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ABSTRACT

The aim of this study was to obtain objective information on the school achievement of non-English speaking migrant children randomly drawn from three primary grade levels, and to identify some of the factors, such as home background, that are related to their achievement in school. Information on home background was collected by means of interviews of non-English speaking parents, and a questionnaire for those who speak English. Some of the areas covered in the interview and questionnaire include language usage in the home, educational level and work histories of mother and father, and the parents' aspiration for the child's future education and career. The main findings was that there are marked and consistent differences in performance between English and non-English speaking children. Differences in socioeconomic status and other background variables that were likely to be related to school achievement were also noted. Yet despite these, there were no noted significant differences in general ability among the children with over five years of residence in Australia. No differences in achievement on the concept development and arithmetic tests between the children at the higher levels of the primary school were noted. The results indicate that there were no differences in the potential achievement of Australian and non-English origin migrant children and that differences on the language based school achievement tests could be overcome by appropriate educational programs. (Author/AM)

STUDY OF THE EDUCATIONAL ACHIEVEMENT OF MIGRANT CHILDREN

SUMMARY REPORT

December, 1975

Marion M. de Lemos

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AUSTRALIAN COUNCIL FOR EDUCATIONAL RESEARCH
MELBOURNE

Note: This report is a summary of the main findings of the study. The study is reported in full in the Final Report, published by the Australian Council for Educational Research October, 1975.

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I INTRODUCTION

In recent years there has been increasing recognition in Australia of the educational problems faced by migrant children from non-English speaking backgrounds. However, there is relatively little objective data available on the achievement of non-English speaking migrant children as compared with that of Australian and English speaking children in Australian schools.

Earlier reports on the progress and achievement of migrant children failed to distinguish between children from English speaking backgrounds and those from non-English speaking backgrounds. For example, the Report of the Commonwealth Immigration Advisory Council (1960), which was based on information provided by teachers and representatives from other government authorities and associations, concluded that most young migrants settle down well to life in Australia, and that as a group they are above average in scholarship. The validity of this report has been questioned on a number of grounds (Smolicz and Wiseman, 1971). The most important criticism would seem to be the lack of distinction between different ethnic groups, and particularly between English speaking and non-English speaking migrants, the tabulation of results on the basis of number of informant teachers rather than on the number of migrant students, and the reliance on teacher opinions rather than objective data regarding achievement and knowledge of English.

Similarly, the survey on migrant children in Queensland state schools, carried out by the Queensland Department of Education (1961), also failed to distinguish between children from English speaking backgrounds and those from non-English speaking backgrounds. This study reported that migrant children and children of migrants were doing at least as well as their Australian counterparts in school, and in many cases better. However, over 70 per cent of the migrant children sampled were of British or North European origin. Conclusions

drawn from this survey cannot therefore be generalized to other situations, where non-English speaking children from Southern European backgrounds are concentrated in the inner city areas of the major Australian cities, and constitute a high proportion of the enrolment in schools in these areas.

More recent surveys in New South Wales and Victoria have attempted to define the problem in terms of the numbers of children involved. A survey was undertaken in New South Wales in 1968 to determine the numbers of migrant children enrolled in government and non-government schools in New South Wales, and the number of migrant children experiencing difficulties with the English language (New South Wales Department of Education, 1971). The definition of 'migrant' for the purposes of this survey was left to the discretion of the schools, but specifically excluded migrant children from English speaking countries and Asia.

The total number of children identified as migrants in this survey was 50,664, or just over five per cent of the total school population. Of these, 33 per cent were identified as having English language difficulties. This number constituted 1.7 per cent of the total school population.

Surveys similar to the New South Wales survey were carried out in Victoria in 1970 and in 1974 (Gallagher and Margitta, 1970; Elliott and Margitta, 1975). The aim of these surveys was to determine the number and distribution of migrant children in Victorian state schools, and also to obtain information relating to the provision of special English programs for migrant children. For the purposes of the 1970 survey a migrant child was defined as a child who had been in Australia for less than six years and who had at least one parent whose native tongue was not English. This definition was also used in the 1974 survey, but in addition a further group of migrant children were identified. These were those children who had lived in Australia for over six years, who had at least one parent whose native tongue was not English, and whose competence in English was considered to be 'so retarded that they would benefit from special tuition'.

Figures from the Victorian surveys suggest a higher proportion of migrant children in Victoria as compared with New South Wales. The number of migrant children (as defined) with less than six years residence in Australia constituted 4.8 per cent of the total state school population, but when children with over six years residence identified as having English language difficulties were included, the number of migrant children identified rose to 8 per cent of the total state school population. It is possible that if the looser definition of migrant child used in the New South Wales survey were applied in Victoria, an even higher proportion of migrant children would have been identified.

In both Victoria and New South Wales there was a tendency for a higher proportion of migrant children at primary level than at secondary level. This tendency was more marked in Victoria. In both states the ethnic composition of the migrant populations was similar, with Greek, Italian and Yugoslav children predominating.

In the New South Wales survey some attempt was made to identify the types of English language difficulties experienced by migrant children. However, this was based on teacher assessment rather than objective testing, and while this may give some indication of the main areas of difficulty, it cannot provide precise information on the degree of difficulty experienced by children at different levels, and the extent to which this is affecting their school achievement.

In the Victorian surveys no attempt was made to assess or identify particular types of language difficulty or the degree of difficulty experienced. The emphasis was rather on a statistical analysis of the characteristics of migrant children in terms of age, grade level, language background, number of years residence in Australia, geographical distribution, and so on. However, their definition of 'migrant child' suggests that it was initially assumed that language difficulties would be found mainly among children with less than six years residence, and their major task was therefore to identify and locate this group of children. The extension of their definition in 1974 to include

children with over six years residence with English language difficulties suggests a recognition that English language difficulties may persist in children who have been in Australia for a longer period.

A more detailed study of the child migrant situation in a number of schools of high migrant density in Melbourne was undertaken jointly in 1972 by the Commonwealth Department of Education and Immigration, the Victorian Education Department, and the Catholic Education Office of Victoria (1973). The purpose of the survey was to help to identify actual and potential problem areas in schools receiving assistance under the child migrant education program. Information was collected by means of questionnaires to the schools and by a visiting panel which included all schools included in the survey.

The results of this survey indicated that approximately two-thirds of the migrant children identified by the schools as suffering from an English language difficulty were not attending special classes. The highest proportion of attendance was found among those children rated by the schools as having little or no English, but even in this group almost one quarter of the children were not attending special classes.

These figures indicate that even in those schools where special classes have been established, a high proportion of children considered to be in need of special tuition are not receiving it. Some children were returning to normal classes before being considered ready to do so, while on school assessments some 40 per cent of migrant children attending special classes were not receiving sufficient tuition under the program.

The main factors reported as limiting the provision of assistance to migrant children were the shortage of accommodation and of teachers for special classes. A wide variety of materials and equipment were reported to be in use in the schools surveyed, but most schools indicated a need for further equipment or materials. On the other hand, some schools reported having equipment which was never or only rarely used.

A need for the development and use of objective tests to ensure proper grading and assessment of students in the special classes was noted, as well as the need for an ongoing evaluation of the child migrant education program to provide an indication of its overall effectiveness.

Data from this survey indicates that the provision of special English classes for migrant children still falls far short of the needs.

II AIMS OF THE STUDY

The surveys in Victoria and in New South Wales have provided detailed information on the number and distribution of migrant children in these states. There is however little objective data available on the degree of difficulty experienced by migrant children and the extent to which these difficulties are affecting their school achievement.

The aim of this study was to obtain objective information on the school achievement of non-English speaking migrant children at the primary school level, and also to identify some of the factors that are related to the school achievement of migrant children.

