypothesis 18. Early School leavers are more likely to have lower vocational aspirations than continuers.

Continuers are more likely to aspire to vocations that require some form of higher education.

While the results for Maori only approach statistical significance Table XXX indicates that few leavers plan, at the age of 14, to take a job requiring some form of higher education. Results are significant for non-Maori and for the total sample. The difference is also significant when data are grouped by sex. On the whole Hypothesis 18 is supported except for the Maori.

Table XXXVocational Plans and Early School Leaving

| <u>Sex</u>                      | <u>Male</u><br><u>Leavers</u> | <u>Continuers</u> | <u>Female</u><br><u>Leavers</u> | <u>Continuers</u> |
|---------------------------------|-------------------------------|-------------------|---------------------------------|-------------------|
| Jobs requiring higher education | 1                             | 35                | 3                               | 48                |
| Other jobs or not sure          | <u>20</u>                     | <u>54</u>         | <u>17</u>                       | <u>54</u>         |
| Number                          | 21                            | 89                | 20                              | 102               |
| chi square = 7.72 **            | chi square = 5.81 *           |                   |                                 |                   |
| df = 1                          | df = 1                        |                   |                                 |                   |

| <u>Race</u>                     | <u>Maori</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Non-Maori</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>All</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> |
|---------------------------------|--------------------------------|-------------------------|------------------------------------|-------------------------|------------------------------|-------------------------|
| Jobs requiring higher education | 2                              | 10                      | 2                                  | 73                      | 4                            | 83                      |
| Other jobs or not sure          | <u>19</u>                      | <u>26</u>               | <u>18</u>                          | <u>82</u>               | <u>37</u>                    | <u>108</u>              |
| Number                          | 21                             | 36                      | 20                                 | 155                     | 41                           | 191                     |
| chi square = 1.92 N.S.          | chi square = 8.50 **           |                         | chi square = 14.95 ***             |                         |                              |                         |
| df = 1                          | df = 1                         |                         | df = 1                             |                         |                              |                         |

\* sig. for  $p = 0.05$

\*\* sig. for  $p = 0.01$

\*\*\* sig. for  $p = 0.001$

Hypothesis 19. Fewer early school leavers than continuers will plan to attempt School Certificate Examinations.

Results generally supported hypothesis 19. Table XXXI shows that fewer male and female early school leavers planned to try to obtain School Certificate. Results for the Maori only approached significance at the .10 level. However the School Certificate plans of non-Maori

pupils for all leavers and continuers is very significant at the .001 level. Hypothesis 19 is upheld except for the Maori.

Table XXXI

Plans to Attempt School Certificate and Early School

|                        | <u>Leaving</u>                |                   |                                 |                   |
|------------------------|-------------------------------|-------------------|---------------------------------|-------------------|
| <u>Sex</u>             | <u>Male</u><br><u>Leavers</u> | <u>Continuers</u> | <u>Female</u><br><u>Leavers</u> | <u>Continuers</u> |
| Less than S.C.         | 15                            | 23                | 9                               | 17                |
| S.C. or better         | <u>6</u>                      | <u>66</u>         | <u>11</u>                       | <u>85</u>         |
| Number                 | 21                            | 89                | 20                              | 102               |
| chi square = 15.62 *** | chi square = 8.00 **          |                   |                                 |                   |
| df = 1                 | df = 1                        |                   |                                 |                   |

  

| <u>Race</u>            | <u>Maori</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>Non-Maori</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> | <u>All</u><br><u>Leavers</u> | <u>Cont-<br/>inuers</u> |
|------------------------|--------------------------------|-------------------------|------------------------------------|-------------------------|------------------------------|-------------------------|
| Less than S.C.         | 14                             | 15                      | 10                                 | 25                      | 24                           | 40                      |
| S.C. or better         | <u>7</u>                       | <u>21</u>               | <u>10</u>                          | <u>130</u>              | <u>17</u>                    | <u>151</u>              |
| Number                 | 21                             | 36                      | 20                                 | 155                     | 41                           | 191                     |
| chi square = 3.32 N.S. | chi square = 12.70 ***         |                         | chi square = 23.88 ***             |                         |                              |                         |
| df = 1                 | df = 1                         |                         | df = 1                             |                         |                              |                         |

\*\* sig. for p = 0.05

\*\*\* sig. for p = 0.001

Hypothesis 20. There will be a negative relationship between early school leaving and personality adjustment.

Reference to Table XXXII shows that on the whole, there are few significant differences in personality adjustment for Maori pupils. Significant differences are found between Maori leavers and continuers, with

leavers having poorer social standards and social adjustment. When non-Maori leavers are compared to the non-Maori continuers, the leavers show significantly poorer adjustment in withdrawal tendencies, nervous symptoms, total personal adjustment, school relations and grand total adjustment scores.

| N = 20  |                           | Maori<br>N = 36 |        | df=55                     |      | N=20    |                     | Non-Maori<br>N = 152 |        | df= 171 |      |    |
|---------|---------------------------|-----------------|--------|---------------------------|------|---------|---------------------|----------------------|--------|---------|------|----|
| Leavers |                           | Continuers      |        |                           |      | Leavers |                     | Continuers           |        |         |      |    |
| Mean    | S.D.                      | Mean            | S.D.   | t                         |      | Mean    | S.D.                | Mean                 | S.D.   | t       |      |    |
| 1A      | 7.80                      | 2.81            | 7.50   | 2.33                      | .48  |         | 8.55                | 3.18                 | 9.17   | 2.45    | 1.11 |    |
| 1B      | 8.95                      | 3.07            | 8.89   | 2.90                      | .08  |         | 9.15                | 3.82                 | 10.24  | 2.75    | .98  |    |
| 1C      | 8.55                      | 3.16            | 8.83   | 3.14                      | .34  |         | 9.75                | 3.55                 | 10.76  | 2.86    | 1.62 |    |
| 1D      | 10.50                     | 3.50            | 9.86   | 3.18                      | .78  |         | 10.55               | 4.44                 | 11.56  | 3.01    | 1.44 |    |
| 1E      | 8.10                      | 4.36            | 7.53   | 2.38                      | .68  |         | 7.90                | 4.18                 | 9.78   | 3.30    | 2.46 | ** |
| 1F      | 8.45                      | 4.02            | 9.19   | 3.44                      | .77  |         | 10.00               | 3.67                 | 11.43  | 2.59    | 2.41 | ** |
| 1       | 52.35                     | 17.27           | 51.80  | 12.36                     | .16  |         | 55.65               | 19.44                | 62.95  | 14.79   | 2.48 | ** |
| 2A      | 9.20                      | 4.19            | 10.39  | 1.47                      | 1.76 | *       | 11.75               | 3.73                 | 11.82  | 2.40    | .13  |    |
| 2B      | 8.35                      | 3.15            | 9.03   | 2.07                      | 1.10 |         | 10.15               | 3.40                 | 10.17  | 2.38    | .04  |    |
| 2C      | 5.95                      | 3.18            | 5.97   | 2.74                      | .03  |         | 8.40                | 4.01                 | 8.98   | 3.03    | .82  |    |
| 2D      | 8.00                      | 3.88            | 8.63   | 2.90                      | .74  |         | 9.80                | 4.14                 | 10.76  | 3.39    | 1.25 |    |
| 2E      | 7.90                      | 2.58            | 8.69   | 2.08                      | 1.42 |         | 9.30                | 3.38                 | 10.51  | 2.71    | 1.98 | *  |
| 2F      | 10.05                     | 3.58            | 10.83  | 2.22                      | 1.16 |         | 11.05               | 1.95                 | 11.36  | 2.85    | .48  |    |
| 2       | 49.30                     | 16.22           | 53.61  | 7.01                      | 1.75 | *       | 60.30               | 18.24                | 63.61  | 11.21   | 1.29 |    |
| 3       | 101.80                    | 30.35           | 105.35 | 19.11                     | .67  |         | 115.95              | 19.72                | 127.16 | 18.82   | 2.54 | ** |
| 1A      | Self Reliance             |                 |        | 1 Personal Adjustment     |      |         | 2 Social Adjustment |                      |        |         |      |    |
| 1B      | Sense of Personal Worth   |                 |        | 2A Social Standard        |      |         | 3 Total Adjustment  |                      |        |         |      |    |
| 1C      | Sense of Personal Freedom |                 |        | 2B Social Skills          |      |         | One tailed test     |                      |        |         |      |    |
| 1D      | Feeling of Belonging      |                 |        | 2C Anti-Social Tend.(Fdm) |      |         | *sig. for p = 0.05  |                      |        |         |      |    |
| 1E      | Withdrawing Tend. (Fdm)   |                 |        | 2D Family Relations       |      |         | **sig. for p = 0.01 |                      |        |         |      |    |
| 1F      | Nervous Symptoms (Fdm)    |                 |        | 2E School Relations       |      |         |                     |                      |        |         |      |    |
|         |                           |                 |        | 2F Community Relations    |      |         |                     |                      |        |         |      |    |