The specific aims were:

1. To compare the performance of Australian children, English speaking migrant children and non-English speaking migrant children on tests of school achievement, English vocabulary, conceptual development and non-verbal ability.

2. To undertake an analysis of the relationship between the school achievement of migrant children and home background and other variables that might be related to school achievement.

The study was restricted to the primary school level, and involved the testing of random samples of migrant and Australian children drawn from three primary grade levels.

Information on home background was collected by means of home interviews in the case of non-English speaking parents, and a parent questionnaire in the case of English speaking parents.

III THE SAMPLE

Samples of approximately 100 non-English speaking migrant children were selected from Grade 2, Grade 4 and Grade 6. Comparison groups of approximately fifty Australian children and fifty English speaking migrant children from each of these grade levels were also selected.

The samples were drawn from state, Catholic and other independent schools in areas classified 'C' in the Melbourne Statistical Division. In order to obtain random samples of children selection was on the basis of birth dates. On the basis of available figures it was calculated that to obtain the required number of children in each category at each grade level, it was necessary to select one in 580 Australian children, one in sixty non-English speaking migrant children, and one in sixty English speaking migrant children. In order to do this the total number of schools in the area defined was first reduced to half by random selection. The remaining 296 schools were then approached, and asked to list all children in Grade 2, Grade 4 and Grade 6 whose birth dates fell on the sixth day of any month of the year. The schools were also asked to provide certain basic information on each child listed, including the country of origin of the parents, the period of residence in Australia in the case of non-Australian born parents, and the language spoken in the home. On the basis of this information children were classified as Australian, English speaking migrant, or non-English speaking migrant. This

procedure gave us the approximate number of English speaking and non-English speaking migrant children required for the sample. The required number of Australian children were then selected by taking every fifth name from the Australian children listed.

The final sample was divided into four main groups. These groups were as follows:

1. Australian.

A child was classified as Australian if one or both parents were born in Australia, and English was given as the main language spoken in the home, with at least one parent from an English speaking background.

2. English speaking of English origin (ES-EO).

A child was classified as English speaking of English origin if one or both parents come from an English speaking country other than Australia. In most cases in this category the parents came from Britain, but this category also included children whose parents came from other English speaking countries such as New Zealand, Canada, the United States, or South Africa. This category also included some English speaking children of Anglo-Indian background from India, Pakistan and Ceylon.

3. English speaking of non-English origin (ES-NEO).

Included in this category were a number of cases where English was given as the main language spoken in the home, but both parents came from a non-English speaking country, and presumably English was not the first language of the parents. This group included mainly families from Northern Europe, Eastern Europe and Malta.

4. Non-English speaking (NES).

This group included all those cases in which a language other than English was given as the main language spoken in the home.

The total number of children in each of these groups in the final sample tested is shown in Table 1.

TABLE 1

Number of Children in each Group at each Grade Level : Final Sample Tested

Group	Grade 2	Grade 4	Grade 6	Total
Australian	56	51	62	169
ES-EO	34	40	40	114
ES-NEO	18	17	13	48
NES	117	99	94	310
Total	225	207	209	641

The sample was also divided according to the national origin of the parents. The ES-EO group was divided into children of British or Anglo-Saxon origin, including children with at least one parent from Britain, New Zealand, the United States or Canada, and children of Anglo-Indian origin whose parents came from India, Pakistan or Ceylon. In the case of children of non-English origin, the ES-NEO and the NES groups were combined and the main national groups in the combined non-English origin sample were distinguished. These national groups were distinguished according to the country of origin of the parents. In cases where the parents came from the different countries, the dominant language spoken in the home was used as the criterion for the classification of national origin. Language spoken in the home was also used as the criterion in cases where there was a discrepancy between language spoken in the home and country of origin of parents. For example, a German speaking family from Poland was classified with the North European group rather than with the East European group, and a Greek-speaking family from Turkey was classified with the Greek group rather than with the Turkish group.

The main national groups represented in the sample are shown in Table 2.

TABLE 2

Number of Children in each National Group at each Grade Level

National Group	Grade 2	Grade 4	Grade 6	Total
Australian	56	51	62	169
British	32	34	38	104
Anglo-Indian	2	6	2	10
Italian	49	56	35	140
Greek	39	21	29	89
East European	17	10	15	42
North European	16	16	15	47
Maltese	9	8	5	22
Other European	3	0	4	7
Middle East	2	3	3	8
Asia	0	2	1	3
Total	225	207	209	641

The main national groups in the non-English origin sample are the Italian and Greek groups. The Italian group is made up mainly of families in which both parents came from Italy and Italian is the main language spoken in the home. The Greek group includes some Greek speaking families from Cyprus or from Turkey, and some Macedonians. In most cases Greek (or Macedonian) is the main language spoken in the home. The East European group includes a high proportion of recently arrived families from Yugoslavia, but also a number of longer established families from Poland, Russia, Hungary, Roumania, Estonia and Lithuania. The majority of families in this group are classified in the non-English speaking group, but a few of the longer established families have adopted English as the main language spoken in the home and are therefore classified in the ES-NES group. The North European group includes mainly families from Holland and Germany. Approximately half the families in this group are classified in the non-English speaking group (NES), and half are classified in the English-speaking non-English origin group (ES-NES). The Maltese group also includes a relatively high

proportion of cases in the English-speaking non-English origin group, approximately one third of the families in this group giving English as the main language spoken in the home, while approximately two-thirds give Maltese as the main language spoken in the home. The other European group includes mainly Spanish and Portuguese speaking families from Spain, Portugal and South America. The Middle East group includes a few non-English speaking families from Turkey, Lebanon and Egypt, while the Asian group includes families from Indonesia, Japan and the Phillipines.

IV THE TESTING PROGRAM

The main testing program was carried out during the second and third school terms of 1971. All the schools taking part in the study were allocated at random into two groups, termed Set I and Set II. The Set I schools were tested in the second school term, and the Set II schools were tested in the third school term.

The testing program was divided into a number of sessions. For each student in the program there was one individual session and four group sessions. Two additional group sessions were added to the Set II program for the additional tests given to the Set II group.

The number of students at each school in the sample varied from one to twelve. At some of the schools there were students at all three grade levels, while at other schools there were students at only one or two grade levels. The Grade 2 children were tested in separate sessions, while the Grade 4 and Grade 6 children were combined for testing. Each session lasted approximately 30 to 45 minutes, depending on the particular test. However, some of the sessions with the Grade 4 and Grade 6 children were longer (up to 65 minutes).

All the testing was undertaken by research assistants employed by ACER. There were seven testers in all, and each tester was allocated a certain number of schools. Two of the testers undertook the individual testing, and five testers undertook the group testing.

The tests used in the study were as follows:

1. The Peabody Picture Vocabulary Test.
(Individual Session, All Grades)

The Peabody Picture Vocabulary Test (PPPVT) was administered individually to all the children in the sample. This is a widely used picture vocabulary test which is designed to provide an estimate of 'verbal intelligence'. American norms only are available for the test (Dunn, 1965). In this study the PPVT was used essentially as a measure of vocabulary development and as an indication of the level of understanding of English achieved by the non-English speaking migrant children. Results on this test were not interpreted as an indication of 'verbal intelligence'. The main advantages of this test are that it is easy and quick to administer, it requires only a pointing response and can therefore be administered to children with a limited understanding of English, the illustrations are generally clear and simple, and the test covers a wide age range and level of difficulty. This test has been widely used both in Australia and overseas.

2. The Concept Development Test.
(Individual Session, All Grades)

The Concept Development Test (CD) comprised a series of Piagetian conservation tasks. It was developed on the basis of previous work at ACER (de Lemos, 1970), and includes tests of conservation of volume, weight, quantity and number.