Table XXXIII shows that when male leavers are compared to male continuers the early school leaver had poorer scores in self reliance, withdrawal symptoms, nervous symptoms, total personal adjustment, social standards, social skills, family relationships, school relationships, community relationships, total social adjustment, and grand total adjustment. When female early school leavers are compared to pupils who continued, it is found that there are significant differences in favour of the pupils continuing school. Female leavers have more withdrawal tendencies, nervous symptoms and poorer total personal adjustment. Early leavers have poorer social standards, nervous symptoms, less social skills, family and school relations, poorer total social adjustment, and poorer grand total adjustment.

Thus both male and female leavers had poorer personal and social adjustment than pupils who continue at high school. These results support hypothesis 20.

TABLE XXIII

Personality Adjustment by Sex Between Early School  
Leavers and Continuers.

| Male<br>N = 21<br>Leavers |                           |       | N = 88<br>Continuers |       |      | df=108                    |  |  | Female<br>N = 49<br>Leavers |       |                      | N = 100<br>Continuers |      |    | df=118 |  |  |
|---------------------------|---------------------------|-------|----------------------|-------|------|---------------------------|--|--|-----------------------------|-------|----------------------|-----------------------|------|----|--------|--|--|
| Mean                      | S.D.                      |       | Mean                 | S.D.  | T    |                           |  |  | Mean                        | S.D.  |                      | Mean                  | S.D. | t  |        |  |  |
| 1A                        | 8.90                      | 2.41  | 8.92                 | 2.25  | 1.72 | *                         |  |  | 8.26                        | 2.95  | 8.79                 | 2.72                  | 1.54 |    |        |  |  |
| 1B                        | 9.10                      | 3.14  | 9.86                 | 2.73  | 1.23 |                           |  |  | 9.00                        | 3.78  | 10.09                | 2.92                  | 1.23 |    |        |  |  |
| 1C                        | 9.57                      | 3.28  | 10.12                | 3.16  | .78  |                           |  |  | 8.42                        | 3.41  | 10.62                | 2.89                  | .78  |    |        |  |  |
| 1D                        | 10.38                     | 3.74  | 10.99                | 3.33  | .78  |                           |  |  | 10.69                       | 4.28  | 11.45                | 2.92                  | .78  |    |        |  |  |
| 1E                        | 8.14                      | 4.39  | 9.63                 | 3.16  | 1.92 | *                         |  |  | 7.84                        | 4.13  | 9.11                 | 3.35                  | 1.92 | *  |        |  |  |
| 1F                        | 9.43                      | 4.12  | 10.83                | 2.71  | 2.09 | *                         |  |  | 9.00                        | 3.67  | 11.16                | 3.03                  | 2.09 | *  |        |  |  |
| 1                         | 54.71                     | 18.41 | 60.36                | 13.60 | 1.82 | *                         |  |  | 53.21                       | 18.50 | 61.22                | 16.20                 | 1.82 | *  |        |  |  |
| 2A                        | 9.52                      | 4.14  | 10.85                | 2.39  | 2.16 | *                         |  |  | 11.53                       | 3.94  | 12.16                | 2.07                  | 2.16 | *  |        |  |  |
| 2B                        | 8.43                      | 3.13  | 9.54                 | 2.37  | 2.00 | *                         |  |  | 10.16                       | 3.46  | 10.31                | 2.32                  | 2.00 | *  |        |  |  |
| 2C                        | 6.14                      | 3.74  | 7.44                 | 2.92  | 1.47 |                           |  |  | 8.32                        | 3.61  | 9.26                 | 3.22                  | 1.85 | *  |        |  |  |
| 2D                        | 8.76                      | 4.50  | 10.37                | 2.84  | 2.04 | *                         |  |  | 8.84                        | 4.12  | 10.37                | 3.74                  | 2.04 | *  |        |  |  |
| 2E                        | 8.05                      | 2.73  | 9.70                 | 2.58  | 2.85 | **                        |  |  | 9.21                        | 3.33  | 10.56                | 2.77                  | 2.85 | ** |        |  |  |
| 2F                        | 9.76                      | 3.36  | 10.98                | 2.77  | 1.92 | *                         |  |  | 11.42                       | 3.87  | 11.50                | 2.73                  | 1.92 | *  |        |  |  |
| 2                         | 50.71                     | 16.66 | 58.88                | 10.83 | 3.17 | ***                       |  |  | 59.47                       | 11.39 | 64.16                | 11.18                 | 3.17 | ** |        |  |  |
| 3                         | 105.43                    | 32.47 | 119.24               | 22.19 | 2.68 | **                        |  |  | 112.68                      | 35.15 | 125.38               | 24.04                 | 2.68 | ** |        |  |  |
| 1A                        | Self Reliance             |       |                      |       |      | 1 Personal Adjustment     |  |  |                             |       | 2 Social Adjustment  |                       |      |    |        |  |  |
| 1B                        | Sense of Personal Worth   |       |                      |       |      | 2A Social Standard        |  |  |                             |       | 3 Total Adjustment   |                       |      |    |        |  |  |
| 1C                        | Sense of Personal Freedom |       |                      |       |      | 2B Social Skills          |  |  |                             |       | One tailed test      |                       |      |    |        |  |  |
| 1D                        | Feeling of Belonging      |       |                      |       |      | 2C Anti-Social Tend.(Fdm) |  |  |                             |       |                      |                       |      |    |        |  |  |
| 1E                        | Withdrawing Tend. (Fdm)   |       |                      |       |      | 2D Family Relations       |  |  |                             |       | * sig.for p= 0.05    |                       |      |    |        |  |  |
| 1F                        | Nervous Symptoms (Fdm)    |       |                      |       |      | 2E School Relations       |  |  |                             |       | ** sig.for p= 0.01   |                       |      |    |        |  |  |
|                           |                           |       |                      |       |      | 2F Community Relations    |  |  |                             |       | *** sig.for p= 0.001 |                       |      |    |        |  |  |

Table XXXIV shows that when all leavers are compared to all pupils who continued, leavers have a significantly poorer adjustment in self reliance, sense of personal freedom, freedom from withdrawal tendencies, freedom from nervous symptoms, and total personal adjustment. Early school leavers have poorer adjustment in social standards, freedom from anti-social tendencies, family relationships, school relationships, community relationships, total social adjustment, and grand total adjustment for the whole test.

TABLE XXXIV

Personality Adjustment of Total Sample between Early Leavers and Continuers

|                              | N = 40<br>Leavers |       | N=188<br>Contin-<br>uers |       | Test<br>of<br>Diff. | df=<br>227 |
|------------------------------|-------------------|-------|--------------------------|-------|---------------------|------------|
|                              | Mean              | S.D.  | Mean                     | S.D.  |                     |            |
| 1A Self Reliance             | 8.18              | 2.29  | 8.85                     | 3.09  | 1.79 *              |            |
| 1B Sense of Personal Worth   | 9.50              | 2.70  | 9.98                     | 2.83  | 1.25                |            |
| 1C Sense of Personal Freedom | 9.25              | 1.66  | 10.39                    | 3.02  | 2.67 **             |            |
| 1D Feeling of Belonging      | 10.53             | 3.09  | 11.23                    | 2.86  | 1.48                |            |
| 1E Withdrawing Tend. (Fdm)   | 8.00              | 3.76  | 9.36                     | 3.26  | 2.69 **             |            |
| 1F Nervous Symptoms (Fdm)    | 9.23              | 3.21  | 11.01                    | 2.91  | 4.02 ***            |            |
| 1 Personal Adjustment        | 54.00             | 13.34 | 60.82                    | 15.04 | 3.06 **             |            |
| 2A Social Standard           | 10.48             | 3.30  | 11.54                    | 2.31  | 2.82 **             |            |
| 2B Social Skills             | 9.25              | 2.59  | 9.95                     | 2.37  | 1.22                |            |
| 2C Anti-Social Tend.(Fdm)    | 7.18              | 3.35  | 8.41                     | 3.21  | 2.52 **             |            |
| 2D Family Relations          | 8.80              | 3.72  | 10.37                    | 3.35  | 3.04 **             |            |
| 2E School Relations          | 8.60              | 2.31  | 10.16                    | 2.70  | 3.91 ***            |            |
| 2F Community Relations       | 10.55             | 2.72  | 11.26                    | 2.75  | 1.72 *              |            |
| 2 Social Adjustment          | 54.88             | 12.42 | 61.69                    | 11.32 | 3.92 ***            |            |
| 3 Total Adjustment           | 108.88            | 22.35 | 122.51                   | 23.37 | 3.89 ***            |            |

One tailed test \*sig.for p=0.05 \*\*sig.for p=0.01 \*\*\* sig.  
for p=0.001

### Summary

Maori pupils had poorer reading comprehension than non-Maori pupils. The fourteen year old Maori pupils also had lower verbal and performance I.Q.'s than non-Maori pupils.

One out of every three Maori pupils was an early school leaver, while only one non-Maori out of every nine pupils became an early leaver. Socio-economic matching of the pupils by father's occupation did not cause the racial factor to be eliminated. Approximately equal numbers of males and females became early school leavers.

Mother's employment, attendance, sense of belonging, sense of personal worth, and pupils attitude toward school at fourteen, were not significantly related to early school leaving.

Some sex differences were noted with some of the independent variables related to early school leaving for one sex but not for the other. Form retardation was significant only for female leavers when compared to female continuers. Desire to leave school at fourteen was related to early school leaving for females but not males. Audio-history was found to be related to early school leaving for the males but not the females. The percentage of subjects liked was found to be related to early school leaving only for male pupils. When school interest was compared between leavers and continuers, this was found to be related to early leaving for male Maori pupils but not female Maori pupils. Also school interest was significant for male non-Maori pupils but not for female non-Maori pupils. When personal

adjustment was considered both male and female early school leavers tended to have poorer results than pupils who continues. The only results that showed sex differences in regard to early school leaving were male leavers having poorer self reliance, and female leavers showing more anti-social tendencies than female continuers.

Few differences were found between Maori continuers and Maori early school leavers. Maori leavers had poorer reading comprehension, lower performance I.Q.'s., poorer social standards, and poorer social adjustment than Maori continuers. It was also found that male Maori leavers showed less school interest at the age of fourteen than male Maori continuers. More Maori pupils were leaving from urban schools than rural ones.

The non-Maori leaver had a number of differences compared to the non-Maori continuer. The non-Maori leaver had a lower verbal I.Q., a lower performance I.Q., and poorer reading comprehension than the continuer. More personality differences were noted and the non-Maori leaver had more withdrawal tendencies, more nervous symptoms, poorer personal adjustment, poorer school adjustment, and poorer total adjustment than the non-Maori leaver. The educational and vocational plans at the age of fourteen showed significant differences between the non-Maori continuer and the non-Maori early school leaver. It was also found that male non-Maori leavers showed less school interest at the age of fourteen than male non-Maori continuers. The non-Maori leaver was more likely than the non-Maori continuer to

see his parents as wanting him to leave or not caring but leaving the choice entirely up to the pupil.

When all of the early school leavers were compared to all the continuers, leavers had poorer verbal and performance I.Q.'s. Leavers had poorer reading comprehension than continuers. Early school leavers at the age of fourteen had less school interest, than continuers. Early leavers showed lower aspirations in their vocational and educational plans than continuers at the age of fourteen. Audio-history was found to be related to early leaving and those pupils who failed an audio test at some stage of their schooling have a 44 per cent chance of becoming early school leavers as compared to 18 per cent chance for the average pupil. More early school leavers came from urban areas than rural areas. When all of the early school leavers were compared to all the continuers, form retardness was not found to be significant. Nor was the percentage of subjects liked found to be related to early school leaving when all of the leavers were compared to all of the continuers.

When all early school leavers were compared to all continuers, there were a large number of areas of significant difference. Early school leavers had poorer self reliance, a poorer sense of personal freedom, more withdrawal tendencies, more nervous symptoms, and a poorer overall personal adjustment. Early school leavers had poorer social standards, more anti-social tendencies, poorer family relationships, poorer school relationships, poorer community relationships, and were less socially adjusted than pupils who continued. A significant

difference was also noted in favour of the continuer in total adjustment.

## Chapter 10

### Discussion of Findings and Implications

#### The Incidence of Early School Leaving

A very high rate of early school leaving was found for the Maori pupil. More than one in three (36.8 per cent) of Maori pupils left soon after attaining the age of 15 years. The early school leaving rate of non-Maori pupils, about one in ten (11.4 per cent) was less than anticipated. Minogue <sup>(1)</sup> suggested a drop out rate of 30 per cent of pupils before entering fifth form. Minogue's study was carried out in 1966 and the holding power of the New Zealand Secondary School is increasing. With one out of every three Maori pupils leaving soon after attaining the age of 15 years the attainment levels between non-Maori and Maori are not lessening. While it becomes more important for the average New Zealander to obtain certificates of educational attainments before leaving secondary school, a very large proportion of Maori pupils are leaving soon after they reach the legal school leaving age.