The purpose of this test was to obtain an assessment of the children's level of conceptual functioning by means of tasks which are relatively independent of language ability and specific school learning. According to Piagetian theory, concepts of conservation are developed as a result of the individual's interaction with his environment, and are not based on acquired knowledge. These concepts are important in that they are considered to be indicators of the level of conceptual functioning achieved, and to be necessary for logical thinking and for the understanding of basic mathematical and scientific concepts.

3. Progressive Matrices Test.

(Group Session 1, All Grades)

The Progressive Matrices test was selected as a measure of non-verbal general ability. The Coloured Progressive Matrices (CPM), designed for children between the ages of five to ten years, was used for the Grade 2 group, while the Standard Progressive Matrices (SPM), which is appropriate for older children and for adults, was used for the Grade 4 and the Grade 6 groups.

The Progressive Matrices tests comprise a series of items made up of designs or patterns which have one part missing, and the subject has to select from six or eight alternatives the part that completes the design correctly. It is therefore a test of the subject's ability to see the relationships between the parts of a pattern and to complete the pattern correctly. This test has been widely used as a test of non-verbal intelligence or general ability, and has been applied to a number of different cultural groups. It is appropriate for children and for adults, and can be administered to persons with relatively little understanding of English, since the items are arranged in sets of increasing order of difficulty such that the first items of each set provide a demonstration of what is required and some practice in solving simple items.

4. Survey of Primary Reading Development.

(Group Session 2, Grade 2).

The Survey of Primary Reading Development (SPRD) is an American test of reading development which covers a wide range of ability from the readiness stage to the comprehension of written material at quite an advanced level. It was selected for the study because it offers some success to all children regardless of their level of reading, and was therefore considered suitable for migrant children whose reading ability at the Grade 2 level might still be very limited.

It comprises a number of sub-tests which assess form comparison, word-form comparison, word recognition, sentence recognition, sentence comprehension and story comprehension. The

test has not been normed, but scores are divided into six descriptive categories which indicate the level of reading development achieved.

5. The Metropolitan Achievement Tests : Primary I Battery
(Group Sessions 3 and 4, Grade 2)

The Metropolitan Achievement Tests are a series of American achievement tests designed for the second half of Grade 1. They have been widely used in studies in the United States, and were selected for use in this study because no appropriate Australian tests were available for this level. American norms only are available for this test.

The test is made up of four sub-tests:

Test 1.	Word Knowledge (MAT 1)
Test 2.	Word Discrimination (MAT 2)
Test 3.	Reading (MAT 3)
	Part 1. Reading Sentences
	Part 2. Reading Stories
Test 4.	Arithmetic Concepts and Skills (MAT 4)

6. Test of Words Used in Social Studies : Form Y.
(Group Session 1, Grade 4 and Grade 6)

The Test of Words Used in Social Studies (SSW) is one of the tests developed by the ACER in collaboration with the Curriculum and Research Branch of the Victorian Education Department. It was developed for the Victorian Primary Schools Testing Program, and is based on the set of tests developed by Allen (1966).

The test comprises two forms, each containing 38 items. All the items are of a standard format, consisting of a stem, which is either a question or an incomplete statement, and which provides either an instance or a simple definition of a word or 'concept label'. The child is required to select the word that matches the statement from four alternatives. The sample of words used in the test was selected from lists prepared by 100 practising teachers of words that they considered that children

in their grades ought to know and understand. The words were listed under six headings related to the traditional disciplines in the social studies area.

The test was normed in 1970 on a sample of Victorian primary school children (Renehan and Wilkes, 1972).

7. Test of Comprehension in Social Studies.

(Group Session 3, Grade 4 and Grade 6)

The Test of Comprehension in Social Studies (SSC) was also developed for the Victorian Primary Schools Testing Program by ACER in collaboration with the Curriculum and Research Branch of the Victorian Department of Education , and is also based on the set of tests developed by Allen (1966). The test consists of blocks of information, each with a set of associated test items. The blocks of information contain verbal material, graphs, maps, photographs, and reproduced documents. This material was adapted from sources which included children's books, text books, newspapers, magazines and tourist pamphlets, and is of the kind typically encountered in social studies courses. On each item the subject is required to choose the correct answer from four alternatives.

This test was normed in 1970 on a sample of Victorian primary school children (Renehan and Wilkes, 1972).

8. Listening Test : Form Y.

(Group Session 2, Grade 4 and Grade 6)

The Listening Test (List) was selected from the NSW Basic Skills Battery, developed by ACER in the early 1960's to assess children's progress and achievement in terms of the aims and objectives of the new curriculum introduced in New South Wales in 1959. This test was included in the battery since it was thought that the listening skills of migrant children could be an important factor in school achievement.

The test is made up of a selection of passages followed by a series of questions on each passage. The passages were

selected to sample as widely as possible from the types of listening situations common to the primary school child. Each passage is read aloud to the child, and the child is then asked a series of questions about the passage. The subject is required to select the correct answer from four alternatives. The answer booklet contains only the item number and the four alternatives from which the answer has to be selected.

The Listening Test was first normed in NSW in 1964, and has been used extensively in NSW schools since this time. The test was also normed in Victoria in 1970 on a sample of Victorian primary school children (Renehan and Wilkes, 1972).

9. Computation Test.

(Group Session 4, Grade 4 and Grade 6)

The computation test (AM4, Part IV) was selected from the AM Series of the ACER Mathematics Tests. This is a test of computation skills, and is completely non-verbal, all items being presented in the form of equations using only numbers and conventional mathematical symbols. This test was therefore considered appropriate for comparing the basic computational skills of non-English speaking migrant children with those of Australian and English speaking migrant children.

This test was normed in Victoria in 1971 on a sample of Victorian primary school children.

10. Money Test.

(Group Session 4, Grade 4 and Grade 6)

The Money test (AM5) was also selected from the AM Series of the ACER Mathematics Tests. This is a test of applied arithmetic and mathematical skills, and was selected because it was thought that this would be an area of particular relevance to migrant families and an area in which many migrant children would have had some practical experience in their everyday life.

This test was normed in Victoria in 1971 on a sample of Victorian primary school children.

11. ACER Primary Reading Survey Tests.

(Group Session 5, Set II only, Grade 4 and Grade 6)

The ACER Primary Reading Survey Tests were selected as additional tests of word knowledge and reading comprehension for the Set II group. These tests are designed to test the language skills of pupils in Grade 3 to Grade 6. Word knowledge and comprehension tests are available for each grade level.

The Word Knowledge test (RWK) comprises a series of items assessing understanding of the common meaning of a word supplied. The child has to select from four alternatives the word closest in meaning to the given word.

The Comprehension Test (RC) comprises a number of prose and dialogue passages from a variety of subject areas. Each passage is followed by a series of questions, designed to measure the pupil's comprehension of facts, inferences, implications and underlying assumptions. For each item the child has to select the correct answer from four alternatives.

These tests were normed in Australia in 1971 on nationally representative samples of primary school children. Separate state norms are not available.

12. Capacity and Volume Test.

(Group Session 6, Set II only, Grade 4 and Grade 6)

The Capacity and Volume test (AM12) was selected from the AM Series of the ACER Mathematics Tests. This is a test of quantitative concepts, and covers the same general area as that covered by the Concept Development test. It was included in the battery to enable a comparison to be made between performance on the individually administered Concept Development battery and on a conventional paper and pencil test which covered the same general area of quantitative concepts and which included at least one item which was an exact parallel of the standard Piagetian conservation of quantity task.

This test was normed in Victoria in 1971 on a sample of Victorian primary school children.

V BACKGROUND INFORMATION

Background information on the children in the sample was obtained by means of parent interviews and parent questionnaires. All parents thought to be from a non-English speaking background were interviewed, while questionnaires were sent to all English speaking parents. The questionnaire paralleled as closely as possible the form of the interview schedule, but some of the information which could be obtained through the interview could not appropriately be included in the parent questionnaire.

The main purpose of the interview and the parent questionnaire was to obtain more detailed information on the home background of the children tested. In addition, the interview and the questionnaire were used to check the basic information that had been given by the schools, that is, the country of origin of the parents, the period of residence in Australia in the case of non-Australian parents, the language spoken in the home, and the father's occupation.

The areas covered in the interview schedule included questions on language usage in the home, a rating of the parents' understanding and use of English as assessed during the interview, the educational level and work histories of mother and father, whether or not the child had attended pre-school, the parents' aspirations for the child's future education and career, and information on the occupational status or expectations of the child's siblings. Parents were also questioned on their reasons for coming to Australia and their attitudes to Australia, the extent of their contact with Australians, their reading habits, and the amount of time spent watching television. In addition, the number of children and adults living in the home and the type of house and number of rooms in the house were noted, and a general assessment was made of the physical condition of the home and the parents' attitude toward the child and his education, based on observations during the course of the interview. 23

The questionnaire generally covered the same areas, but included in addition a more specific question on parents' satisfaction or dissatisfaction with their child's education. For

Australian parents there was a section of questions relating to their contacts with English-speaking and non-English-speaking migrants, and for non-Australian parents there was a section of questions on their contacts with Australians, their reasons for coming to Australia, their attitudes to Australia, and whether they intended to stay in Australia or return to their home country.

In the questionnaire it was not possible to include questions on the physical condition of the home or to make any ratings of home background or attitude of parents toward the child and his education.

A total of 374 non-English origin families were listed. Of these, 327 families were interviewed, or 87 per cent of the total listed. The main reasons for non-completion of the interview were inability to trace the family or the return of the family to their home country, either on holiday or permanently. Parent questionnaires were sent out to 266 families, and 190 completed questionnaires were returned. This number represented 71 per cent of the total sent out.

VI RESULTS OF THE TESTING PROGRAM

The main results of the testing program are shown in Appendix 1, Table A1 to Table A6. Tables A1 to A4 show the mean scores and standard deviations for each group on each test at Grade 2, Grade 4 and Grade 6. The results of one way analyses of variance applied to test the significance of the differences in mean scores between the four groups are also shown in these tables, together with the results of t-tests applied to pairs of means to determine where the significant differences occur. Comparisons between the mean scores of the Australian group and the non-English origin sample with over five years residence in Australia are shown in Table A5, and comparisons between the

mean scores of the Australian group and the Southern European group with over five years residence in Australia are shown in Table A6.

The results of the study are illustrated graphically in Appendix 2, Figure 1 to Figure 6. These graphs illustrate the comparisons between the four main groups (Figure 1 and Figure 2), the comparison between the Australian sample and the non-English origin sample divided according to period of residence in Australia (Figure 3 and Figure 4) and the comparison between the main national groups in the non-English origin sample (Figure 5 and Figure 6).

The main finding of the study was that there are marked and consistent differences in performance between English speaking and non-English speaking children at the three grade levels studied. These differences are in most cases significant, and are more marked on the language tests than on the non-verbal and arithmetic tests. There is some tendency for differences on the non-verbal and arithmetic tests to decrease from Grade 2 to Grade 6, and at the Grade 6 level differences on the arithmetic tests and on the concept development test are not significant. Differences on the language tests are however at about the same level of significance at all grade levels.

There were generally no significant differences in performance between the Australian and English speaking migrant children, including migrant children of both English origin and of non-English origin. At the Grade 2 and Grade 4 levels there was some tendency for the mean scores of the English speaking migrant children of non-English origin to be slightly above the mean scores of the Australian and English origin migrant children, but at the Grade 6 level the mean scores of the English speaking non-English origin migrant children tended to be slightly lower than the mean scores of the Australian and English origin migrant children, and were not significantly different from those of the non-English speaking migrant children. Differences between the three English speaking groups were however not significant, except in the case of the MAT 4 test (Arithmetic Concepts and Skills) at the Grade 2 level, where the mean score of the English speaking non-English

origin group was significantly higher than that of the Australian group, and in the case of the PPVT at the Grade 6 level, where the mean score of the English speaking English origin group was significantly higher than that of the English speaking non-English origin group.

VII FACTORS AFFECTING PERFORMANCE ON THE TESTS

A study of the factors related to performance on the tests indicated that the factors most closely associated with test scores in both the English origin and the non-English groups were father's occupation, geographic location of suburb, ranking of suburb and proportion of non-English speaking children in the class. There were no consistent differences in scores according to type of school attended (state or non-state) or according to size of class. There were some significant differences in test scores between boys and girls, but these differences were not consistent, boys scoring better than girls on some tests and girls scoring better than boys on other tests, nor was there any indication of any difference in the pattern of sex differences between the English origin and the non-English groups.

A study of the relationship between parents' period of residence in Australia and test performance in the non-English origin group indicated a consistent trend for higher scores to be associated with longer periods of residence in Australia, the most marked differences usually occurring between children whose parents had lived in Australia for less than five years and those whose parents had lived in Australia for over five years. When comparing the test scores of the non-English origin group whose parents had lived in Australia for over five years with those of the Australian group, it was found that differences on the language tests were still generally significant, but differences on the non-verbal general ability test, the concept development test and the arithmetic tests were generally not significant.

Comparisons between the test performance of the different national groups in the non-English origin sample indicated a clear trend for the mean scores of the North European group to be higher than those of the other national groups, and in most cases to be higher than those of the Australian group. At the Grade 4 level the mean scores of the East European group also tended to be higher than those of the other national groups, but at the Grade 2 and Grade 6 levels the mean scores of the East European group tended to be similar to those of the Southern European groups.

There were no consistent differences in performance between the three main Southern European national groups in the sample (Italian, Greek and Maltese), the scores of these groups being consistently lower than those of the North European group, and at the Grade 4 and Grade 6 level, consistently lower than those of the East European group, although at the Grade 6 level differences between the East European and South European groups were slight.

Separate analyses were carried out for the Southern European group to determine the effect on test scores of parents' period of residence in Australia and socio-economic status as assessed by ranking of father's occupation and geographic location of suburb. These results indicated that differences according to parents' period of residence in Australia were similar for the Southern European group as for the non-English origin group as a whole, but differences according to father's occupation and geographic location of suburb were not significant in the case of the Southern European group. This suggests some confounding of the factors affecting performance on the tests in the non-English origin group, the higher scoring North European group tending to have a higher proportion of children living in the higher ranking eastern and south eastern suburbs and a higher proportion of children in the higher ranking category according to father's occupation.

VIII RESULTS OF PARENT INTERVIEWS AND QUESTIONNAIRES

Additional information on the background of the children was obtained by means of parent interviews in the case of the non-English origin children and parent questionnaires in the case of the English origin children. The main purpose of the interviews and questionnaires was to obtain information on background variables that could be related to the educational achievement of the children.

In the case of the non-English origin children information was obtained on language usage in the home, educational level of the parents, present and previous occupations of mother and father, parental aspirations for the further education and career of the child, pre-school attendance of the child, reading and television viewing background of the home, and migrant parents' contacts with and attitudes towards Australians. In addition, information was obtained on the physical conditions of the home, and ratings were made of the home background. Similar information was collected in the case of the English origin children, but in the case of the parent questionnaire it was not possible to include questions on the physical condition of the home or to make a rating of the home background.

Language Usage in the Home.

Questions on language usage in the home were applicable only to the non-English origin children. In both the English speaking non-English origin group and the non-English speaking group considerable variation was found in the language usage between husband and wife, between parents and children, and between children in the family.