The factor of sex was not found to be related to early school leaving at the 15 year level. American studies were not in agreement as to whether sex was an important factor related to dropping out of school. Bledscoe <sup>(2)</sup> had found that sex was related to early school leaving and Livingstone <sup>(3)</sup> found that sex was not related to dropping out of school. The present study found that the sex of the pupil was not an important factor in early school leaving at the 15 year level. It appears that just as many

girls as boys see the advantage of having extra schooling. This was found to be true for both Maori and non-Maori.

More early school leaving was noted from the urban high schools than the rural high schools. This was particularly true for the Maori leaver. The results were the opposite from those predicted. The advantages of urban living (as discussed in Chapter 3 - theory) must be more than offset by the attractions of the urban environment that caused the high school student to leave school. Among these are the better availability of apprenticeships in the urban setting and the easier availability of jobs. As Bray <sup>(4)</sup> has pointed out, the Maori pupil shows less tendency to delay gratification and there is a shorter future time orientation in major goals. Thus good pay in the present for unskilled work would attract the Maori adolescent more than remaining at school. There appear to be more temptations to leave school in the urban areas particularly for the Maori adolescent.

Socio-economic matching of Maori pupils with non-Maori pupils by father's occupation did not equalise the rates of leaving for the Maori pupil and the non-Maori pupil. Beaglehole <sup>(5)</sup> and Ausubel <sup>(6)</sup> saw the gap between Maori and European as being largely a socio-economic one. The results of this study do not confirm this. On the whole there is very little difference between the total Maori sample and the Maori early leaving sample in terms of socio-economic status. Likewise there is very little difference between the European leaver and the European total sample if compared in terms of father's occupation. While no child

of professional parents left school (though they made up 5 per cent of the total sample), on the whole there was very little difference between the early school leavers and total sample in terms of father's occupational grouping amongst the children of farmers, managers and proprietors, office and sales workers, skilled workers, semi-skilled workers. Only the children of unskilled workers showed a slight tendency towards early school leaving increasing from 21 per cent of the total sample to 28 per cent of the total school leavers. Thus, while some slight tendency was to be noted, on the whole socio-economic factors of the study are not highly related to early school leaving. These results agree with Livingstone's<sup>(7)</sup> findings that dropping out of school was not related to occupational status (as determined by father's income).

It was found that when non-Maori and Maori were matched for numbers and socio-economic status, the Maori made up 75 per cent of the drop-outs. However it should not be overlooked that two out of three of the Maori pupils stayed in school after reaching the legal school leaving age of 15 years.

#### Intelligence and Attainments

When the total Maori sample was compared to the total European sample in both verbal and performance I.Q. scores, the Europeans scores significantly higher. These results agree with Adcock, et.al.,<sup>(8)</sup> Ritchie,<sup>(9)</sup> Lovegrove,<sup>(10)</sup> Ausubel,<sup>(11)</sup> and Calvert,<sup>(12)</sup> and Walters<sup>(13)</sup> results showed performance I.Q.'s higher for the European but not

so for the verbal I.Q. with the rural group. Smith<sup>(14)</sup> found no significant difference between her Maori and European group. On the whole, the present results agree with previous researchers investigating differences between the Maori and non-Maori. The European means for both the verbal and performance I.Q. tests were above 100. This is not surprising when it is noted that the Lorge-Thorndike has never been standardised in New Zealand and even of more importance is that the last previous standardisation occurred before 1954. Elly<sup>(15)</sup> in re-standardising the Otis, found that New Zealanders had increased their mean I.Q. scores approximately 5 I.Q. points over the last 40 years. Elly found that females tended to score higher than the male on the Otis. The present study found that, likewise, the female tended to score higher on both verbal and performance sections of the Lorge-Thorndike I.Q. test.

Adcock and his associates,<sup>(16)</sup> and Walters,<sup>(17)</sup> previous studies found that the Maori scored slightly lower on performance tests than verbal tests. The present study shows no differences in Maori scores on verbal and performance tests (both means were 94.) Any intellectual disadvantages of the Maori cannot be explained away by resort to non-verbal measures. Intelligence tests have been developed in the European culture and these tests regardless of whether they are verbal or performance show the Maori to be at a disadvantage. Using Bernstein's<sup>(18)</sup> terms of reference, the questions of the verbal test and the directions for the performance items are in "formal language." The child from the middle-class or upper-class

conducts most of his communication in this language. However, the child from the lower socio-economic group (often the Maori child) tends to conduct most of his communication in a less explicit "public language". Thus in even understanding the question, the child from a home that uses "public" rather than "formal" language, is at a disadvantage. Harker<sup>(19)</sup> sees the individual's pattern of language usage and level of achievement dependent upon a number of interrelated factors. These are cultural background, socio-economic status, and pattern of intellectual functioning.

Perhaps because both Maori leavers and continuers tend to come from homes where "public language" is used, there are only minor differences in verbal I.Q. scores between Maori leavers and continuers. The differences between non-Maori leavers and continuers were significant on both verbal and performance I.Q. tests. But it must not be assumed that all early school leavers are of low I.Q. as 20 and 22 per cent of the leavers scored at or above the mean of sample on verbal and performance tests. As Voss<sup>(20)</sup> pointed out previously, there is not just one type of drop-out but there are a number of reasons for students choosing to leave school. Lack of ability is only one of these.

Calvert<sup>(21)</sup> and McCreary<sup>(22)</sup> have previously found that the Maori's reading comprehension is poorer than the non-Maori. The only other study indicating otherwise is Smith's<sup>(23)</sup> which may be dismissed because of poor research procedures. Data in the present study indicates that the Maori pupil is a poorer reader than the non-Maori pupil.

In fact the average Maori reader scored at the 28th percentile as compared to the 51st percentile for the non-Maori pupil.

Reading comprehension was found to be an important difference between non-Maori continuers and leavers but was not found to be significantly related to Maori early school leaving. When all leavers were compared to all continuers, reading comprehension was found to be a very significant factor. However it should not be assumed that all leavers had poor reading comprehension as 24 per cent of early leavers scored at or above the 50th percentile.

With most of the text books being used in the secondary schools written for the child reading at a level of 13 years or better, many early school leavers understand little of what they read. The implications are that if the New Zealand secondary schools are to retain a higher percentage of early school leavers, there needs to be remedial help for reading, and modification of the curriculum to allow for successful school experiences for those of poor reading ability.

Livingstone's<sup>(24)</sup> study of American drop-outs showed that the early school leaver tended to have poorer scores in reading comprehension and tended to have lower mental ability. Cervantes<sup>(25)</sup> found the drop-outs to be two years behind in their reading. The results of the present study indicate that the early school leaver in New Zealand tends to have poorer reading comprehension and to score lower on tests of verbal and performance I.Q. More importantly a principle problem is that poor reading

comprehension and poor I.Q. are more often found in the case of the Maori than the non-Maori pupil. Jensen<sup>(26)</sup> does not question the role of environmental factors but holds that genetic factors also have a major role to play in accounting for differences between racial groups. Jensen's study has been criticised by Light and Smith<sup>(27)</sup> on the grounds that Jensen's indices of environment are too exclusively socio-economic. They criticise the statistical basis of the study and show that if a moderate amount of interaction exists then the mean I.Q. of blacks and whites could easily differ by more than 15 points despite identical genetic material in the races. Stinchcombe<sup>(28)</sup> also attacks Jensen's results in that deprivation has an accumulating effect so that cultural and/or social conditions create a complexity so great that statements about the proportions and effects of heredity are premature. In the light of the present evidence, it is held that the causes of early school leaving are culturally based rather than genetically based. Thus it is implied that steps can be taken to reduce if not eliminate the educational gap between the Maori and non-Maori.

#### Feeling and Plans about High School

Litcher<sup>(29)</sup> and his associates in his study of American drop-outs found that they tend to have unhappy school experiences. These results were not confirmed in the present study. When the number of subjects taken was compared to the number liked there was a tendency for male leavers to like fewer subjects. However when female leavers were compared to male continuers the opposite trend

was found and 8 of the 20 female leavers indicated they liked every subject they were taking. When pupils were asked whether they were satisfied or very satisfied as compared to indifferent or dissatisfied less than 24 per cent indicated that they were indifferent or had negative feelings toward high school. These results would indicate that the early school leaver at the age of 14 was not particularly unhappy at school. In fact at 14 only a third of the total school leavers indicated a desire to quit high school. These results would indicate that happiness or unhappiness at Secondary School was not a major factor in causing early school leaving. Questions relating to this would have very little predictive value for the Secondary School Counsellor who might wish to determine who the early school leaver would be.

School interest was also measured by totalling the number of negative items responded to on an inventory of school interest. No sets of norms have been compiled but Cottle<sup>(30)</sup> recommends that each school keep records and develop its own. Differences in scores of school interest was a good predictor of leaving for the male Maori and male non-Maori but not the female Maori nor for the female non-Maori. Significant differences in scores were noted for the total male group and for the total female group. These results indicate that while an inventory of school interest may be useful for identifying likely groups of pupils who may become early school leavers, individual results need to be used cautiously. It is most helpful in identifying male leavers and least helpful with female pupils.

Vocational plans, plans to attempt school certificate, and plans to spend three years at high school were significant for all groups except for Maori leavers and continuers. Inspection of Tables XXX and XXXI reveals that while few Maori leavers plan to try for School Certificate, or higher education, a large number of Maori continuers also expressed similar views. When plans to have three years (Table XXII) of the Maori sample is considered, it is found that large numbers of both leavers and continuers state (at age 14) that they do not plan to spend three years. Thus while school plans and education plans are significant for school leavers generally, they are not so for the Maori school pupil because he is not sure, or because he may change his plans as the occasion demands.

#### The Family of the Early School Leaver

The question of the mother's employment was not found to be related to early school leaving perhaps because a number of mothers of all socio-economic groups go out to earn a living. However the number of children per family was found to be significantly related to early school leaving. The leavers tended to have two more children per family than the continuers. Dennis<sup>(31)</sup> in his research showed that the amount of stimulation, particularly in early life, was extremely important. The larger the family, the less time that the mother would have for each individual child. Bruner<sup>(32)</sup> also stresses the importance of enriched environment in the development of thinking. The larger the family the less time the

parent has for speaking and playing with the children. Fraser and Vernon<sup>(33)</sup> in studying the background factors in intelligence and achievement, found that parental encouragement, parents educational reading, and small family size were significant.

The extremely high number of children per family (6.19) throws the whole question into doubt. The 1961 Household census showed only 2.49 dependents per married man.<sup>(34)</sup> As the sample contains a greater number of Maori families than a true cross section of the population, the number of children per family could be expected to be slightly higher than the national average. However the average number of children for non-Maori families (4.68) seems excessive. It appears that a large number of the sample must have misread the question and instead of giving the number of children in their family added two for their parents into the total. Thus only 2 per cent reported they were the "only child" (as compared to 26 per cent in the census), and only 9 per cent reported that there were two children in the family (as compared to 31 per cent in the census). The present data must be considered doubtful and the role of family size and its relation to early school leaving in New Zealand must await other research.

Cervantes<sup>(35)</sup> found that not one of the graduates of high school perceived his parents as wanting him to leave school before graduating. However he notes that 80 per cent of the drop-outs had a similar view of their parents wanting them to continue at school. In the New Zealand study 19 of the 41 early school leavers saw their

parents as wanting them to spend three years at high school. However the majority of New Zealand school leavers saw their parents as actually wanting them to leave or not caring whether they left before having spent three years at high school. Thus, if there is to be a reduction in early school leaving an educational campaign at a local or a national level could be conducted to help these parents see the need for a school leaver to have as much education as possible in the 1970's.

The home has also been shown to be of particular importance in influencing the values and aspirations of the student. Hyman<sup>(36)</sup> found that amongst the lower socio-economic groups (and here we might classify the average Maori pupil of this study,) there was a general lack of awareness of opportunity and less striving for success. Rosen<sup>(37)</sup> found that there was more need for achievement among middle-class groups than the lower class groups. In the present study when vocational plans were considered (at an age of fourteen) a significantly greater number of continuers expressed the desire to obtain higher education. Generally 90 per cent of the leavers indicated that they just wanted some type of job when they left school. When sources of information that have influenced vocational and educational plans were investigated, it was found that the parents were indicated in 58 per cent of the cases, a subject area in 24 per cent of the cases and teachers in only 18 per cent of the cases. Thus it can be seen that the parents have a very great influence on the vocational and educational

plans. The present study found that at the age of fourteen very significant differences in education plans in terms of school certificate are evident. The school appears to be playing a very minor role in influencing vocational plans. The school guidance counsellor with the help of teachers, and the help of the Vocational Guidance centre need to do much more to help with all the students at the 3rd and 4th form level before early school leaving commences.

#### Factors of Health

No medical examinations were carried out, but the school record card was used as a source of information on the history of audio failure. Tonkin<sup>(38)</sup> found that the defective audio rate of Maori pupils was two or three times that of the non-Maori pupils. It was hypothesised that any child who had a history of audio failure would be more likely to be an early school leaver than a continuer. The Maori child who had a history of audio failure was more likely to be an early school leaver. This was not true for the non-Maori pupil. Significance was approached for the Maori pupil but only for the male and total leavers were the results statistically significant at the .05 level or less. The sex difference is most likely caused by chance result. The child with a hearing loss may be more "lost" in a large Maori family than a smaller non-Maori family. Even more important (and only a detailed investigation of follow up records on this would reveal this information) is the percentage of Maori parents who seek medical care for audio failure

in their children compared to the number of non-Maori parents who have such hearing defects attended to. Answers to these questions will need to be researched by some future investigator.

While attendance is related to health it is also related to the parent's attitude towards education and schooling. Cervantes<sup>(39)</sup> showed that irregular attendance was a characteristic of the early school leaver. Livingstone<sup>(40)</sup> in his study also found that there was a significant difference in the attendance record of the drop-out as compared to the graduate. The results of the present study showed only minor differences in the attendance record between leavers and continuers. A weakness in the present study - is that no follow up was made on pupils who were absent at the time of examination. Future researchers can better answer the question as to whether attendance is related to early school leaving in a New Zealand High School.