The language spoken between parents was in almost all cases in the non-English speaking group the first language of the parents, while in the English speaking non-English origin group the majority of parents used both English and their own first language. The language spoken between parents and children was in the non-English speaking group mainly the first language of

the parents, but in the English speaking non-English origin group it was mainly English. The main language spoken between the children in the majority of cases in both groups was English, the percentage being higher in the case of the English speaking non-English origin group than in the case of the non-English speaking group.

These results indicate that even in the non-English speaking group where the first language of the parents is the dominant language spoken by the parents and between the parents and the children, English has become the main language of communication among the children in the family. In the English speaking non-English origin group, English is the dominant language spoken between parents and children, with the first language of the parents generally being spoken only by the parents. However, only a small proportion of parents in this group still use their first language as the main language of communication between themselves.

Ratings of the parents' use and understanding of English indicated that the majority of parents in the English speaking non-English origin group were fluent in English. In the non-English speaking group slightly over one third of parents were rated as fluent speakers of English, approximately one third were rated as fair speakers of English and slightly less than one third were rated as poor speakers of English, indicating that they had difficulty in communicating in English.

An analysis of the relationship between the use of English in the home and test scores in the non-English origin group indicated a consistent trend for higher test scores to be associated with greater use of English in the home. These differences were significant on a number of the tests, particularly at the Grade 4 and Grade 6 levels.

Occupational Level of Parents.

An analysis of the relationship between father's occupation in Australia and in country of origin indicated little change in occupational ranking from country of origin to Australia, with

the majority of fathers in the non-English origin group having occupations rated in the three lowest categories in both country of origin and in Australia. A descriptive analysis of types of occupation indicated a marked shift from farming occupations in country of origin to labouring and factory occupations in Australia. There was also some increase in occupations in the building industry and metal trades in Australia as compared with country of origin, and a decrease in occupations in the food and service trades, skilled technicians and lower white collar workers, although the numbers in the latter categories were very small.

Information on the working status of mothers indicated that the Australian group had the highest proportion of non-working mothers and the lowest proportion of mothers working full time, while the non-English speaking group had the highest proportion of mothers working full time and the lowest proportion of non-working mothers. Part-time work was also relatively less frequent among the non-English speaking group than among the other groups.

Rankings of mother's occupations on the Congalton scale indicated that the majority of occupations in the non-English speaking group were ranked in Category 6, which would include factory jobs, while the majority of occupations in the Australian group were ranked in Category 5, which would include secretarial and lower white collar occupations. In the English speaking English origin and English speaking non-English origin groups the majority of mother's occupations were ranked in Categories 5 and 6, with a slightly higher proportion in Category 5 in the case of the English origin group and a slightly higher proportion in Category 6 in the non-English origin group.

A comparison between rankings of mother's previous occupation against rankings of mother's present occupation indicated a trend for a higher proportion of cases in lower occupational rankings in the case of present occupation in all groups. While this could suggest some trend for a drop in occupational ranking from previous occupation to present occupation, the high

proportion of cases in which mothers were either not working at present or for whom no information on previous occupation was available makes it necessary to interpret this apparent trend with some caution. An analysis of those cases for which information was available for both present occupation and previous occupation indicated that in the majority of these cases there was no change in occupational ranking, and in the remaining cases there was no consistent trend for present occupation to be ranked either higher or lower than previous occupation.

A descriptive analysis of mother's occupation in Australia and in country of origin for the non-English origin group indicated a marked increase in the number of factory occupations in Australia as compared with country of origin. There was also an increase in the number of cleaners, domestic workers and, shop assistants in Australia, and a decrease in all other types of occupation which included hairdressers, dressmakers, nurses, skilled technicians, teachers, and secretarial and clerical workers.

Educational Level of Parents.

Information on the educational level of parents indicated a very high proportion of parents in the non-English speaking group with primary level schooling only. The majority of parents in all other groups had at least partial secondary schooling or technical or professional training. Only a small proportion of parents in the Australian and English speaking English origin groups had primary schooling only, but over one third of parents in the English speaking non-English origin group had primary schooling only.

An analysis of the relationship between test performance and educational level of parents in the non-English origin group indicated a consistent trend for higher test scores to be associated with higher educational level of parents. Differences were significant on a number of tests, particularly at the Grade 2 and Grade 6 levels.

Parents' Aspirations.

Parents were asked a number of questions to determine their aspirations for their child's education and career.

The majority of parents in all groups indicated that they would like their child to complete Form 6 or to continue schooling as far as possible. Of parents who stated a preference for further education, the majority indicated a preference for university education. However, a high proportion of parents, particularly in the non-English origin groups, indicated that they did not know what further education they would like their child to have, or said that it was up to the child to decide. Choices of future occupation for their children were mainly in the professional categories, with a higher proportion of choices in the higher professional category (doctor, lawyer, engineer) in the three migrant groups, and a higher proportion in the lower professional category (teacher, nurse) in the Australian group. However, a high proportion of parents in all groups stated that they did not know what future occupation they would like their child to have, or that it was up to the child to decide.

Overall, differences in parents' aspirations between the different groups were slight, although there was some tendency for the mean parents' aspirations scale score to be higher for the ES-EO and ES-NEO groups than for the Australian and NES groups. These differences were however significant only in the case of the ES-EO and Australian groups in the parent questionnaire sample.

A descriptive analysis of the job choices of parents and children indicated a tendency for parents to give a higher proportion of choices in the professional categories and for children to give a higher proportion of choices in the skilled, artistic and white collar categories. This was particularly marked in the interview group, and suggests a more realistic assessment of their future job potential on the part of the children than on the part of their parents. There is however still an overall preference for professional occupations by both children and parents.

An analysis of the relationship between parents' aspirations and sex of the child indicated some tendency for higher parental aspirations for boys than for girls in the case of the Australian and NES groups, and higher parental aspirations for girls than for boys in the case of the ES-EO and ES-NEO groups. Related to this trend is a tendency for Australian and NES parents to be more likely to accept a lower level of schooling for girls than for boys, while the ES-EO and ES-NEO parents are more likely to accept a lower level of schooling and apprenticeship training for boys than for girls.

In all groups there was a tendency for university education and higher professional occupations to be preferred for boys, and tertiary education at the CAE level and lower professional occupations to be preferred for girls.

An analysis of the relationship between parents' aspirations and test performance indicated a consistent trend for children with high parent aspirations to score higher than children with low or moderate parent aspirations. These differences were significant on a number of tests, particularly at the Grade 2 and Grade 4 levels. Differences in test performance between children with low parent aspirations and children with moderate parent aspirations were not consistent, particularly at the Grade 2 level where children with low parent aspirations tended to score higher than children with moderate parent aspirations.

Pre-School Attendance

Information on the pre-school attendance of the child indicated that the highest proportion of pre-school attendance was found in the Australian group, and the lowest proportion of pre-school attendance was found in the non-English speaking group. An analysis of parents' comments indicated that the majority of parents in all groups favoured pre-school education. However, a more detailed analysis of these comments suggested some differences in attitudes toward pre-schooling and understanding of pre-schooling between the non-English origin parents who were

interviewed and the English origin parents who completed the questionnaire. The non-English origin parents generally tended to confuse pre-school centres with day care centres, and to assume that the main function of pre-schools was substitute care. They therefore saw little need for a child to attend pre-school if the mother was at home or if there was some other relative or friend who was able to look after the pre-school child. The English origin parents, on the other hand, saw pre-schooling as an extension of the experiences of the pre-school child, and saw the main advantages of pre-schooling in terms of preparation for schooling and learning to mix with other children.

An analysis of the relationship between attendance at pre-school and test performance in the case of the non-English origin group indicated some tendency at the Grade 2 level for the mean scores of children who had attended pre-school to be higher than the mean scores of children who had not attended pre-school, and these differences were significant on some of the tests. At the Grade 4 and Grade 6 levels, however, there were no significant differences in test scores between children who had attended pre-school and children who had not attended pre-school, and there was no marked or consistent trend for one group to score higher than the other group.