#### Form Retardation

Livingstone<sup>(41)</sup> in his American study found that pupils who were drop-outs were retarded a number of years before quitting high school because they had been detained in the lower grades. Cervantes<sup>(42)</sup> found the majority of his early school leavers were two or more years behind. Early school leaving in New Zealand was not found to be highly related to form retardation. In fact 59 per cent of early school leavers were in their normal form. This result may be due to the "age of social promotion." Generally any child born in the months of September to November will tend to receive only two years

in the primers although the quality of their scholastic work may indicate they need three years. Early school leavers (be they Maori or non-Maori) come both from pupils in their normal forms and also from pupils who are form retarded. In New Zealand form retardation is poorly correlated to early school leaving.

#### Other Psychological Factors

Cervantes<sup>(43)</sup> found that drop-outs tend to have poor feelings of belonging and often there is an unhappy family situation. He found there tends to be a weak self-image and the drop-out tends to be resentful of authority. Schreiber<sup>(44)</sup> noted that the drop-out tends to have a poor self concept. The present study generally agreed with these results in that the early school leaver is less self reliant and tends to have poorer adjustment in sense of personal freedom, more withdrawal tendencies, more nervous symptoms, and an overall poorer personal adjustment. The early school leaver tends to have poor social standards, more of a tendency to see the world as a mean place and to act out against it, poorer family school and community relationships. Overall the early school leaver tends to have poorer social adjustment.

Whether one is working in terms of Havighurst's<sup>(45)</sup> developmental stages or Erikson's<sup>(46)</sup> 8 stages, it is theorised that at some previous stage (perhaps going back before the age of 5 or possibly after the child begins school) there has been some developmental task or crisis that was not successfully overcome: for example in his pre-high school years the child may have developed a sense of inferiority and a poor self concept because he had not

achieved a sense of trust or autonomy. The child in terms of White's theory of competence<sup>(47)</sup> does not feel that he has the ability or fitness to cope with his environment. Thus confidence needs to be built up out of the child's interaction with his environment. If this does not happen the youth has trouble in learning appropriate male or female roles and in achieving his sense of identity. The loss of identity or role diffusion may cause the secondary school pupil to have emotional upsets. These upsets may cause him to become an early school leaver or if his behaviour is too anti-social he may be asked to leave by the school.

In terms of day to day living, the school, if it wants to reduce early school leaving, needs to help a pupil achieve a sense of competence. The school needs to build on successes so that the pupil feels that he is able to cope with his environment and feel that he is not inferior. This can best be done in a school curriculum which is not examination-centred but rather pupil-centred. The Education Department has recognised this to a certain extent by the modification of the school curriculum programme to allow student passes in school certificate examinations. More research and modifications are needed however if the Maori pupil is to be encouraged to close-up the gap in educational attainments between him and the non-Maori pupil.

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## Chapter 11

### Summary

The problem of early school leaving takes on increased significance as New Zealand's technology becomes more advanced. In the 1970's it is more important for a child to obtain some type of educational certificates from the high school than it was in past decades. The gap between Maori and non-Maori attainments is not decreasing and there is a danger that it may widen as the New Zealand secondary school increases its holding power for the non-Maori student.

As the number of Maori seeking employment in the cities increases, there is the danger of a deterioration in race relations. Beaglehole's theory of race relations predicts that socio-economic differences between the two groups are critical in determining racial harmony. The greater the socio-economic differences the more likely there is to be friction between the groups. Socio-economic differences are correlated to educational attainments. Thus the problem of Maori early school leaving is not only a concern to the educator but also to the New Zealand people as a whole.

In order to study the Maori and non-Maori early school leaver, 14 year old pupils from two rural and two urban schools in the Manawatu/Wanganui area were selected. A true cross section of the school population was not obtained as it was necessary to increase the size of the Maori sample so that there was approximately one Maori to every four non-Maori students. Random selection techniques were used to reduce the size of the non-Maori

sample.

A battery of tests was given to the pupils at each school during the months of September 1969. The battery of tests included the reading comprehension section of the Progressive Achievement Test, the Lorge-Thorndike Verbal and Performance I.Q. Test, the School Interest Inventory, and the California Test of Personality. A questionnaire was administered that dealt with father's occupation, mother's employment, and subjects taken and attitudes toward these subjects, general feelings about school and any desire to quit school, plans to spend three years at high school and parent's attitude toward early school leaving, the number of children in the family, and educational and vocational plans. School records were utilised to obtain previous attendance, date of birth, history of audio testing, and form classification.

A year later the four schools were contacted. At this time the schools indicated which pupils were early school leavers and which were continuers. Efforts were made to trace transfers but only one was definitely shown to be an early school leaver.

Data were grouped into Maori early school leavers and continuers and into non-Maori early school leavers and continuers. These groupings again were broken into sub-groupings of male and female. Data was analysed and tested for significance.

In spite of the fact that the Maori only made up one quarter of the sample, there were approximately equal numbers of non-Maori and Maori leavers (21 Maori and 20

non-Maori). Thus 37 per cent of the Maori and only 11 per cent of the non-Maori were school leavers. Table XXXV shows that race was found to be a significant factor.

Socio-economic matching by father's occupation was carried out. This did not eliminate race as a factor and there were still significant differences between Maori and non-Maori pupils.

It was hypothesised that more early school leavers would come from rural areas. The converse was found to be true and twice as many early school leavers were found to come from urban areas. It was especially significant for Maori pupils.

Table XXXV shows that a poor audio history was related to early school leaving for males and in the total sample. Desire to leave school at fourteen was found only to be related to early leaving for females and the total sample. Form retardness was significant only for female pupils. School certificate plans at fourteen were found to be related to early school leaving for all groups. Vocational plans at fourteen and plans to have three years at school were not significant for Maori pupils but were found to be related to leaving for non-Maori, male, female, and for pupils of the total sample. The pupils' view of their parents' attitude toward early leaving was found to be significantly related to leaving for the non-Maori pupils.

TABLE XXXV

Summary of Significant Differences in Observed Data  
from Expected Frequencies Between Early Leavers and  
Continuers.

| Race  | <u>Male</u><br>.01 | <u>Female</u><br>.01 | <u>Maori</u><br>- | <u>non-Maori</u><br>- | <u>Total</u><br>.001 |
|---|--------------------|----------------------|-------------------|-----------------------|----------------------|
| Race (after Socio-economic matching).             | .01                | .05                  | -                 | -                     | .01                  |
| School Cert. Plans                                | .001               | .01                  | .10               | .001                  | .001                 |
| Plans for 3 years                                 | .001               | .05                  | .10               | .05                   | .001                 |
| Vocational Plans                                  | .01                | .05                  | N.S.              | .01                   | .001                 |
| Desire to Quit                                    | .10                | .01                  | .10               | N.S.                  | .001                 |
| Urban-Rural Location                              | -                  | -                    | .01               | N.S.                  | .05                  |
| Audio-history                                     | .01                | N.S.                 | .10               | N.S.                  | .01                  |
| Form Retardness                                   | N.S.               | .001                 | N.S.              | N.S.                  | N.S.                 |
| Pupils view of parents attitude on early leaving. | N.S.               | N.S.                 | N.S.              | .001                  | .10                  |

Table XXXVI shows the non-Maori early school leaver had a poorer I.Q. on both verbal and performance tests than the non-Maori continuer. The non-Maori leaver had poorer reading comprehension than the non-Maori continuer. When personality adjustments were taken into account, it was found that the non-Maori leaver had more withdrawal tendencies, more nervous symptoms, poorer school adjustment, poorer personal and total adjustment than the non-Maori continuer. It was also found that male non-Maori leavers at the age of fourteen showed less school interest than male non-Maori continuers.

Table XXXVI shows that there are few differences on t tests between Maori early school leavers and Maori continuers. Maori early leavers did poorer on performance I.Q. tests but scored at the same level as Maori continuers on verbal I.Q. tests. Maori early leavers had poorer reading comprehension than Maori continuers. When Maori early leavers were compared to Maori continuers on personality adjustment, there were significances found between them in only two of the fifteen areas considered. The Maori leavers did have poorer social standards and poorer overall social adjustment than the Maori continuers. It was also found that male Maori leavers at the age of fourteen showed less school interest than male Maori continuers.

When sex differences were considered, it was found that both the male Maori leavers and male non-Maori leavers showed less school interest than male Maori continuers and male non-Maori continuers while no significant differences were found between their respective female groups. However when all the leavers were compared to all the continuers in school interest both male and female groups showed significant differences. Male leavers liked fewer subjects that they were taking at fourteen than male continuers. No significant differences were found for females in regard to the percentage of subjects. When personality differences between early school leavers and continuers were considered by sex the results on the whole did not show discrepancies. In only two areas were sex differences noted. Female leavers had more anti-social

tendencies than female continuers while the differences for the male continuers were not significant. Male early school leavers had poorer self reliance than male continuers while the differences between the females were not significant.

Table XXXVI shows that when all the early school leavers were compared to all the continuers, leavers had poorer verbal and performance I.Q.'s. Leavers had poorer reading comprehension than continuers. When all the leavers are compared to all the continuers in personality adjustment it was found that leavers tended to have poorer personal and social adjustment. Leavers showed poorer adjustment than continuers in self reliance, sense of personal freedom, freedom from withdrawal tendencies, freedom from nervous symptoms, and total personal adjustment. Socially early leavers tended to have poorer social standards, more acting out tendencies and poorer family, school, and community relationships than continuers. When all early school leavers were compared to all the continuers, leavers had poorer overall social adjustment and poorer overall total personality adjustment.

Table XXXVISummary of Significant Differences for t tests between  
Leavers and Continuers

| <u>Variables</u>           | <u>Sex</u><br><u>Male</u> | <u>Female</u> | <u>Race</u><br><u>Maori</u> | <u>Non-Maori</u> | <u>Total</u><br><u>Sample</u> |
|----------------------------|---------------------------|---------------|-----------------------------|------------------|-------------------------------|
| Verbal I.Q.                | .01                       | .05           | N.S.                        | .05              | .01                           |
| Perf. I.Q.                 | .01                       | .001          | .05                         | .05              | .001                          |
| Reading<br>Comp.           | .001                      | .01           | .05                         | .01              | .001                          |
| Subjects<br>Liked          | .01                       | N.S.          | N.S.                        | N.S.             | N.S.                          |
| Self Reliance              | .05                       | N.S.          | N.S.                        | N.S.             | .05                           |
| Personal<br>Freedom        | N.S.                      | N.S.          | N.S.                        | N.S.             | .01                           |
| Withdrawal<br>Tendencies   | .05                       | .05           | N.S.                        | .01              | .01                           |
| Nervous<br>Symptoms        | .05                       | .05           | N.S.                        | .01              | .001                          |
| Pers. Adj.                 | .05                       | .05           | N.S.                        | .01              | .01                           |
| Social Stds.               | .05                       | .05           | .05                         | N.S.             | .01                           |
| Social<br>Skills           | .05                       | .05           | N.S.                        | N.S.             | N.S.                          |
| Anti-social<br>Tendencies  | .01                       | .05           | N.S.                        | N.S.             | .01                           |
| Family<br>Relationships    | .05                       | .05           | N.S.                        | N.S.             | .01                           |
| School<br>Relationships    | .01                       | .01           | N.S.                        | .05              | .001                          |
| Community<br>Relationships | .05                       | .05           | N.S.                        | N.S.             | .05                           |
| Social Adj.                | .001                      | .001          | .05                         | N.S.             | .001                          |
| Total Adj.                 | .01                       | .01           | N.S.                        | .02              | .001                          |
|                            |                           | (M. F.)       | (M. F.)                     | (M. F.)          |                               |
| School<br>Interest.        |                           | .01           | N.S.                        | .05 N.S.         | .001 .01                      |

Table XXXVII shows that a number of variables are not found to be significantly related to early school leaving. Mother's employment, sex of the pupil, attendance, and the 'blue or white collariness' of the father's occupation are not found to be related to early school leaving in this study. Sense of personal worth and sense of belonging, are not found to be significantly related to early leaving.

Table XXXVII

Summary of Variables not found to be Significantly  
Related to Early School Leaving.

| <u>Variables</u>                | <u>Sex</u><br><u>Male</u> | <u>Female</u> | <u>Race</u><br><u>Maori</u> | <u>Non-Maori</u> | <u>Total</u><br><u>Sample</u> |
|---------------------------------|---------------------------|---------------|-----------------------------|------------------|-------------------------------|
| Mother's<br>Employment          | N.S.                      | N.S.          | N.S.                        | N.S.             | N.S.                          |
| Sex                             | -                         | -             | N.S.                        | N.S.             | N.S.                          |
| Pupils<br>Attitude to<br>School | N.S.                      | .10           | N.S.                        | N.S.             | N.S.                          |
| Attendance                      | N.S.                      | N.S.          | N.S.                        | N.S.             | N.S.                          |
| Father's<br>Occupation          | -                         | -             | N.S.                        | N.S.             | .10                           |
| Pers. Worth                     | N.S.                      | N.S.          | N.S.                        | N.S.             | N.S.                          |
| Belonging                       | N.S.                      | N.S.          | N.S.                        | N.S.             | N.S.                          |

Only limited conclusions can be drawn from this study as the sample was not a true cross section of the school population and the schools may not be truly representative.

There are dangers in generalising from the results of this study. For example, although early school leavers may be significantly lower than continuers in both verbal and performance I.Q., 15 per cent of early school leavers were above the mean for continuers on verbal I.Q. and performance I.Q. Twenty-five per cent of leavers were above the mean of continuers on reading comprehension. Thus there is not just one type of early school leaver and there are dangers in stereotyping him.

In spite of socio-economic matching by father's occupation, it was not possible to show that socio-economic status was a major cause of early school leaving in New Zealand. More research needs to be carried out in this area. Perhaps in determining socio-economic status, several criteria could be used. The results for attendance should be considered doubtful until they are replicated in a future study of early school leavers.

The present study has identified a number of ways in which early school leavers differ from pupils who continue after reaching the legal school age of fifteen. After sample size is taken into account, Maori leavers and Maori continuers have few differences between them. For example both Maori groups have very poor reading comprehension. Remedial reading in the secondary schools and curriculum modification is needed to help

the Maori and the non-Maori leaver overcome their poor reading comprehension. As leavers have poorer educational and vocational goals, secondary schools need to consider how their vocational guidance programmes can be widened to include more third and fourth formers before early school leaving occurs. It is of major importance that high schools study the characteristics of their own early school leavers as this study shows a definite profile emerges of the characteristics of the early school leaver when compared to the continuer. While the majority of findings of this study would probably be replicated in a local study, it is likely that in other parts of New Zealand local factors and the sub-cultural setting from which the secondary school draws its pupils would lead to other findings.