Attendance at Ethnic Schools.

Information on attendance at ethnic schools was also obtained. Of the total non-English origin sample, only 17 per cent attended ethnic schools. Attendance at ethnic schools was highest in the Greek sample, where just over half the children attended ethnic schools. Only 12 per cent of the Italian children attended ethnic schools. Numbers in other ethnic groups were too small to draw any conclusions on attendance at ethnic schools in other groups, but it was noted that all of the Lithuanian and Estonian children in the sample attended ethnic schools, and one of the two Russian children in the sample attended an ethnic school. This suggests that attendance at ethnic schools amongst these East European groups is probably fairly high.

Attendance at ethnic schools was more regular in the Greek sample, where the majority of children attended for at least two hours a day for two days a week. In the other groups attendance at ethnic schools was usually only one day a week for one to three hours.

No consistent differences in test performance between the Greek children who attended ethnic schools and those who did not attend ethnic schools were found. At the Grade 2 and Grade 4 levels there was some tendency for children who attended ethnic schools to score higher than those who did not attend, while at the Grade 6 level the tendency was for children who did not attend ethnic schools to score higher than those who did attend ethnic schools. However, these differences were significant only in the case of the PPVT at the Grade 6 level.

Attitudes to Education.

In the parent questionnaire, parents were asked if they were generally satisfied with their child's education, and were then asked if there was anything they particularly liked or anything they particularly disliked about the education system in Australia.

The majority of parents indicated that they were generally satisfied with their child's education, but when questioned about likes or dislikes they usually mentioned more dislikes than likes. This trend was more marked in the English origin migrant parents than in the Australian group.

A descriptive analysis of the likes and dislikes mentioned indicated that the things parents most frequently said they liked about the education system were the teaching methods, the subjects covered, the facilities and equipment, the emphasis on individual teaching and the methods of assessment. Things parents most frequently said they did not like were poor methods and standards, large classes, poor facilities and equipment, the high cost of education and the lack of free schooling, teacher shortages, teacher attitudes and teacher strikes.

In the interview sample parents were not questioned specifically about their attitudes to education, but some references to education were made when parents were questioned about their attitudes to Australia generally.

References to education were more frequent among the things parents said they disliked about Australia than among the things they said they liked about Australia, and the most frequent things mentioned were the low standard of education and the cost of education.

Parents' views and comments on education are bound to differ according to their particular experiences and their particular view of education. However, it was thought of interest to note these comments as a possible basis for further work in this area. Obviously no overall conclusions can be drawn from this data. A more systematic study of parents' responses to specific questions would be needed to provide valid data on parents' attitudes to specific aspects of education.

Reading Background of the Home.

Information obtained on the reading background of the home indicated that frequency of reading in the non-English speaking group was lower than that in the other groups, with over half the parents in this group stating that they read only a little or not at all. The majority of parents in the other groups stated that they read a lot or quite a lot. Among these groups there was some tendency for frequency of reading to be higher in the ES-EO and ES-NEO groups than in the Australian group. Questions on type of reading also indicated a difference between the non-English speaking group and the other groups, with the majority of parents in the non-English speaking group stating that they read newspapers or magazines only, while the majority of parents in the other groups stated that they read books in addition to newspapers or magazines. Language of reading in almost all cases in the Australian and ES-EO groups was English only, while the majority of parents in the ES-NEO group also read in English only. Some of the parents in this group stated that they read in English and their home language, but only a small proportion

stated that they read in their home language only. In the non-English speaking group over a third of the parents stated that they read in their home language only, and nearly half of the parents stated that they read in both English and their home language. Only a small proportion stated that they read in English only.

An analysis of the relationship between reading background of the home and test scores in the case of the non-English origin group indicated a consistent trend for children from homes where the reading background was higher to score higher than children from homes where the reading background was lower. These differences were not significant at the Grade 2 level, were significant on most of the language tests at the Grade 4 level, and were significant on all tests except the computation test at the Grade 6 level. These results indicate a clear trend in the case of the non-English origin group for the relationship between reading background of the home and test scores to increase from Grade 2 to Grade 6, and to be more marked on the language tests than on the non-verbal and arithmetic tests.

Television Viewing in the Home.

Information on the television viewing of both parents and children was obtained. Nearly all families in the sample had a television set in the home, only one Australian family and ten families in the non-English speaking group stating that they did not own a television set.

Questions on the television viewing of the parents indicated that the television viewing of the non-English speaking parents was more frequent and more regular than the television viewing of parents in the other groups. Similarly the television viewing of the children in the non-English speaking group tended to be more regular and more frequent than the television viewing of children in the other groups.

An analysis of the relationship between children's television viewing and test scores in the case of the non-English origin group indicated some tendency for children with lower

television viewing to score higher than children with high television viewing. These differences tended to be more marked and more consistent at the Grade 6 level than at the Grade 2 and Grade 4 levels. However, differences between children according to amount of television viewing were generally not significant, except in a few cases on the language tests at the Grade 4 and Grade 6 levels.

Home Environment.

Information on the home environment of the children was obtained for the interview sample only. This included information on the number of adults and children in the family, the type and construction of the home, and the interviewers' ratings of the home environment.

In the majority of families there were two adults living in the home. These would generally represent the two parent families. There were only a small proportion of one parent families in the sample, but a number of families in which there were three or more adults living in the home. These would usually be families in which one or both grandparents were living in the home.

The majority of families included two, three or four children, with an average of three children in each family. There were no significant differences between the groups interviewed in the average number of children, the average number of adults, or the average number of persons living in the home. The majority of families lived in three bedroom homes, and the average bedroom index (i.e. number of bedrooms divided by number of persons) was .6.

The majority of families in both the ES-NEO and the NES groups owned their own home. The proportion of home owners was higher in the NES group than in the ES-NEO group, but in both groups the proportion of home owners was slightly lower than for the Victorian Metropolitan area as a whole.

The majority of families in both groups lived in an individual home, with only a small proportion of families living in a self-contained flat or part of a shared home. The proportion

of families living in an individual home was higher for our sample than for the Victorian Metropolitan area as a whole. The majority of homes were constructed of brick, and again the proportion of families living in brick homes was higher in our sample than in the Victorian Metropolitan area as a whole.

In the majority of cases the interviewers rated the general condition of the home and the home environment of the child as good or fair. There was some tendency for a higher proportion of homes to be rated as good in the ES-NEO group, and a higher proportion of homes to be rated as fair in the NES group. This could be related to socio-economic differences between these two groups, and the fact that a higher proportion of families in the ES-NEO group live in the middle class eastern and south eastern suburbs, and a higher proportion of families in the NES group live in the inner, northern and western suburbs. Relatively few homes in either group were rated as poor.

An analysis of the relationship between the home environment of the child and test scores in the case of the NEO group indicated a consistent tendency for children with higher home environment scale scores to score higher than children with lower home environment scale scores. This tendency was more marked at the Grade 4 and Grade 6 levels, where differences on a number of tests were significant, than at the Grade 2 level, where differences according to home environment scale scores were not significant.

The home environment scale scores were based mainly on information and ratings related to the physical conditions of the home. A further analysis was therefore undertaken of the relationship between performance on the tests and the ratings of home environment based on the parents' interest in and attitude toward the child. This analysis indicated that differences in test scores according to ratings of parents' interest in and attitude toward the child tended to be more marked and more significant than differences in test scores according to the home environment scale scores based mainly on ratings of the physical conditions of the home.

Migrant Parents' Attitudes to Australia.