It was found that socio-economic matching, in itself, did not eliminate race as a factor influencing early school leaving. The Maori pupil continues to be three times more likely to be an early school leaver than the non-Maori pupil. Thus far the New Zealand Educational System has been unable to close the educational gap between the Maori and non-Maori.

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Appendix A  
QUESTIONNAIRE

1. Surname.....First Names.....
2. Address.....
3. Telephone No.....4. Father's Occupation.....  
.....
5. Form..... 6. Age.....yrs.....mths(Boy/Girl)
7. School.....
8. Has your mother a paid job? (Yes/No)
9. What are your plans when you turn 15? (Put a tick)
  - a. \_\_\_\_\_ Leave as soon as I turn 15.
  - b. \_\_\_\_\_ Leave at the end of the year.
  - c. \_\_\_\_\_ Continue at school for one more year.
  - d. \_\_\_\_\_ Continue at school until I get School Certificate.
  - e. \_\_\_\_\_ Continue at school until I get University Entrance.
  - f. \_\_\_\_\_ Other - explain \_\_\_\_\_
10. What will you do when you leave High School? (Put a tick)
  - a. \_\_\_\_\_ Get an apprenticeship. What type- \_\_\_\_\_
  - b. \_\_\_\_\_ Go on for higher type of education. (Tick the one)
    - University
    - Teacher Training College
    - Nurses Training
    - Technical Training
    - Other - explain \_\_\_\_\_
  - c. \_\_\_\_\_ Get a job (Tick the one)
    - Office                      Shop
    - Farming                      Factory
    - Armed Forces
    - Some other kind of job (What?) \_\_\_\_\_
  - d. \_\_\_\_\_ Other - explain \_\_\_\_\_
11. Which of the following best describes how you feel about High School? (Tick one)
 

|                            |                    |
|----------------------------|--------------------|
| _____ Very well satisfied. | _____ Satisfied    |
| _____ Indifferent          | _____ Dissatisfied |

12. My parents will probably: (Tick one)
- \_\_\_\_\_ Insist that I finish 3 years at High School
- \_\_\_\_\_ Let me decide
- \_\_\_\_\_ Want me to leave school before having had 3 years at High School.
13. As far as you can see now, do you plan to have 3 years at High School? (Tick one)
- \_\_\_\_\_ Yes          \_\_\_\_\_ No.          \_\_\_\_\_ Not sure
14. List the high-school subjects or courses that you feel are helping you most in preparing for the future.
- \_\_\_\_\_
15. List those subjects or courses that you feel are helping you least in preparing for the future.
- \_\_\_\_\_
16. Please list any subjects that you have wanted to take in High School that you haven't had an opportunity to take.
- \_\_\_\_\_
17. Which of the following are helping you most in selecting an occupation or in making your educational and vocational plans? Please tick.
- |                                 |                               |
|---------------------------------|-------------------------------|
| _____ School Counsellor         | _____ School Principal        |
| _____ Your Parents              | _____ Other Relatives         |
| _____ A teacher                 | _____ Friends                 |
| _____ Subjects you have studied | _____ Your Employer           |
| _____ Something you have read   | _____ Other - explain briefly |
18. How many subjects or courses are you taking \_\_\_\_\_
19. How many of them are interesting? \_\_\_\_\_
20. If the choice were entirely yours, would you quit high school right now? (Tick one) \_\_\_\_\_ Yes; \_\_\_\_\_ No.
21. Are you a Maori? (Tick one) \_\_\_\_\_ Yes. \_\_\_\_\_ No.
22. How many children in your family (counting yourself \_\_\_\_\_)
23. Circle the number that shows your place with the the eldest being 1.
- 1 2 3 4 5 6 7 8 9 10 11 12 or more.

### Appendix B

#### The Profile of a Typical New Zealand Dropout

The early school leaver is almost as likely to be a female (49 per cent) as a male (51 per cent). The father of the early school leaver is more likely to have a 'blue collar' job (42 per cent) than a white collar job (12 per cent) or to be a skilled worker (32 per cent) or a farmer (12 per cent). His mother is more likely not to be employed (55 per cent) than be employed (45 per cent).

He is more likely to be a Maori (one Maori in three becomes an early leaver) than a non-Maori (one non-Maori in nine becomes an early leaver). The early leaver is more likely to live in an urban area (66 per cent) than a rural area (34 per cent).

Intelligence tests show that the typical early school leaver is within the range of average intellectual ability. However both verbal and performance tests find him to be about 10 I.Q. points behind pupils who continue on at school. Generally there is little difference between the verbal and performance tests scores.

At the age of fourteen the early school leaver is satisfied with most of his subjects (60 per cent) and only dissatisfied with a few subjects (40 per cent). Only a few leavers at this stage say that they are less than satisfied (24 per cent) with school and most say they are satisfied (57 per cent) with school and even a number say that they are well satisfied (19 per cent) with school. The subjects that he thinks will be most

useful for the future are mathematics, English, and typing. The subjects that he feels will be the least useful are science and social studies. The year or so before he left school he did not attend about a week and three half days of school. This is just slightly more than the continuer who did not attend a week and two half days on the average.

His reading comprehension was generally poor and his reading age was about two and a half years behind his age mates. When compared to the others in his age group he comprehended less of what he read than three-quarters of his fellow pupils. Most often he had not been held back (59 per cent) and only a minority of the early school leavers were form retarded (41 per cent). Generally he passed any audiometric test (79 per cent) and only a few leavers (21 per cent) had failed a hearing test at some stage of their schooling.

Our typical school leaver is less well adjusted than the continuer in his family, school, and community relationships. His social standards are more likely to come into conflict with the ideals set up by society. He is more likely to see the world as a mean and threatening place so that he either has a tendency to withdraw from it or to act out against it. He tends to have poorer self reliance, a poorer sense of personal freedom, and has a larger number of nervous symptoms than the pupil who continues at school.

When the early school leaver is fourteen, he states that he hopes to stay on at school (64 per cent) rather than wanting to leave (29 per cent) or not being sure (7 per cent). He plans to spend three full years at high school (56 per cent) rather than spend less time (29 per cent) or not sure (15 per cent). He does not plan to attempt School Certificate (59 per cent) as only 41 per cent of leavers plan to attempt School Certificate. On leaving school he does not plan to attempt a job that requires higher education (90 per cent). His major source of vocational information has been his parents (70 per cent), Friends (10 per cent), employers (7 per cent), reading (10 per cent), subjects taken (17 per cent), or teacher and counsellor (29 per cent); make up other sources of vocational information. Most pupils were influenced by more than one source. The early school leaver sees his parents attitude (towards him staying on at school) as wanting him to stay on (46 per cent) or leaving (10 per cent) or not caring but rather leaving it entirely up to the pupil (44 per cent).

Of course no one leaver exactly fits the profile of the typical school leaver. In fact the diversity of the individuals profile is a characteristic of the school leaver.