Migrant parents were asked a number of questions to assess their attitudes to Australia. They were asked their reasons for coming to Australia, what things they particularly liked or disliked about Australia, and whether they intended to stay in Australia or return to their home country.

The most common reasons given for emigration to Australia in both the interview sample and the questionnaire sample were those grouped in the category 'more opportunities and better living conditions', including mainly references to more job opportunities, better wages, and a higher standard of living. In the interview sample a number of parents also referred to family reasons, either relatives already living in Australia or the fact that they came out with their parents. In the parent questionnaire sample a number of parents referred to the climate and open spaces of Australia.

When asked about the things they liked most about Australia, the majority of parents in the interview sample referred to employment or business opportunities, including references to better jobs, better wages, and better working conditions, or else merely said that they liked Australia and were quite happy here. In the parent questionnaire sample the majority of parents referred to the climate and open spaces of Australia. References were also made to employment and business opportunities, the standard of living and housing in Australia, the freedom and informality of life in Australia, and the friendliness of Australians and the lack of discrimination and class distinction.

The most common dislike mentioned in both the interview sample and the parent questionnaire sample was the lack of adequate social services, particularly the lack of free medical treatment, the high cost of health insurance, the high cost of medical and dental treatment, and the inadequacy of unemployment and sickness benefits. In the interview sample other dislikes most frequently mentioned were the cost and standard of education, language problems leading to loneliness and isolation, strikes and unemployment, the high cost of living, and discrimination and unfriendliness of Australians. In the parent questionnaire

sample other dislikes most frequently mentioned were the high cost of living, the political system and government, the cost and standard of education, the lack of public transport, bad roads and traffic conditions, pollution, litter, lack of sewerage, flies and insects.

Overall, parents in the parent questionnaire sample tended to mention more things that they liked and disliked about Australia, while parents in the interview sample tended to mention fewer likes and dislikes. Parents in the questionnaire sample tended to mention more likes than dislikes, while parents in the interview sample tended to mention more dislikes than likes.

When asked whether they intended to remain in Australia or return to their home country, the majority of parents in all groups stated that they intended to remain in Australia. There were a higher proportion of parents in the non-English speaking group than in the English speaking migrant groups who indicated that they were uncertain about whether they intended to return to their home country, but relatively few parents in any group stated that they definitely intended to return to their home country.

The mean scale score for attitude to Australia was slightly lower for the non-English speaking group than for the other migrant groups. This scale score was based on number of likes and dislikes mentioned, and intention to remain in Australia or return to home country.

Questions relating to contacts between migrants and Australians indicated that a higher proportion of the non-English speaking migrant parents lived in areas in which their neighbours were mainly migrants or migrants and Australians, and that they tended to have fewer Australian friends and to visit Australian friends less frequently than English speaking migrants in both the English origin and the non-English origin groups. Australian parents, on the other hand, tended to live in areas where their neighbours were mainly Australian, and to have few contacts with non-English speaking migrants, although

they generally had some contacts with English speaking migrants.

Questions on the attitudes of non-Australian parents toward Australians and Australian parents toward non-Australians indicated that the majority of non-Australian parents regarded Australians as quite friendly or very friendly, while the majority of Australian parents regarded non-Australians as quite interesting or very interesting to talk to. It was also found that the greater the contact between Australians and non-Australians, the more likely that these groups viewed each other in a more favourable light.

An analysis of the relationship between contact with Australians and test performance indicated a consistent trend for higher test scores to be associated with greater contact with Australians, these differences being significant on a number of the tests. However, it is likely that contact with Australians is related to a number of other factors which are associated with test performance, such as language spoken in the home, socio-economic status, and area of residence.

IX DISCUSSION

The finding that the mean scores of the non-English speaking group were consistently lower than the mean scores of the Australian and English speaking migrant groups was not unexpected. Clearly children whose home language is not English will be at a disadvantage in an English speaking school system. The important question is whether this disadvantage increases or decreases as the children progress through school, and whether it is still found among children from long established migrant families where English has been adopted as the major language spoken in the home, or where the family has become bilingual, with English being as dominant in the home as the first language of the parents.

The results of our study indicate that differences between children from a non-English speaking home background and Australian children tend to decrease as the children progress through primary school, particularly on the non-verbal and arithmetic tests. Differences on the vocabulary and verbal comprehension tests, however, seem to be relatively constant from Grade 2 to Grade 6.

Our results also indicate that the achievement of children whose parents have lived in Australia longer is generally higher than that of children whose parents have lived in Australia for a shorter period of time, the most marked differences generally being found between children whose parents have lived in Australia for less than five years and children whose parents have lived in Australia for over five years.

An important finding of the study is that there are no significant differences on the non-verbal general ability test between Australian children and non-English origin children who have lived in Australia for over five years, even though there are significant differences between these groups on the language based school achievement tests and particularly on the vocabulary tests. The lack of significant differences on the non-verbal general ability test indicates that there are no significant differences in general ability between these groups that could account for the differences on the language tests, and that these differences must therefore be attributed to other factors, the most likely factor being the difference in the language background of the two groups.

The finding that scores on the non-verbal general ability test tend to increase with increasing period of residence in Australia is also of interest, since this test is assumed to be relatively independent of language and cultural influences. These differences could be attributed to differences in general ability between children according to when their parents arrived in Australia, or they could be attributed to cultural and environmental effects related to period of residence in Australia. There are some differences in the composition of the non-English

origin sample according to period of residence in Australia, the longer established migrant group tending to have a higher proportion of North European children, while the more recently arrived group would have a higher proportion of Southern European and Yugoslav children. These differences could have contributed to the differences in scores according to period of residence in Australia. However, the increase in scores on the non-verbal general ability test with increasing period of residence in Australia was also found when the results of the Southern European group were analysed separately. Since there is no reason to assume differences in general ability within this group according to when their parents arrived in Australia, this does suggest that performance on the Progressive Matrices test is affected by cultural and environmental factors. This finding has implications for the use of non-verbal general ability tests with migrant children, since if performance on this type of test is affected by environmental and cultural factors, these tests may not be reliable indicators of general ability when applied to recently arrived migrant children from a different cultural background.

Differences between Australian children and non-English speaking migrant children were found not only in test performance, but also on a number of other background variables. The majority of children in the non-English speaking group were at a lower socio-economic status as assessed by father's occupation and ranking of residential area, and these children also tended to live mainly in the northern, western and inner suburbs and to attend schools with a high enrolment of non-English speaking migrant children. The Australian and English speaking migrant groups, on the other hand, tended to have a higher proportion of children in the higher socio-economic status categories as assessed by father's occupation and ranking of residential area, and tended to live mainly in the eastern and south eastern suburbs and to attend schools with a low enrolment of non-English speaking migrant children. The results of the parent interviews and parent questionnaires also revealed other important differences between these groups. A high proportion of parents in the non-English speaking group had primary schooling only, while the majority of parents in the Australian and English speaking

migrant groups had at least some degree of secondary schooling. The frequency of reading in the home was also much higher for the Australian and English speaking migrant groups than for the non-English speaking migrant group. All these factors are likely to have contributed to the differences in achievement between the Australian and non-English speaking migrant children.

It is of interest to note that the characteristics of the English speaking children of non-English origin tended to be closer to those of the Australian and English origin migrant children than to those of the non-English speaking migrant children. This group included a high proportion of North European children, and the analyses of the different national groups indicated that the characteristics of the North European group were generally closer to those of the Australian and English origin migrant children than to those of the other non-English origin migrant groups. The test scores of the North European group also tended to be higher than the test scores of the other national groups, and in most cases higher than the scores of the Australian group.

The analyses of factors related to test performance in the combined English origin group, including both Australian children and English speaking migrant children of English origin, indicated that socio-economic status, as assessed by father's occupation and ranking and location of residential area, was significantly related to test performance. However, in the non-English origin group, socio-economic status was confounded with national origin, the North European group scoring higher than the other national groups and having a higher proportion of children in the higher socio-economic status categories. When analyses to test the effects of socio-economic status were applied to the Southern European group only, these factors were found to have no significant effect on test performance.

The lack of a significant relationship between socio-economic status factors and test performance in the Southern European group is probably due to the small variability of these factors in this group. The majority of children in this group fall into the two lowest occupational categories on the Congalton

scale, and live mainly in the lower ranking northern, inner and western suburbs. Another reason for the lack of a relationship between socio-economic status and test performance in the Southern European group could be the fact that the selective factors which would normally operate in a socially mobile society would not have had time to operate in the Southern European group, so that the relationship between socio-economic status and ability usually found in socially mobile societies would not be found in this group.

The results of this study therefore indicate that there are differences in school achievement between Australian and non-English speaking migrant children, but there are also differences in socio-economic status and other background variables that are likely to be related to school achievement. But despite these differences in background, there are no significant differences in general ability between Australian children and non-English origin children with over five years residence in Australia. There are also generally no differences in achievement on the concept development and arithmetic tests between Australian children and non-English speaking migrant children at the higher levels of the primary school. These results indicate that there are no differences in the potential achievement of Australian and non-English origin migrant children, and that it should be possible for differences on the language based school achievement tests to be overcome by appropriate educational programs.

X CONCLUSION

This study has been confined to a study of the school achievement of Australian and migrant children at the primary school level. Results indicate that differences between Australian and non-English speaking migrant children tend to decrease as the children progress through school, but that there are still significant differences between Australian and non-English speaking migrant children on the language based comprehension and word knowledge tests at the Grade 6 level, even in the case of non-English origin

children whose parents have lived in Australia for over ten years.

This study was designed to obtain an overall view of the school achievement of migrant children. For this reason the migrant children were sampled randomly from the total migrant population at the levels studied. The proportion of children from the different national groups in the sample therefore corresponds to their proportion in the total migrant population at these levels. No restrictions in terms of period of residence in Australia were applied to the definition of migrant children. All children whose parents were not born in Australia were considered as migrant.

The results of this study therefore provide an overall view of the achievement of migrant children at the primary level. These results provide a framework under which more detailed studies of specific groups of migrant children might be undertaken. Our results have indicated some differences in achievement according to national origin, and suggest that future studies should concentrate on specific national groups. Our results also indicate that the main differences in achievement between Australian and non-English origin children occur among children who have lived in Australia for up to five years. Studies on the progress of specific groups of migrant children in their first five years in Australia would be of particular value, particularly studies which concentrate on an analysis of the factors that are related to progress in learning English, including both background variables and the specific educational experiences of the children. The results of this study would provide a basis against which the results of further studies may be compared.

There is also a need for further studies at the secondary school level to determine whether differences on language based school achievement tests persist at the secondary level, and whether the achievement of non-English origin children at the secondary level is consistent with their potential as assessed on non-verbal measures of general ability and their achievement in subjects which are less dependent on language, such as science and mathematics.

The persistent differences on the language tests found in this study point to the need for research into the development and evaluation of more effective programs for teaching English to migrant children. The most urgent need is to provide programs for newly arrived migrant children, but the fact that language difficulties persist in children from a non-English origin background who have lived in Australia for a number of years points to the need for more general programs in areas where there is a high concentration of children from non-English speaking backgrounds.

There is a need for research into a variety of programs that could serve different needs and different groups of children. It is important to bear in mind that methods and approaches which may suit middle class Australian children may not necessarily be appropriate for children from a different cultural background. Evidence from pre-school programs in the United States has indicated that at the pre-school level structured directive programs are more effective in overcoming the language handicaps of children from disadvantaged backgrounds than unstructured general enrichment programs. In view of these findings it is of concern to note that the current trend in primary and secondary schools is toward more unstructured methods. Such methods may tend to increase the differences in achievement between Australian children and children from a non-English speaking background. It is therefore important that continuing evaluation studies be undertaken to determine the most effective methods of teaching for children from non-English speaking home backgrounds.

Special programs for the teaching of English to migrant children have been initiated and funded by the Australian government in the last five years. As yet no systematic evaluation of these programs in terms of the achievement of migrant children has been undertaken. There is an urgent need for the evaluation of these programs and for further research into the development of more effective teaching programs for migrant children.

APPENDIX 1

TABLES

OF

RESULTS

TABLE A1

Grade 2 Results : Means and standard deviations on each test, and results of analyses of variance and t-tests.

Test	Group	N	Mean	SD	Results of Analyses of Variance df	F	p	Results of t-tests Significant Differences only shown
PPVT	Aust	54	65.407	8.302				Aust > NES (t=6.620, p<.001)
	ES-EO	33	66.909	8.665	3,209	23.946	<.001	ES-EO > NES (t=6.238, p<.001)
	ES-NEO	16	65.875	10.366				ES-NEO > NES (t=4.085, p<.001)
	NES	110	55.355	9.519				
CPM	Aust	54	20.444	4.693				Aust > NES (t=2.718, p<.01)
	ES-EO	34	20.176	5.283	3,214	4.765	<.01	ES-NEO > NES (t=3.031, p<.01)
	ES-NEO	17	22.235	6.160				
	NES	113	18.301	4.799				
SPRD	Aust	55	71.200	10.899				Aust > NES (t=3.395, p<.001)
	ES-EO	34	72.353	10.027	3,215	9.060	<.001	ES-EO > NES (t=3.374, p<.001)
	ES-NEO	18	76.375	11.471				ES-NEO > NES (t=3.843, p<.001)
	NES	114	64.667	12.092				
MAT1	Aust	54	32.426	3.775				Aust > NES (t=4.288, p<.001)
	ES-EO	31	32.194	3.885	3,206	10.237	<.001	ES-EO > NES (t=3.153, p<.01)
	ES-NEO	15	32.933	3.973				ES-NEO > NES (t=2.632, p<.01)
	NES	110	28.027	7.051				
MAT2	Aust	54	32.611	3.123				Aust > NES (t=3.960, p<.001)
	ES-EO	31	31.839	3.465	3,206	7.860	<.001	ES-EO > NES (t=2.381, p<.05)
	ES-NEO	15	32.867	3.583				ES-NEO > NES (t=2.321, p<.05)
	NES	110	29.091	6.147				
MAT3	Aust	52	35.288	9.868				Aust > NES (t=3.993, p<.001)
	ES-EO	31	33.935	9.913	3,204	9.212	<.001	ES-EO > NES (t=2.651, p<.01)
	ES-NEO	15	38.667	6.997				ES-NEO > NES (t=3.592, p<.001)
	NES	110	28.091	11.083				
MAT4	Aust	54	52.704	8.593				Aust > NES (t=4.563, p<.001)
	ES-EO	31	53.323	7.756	3,206	15.142	<.001	ES-EO > NES (t=3.966, p<.001)
	ES-NEO	15	57.467	4.190				ES-NEO > NES (t=4.311, p<.001)
	NES	110	44.764	11.272				ES-NEO > Aust (t=2.071, p<.05)
CD	Aust	54	11.778	6.751				Aust > NES (t=4.365, p<.001)
	ES-EO	33	10.636	6.153	3,211	7.751	<.001	ES-EO > NES (t=2.836, p<.01)
	ES-NEO	17	10.412	6.005				ES-NEO > NES (t=2.025, p<.05)
	NES	111	7.180	6.145				

TABLE A2

Grade 4 Results : Means and Standard Deviations on each test, and results of analyses of variance and t-tests

Test	Group	N	Mean	SD	Results of Analyses of Variance df	F	p	Results of t-tests Significant Differences only shown
PPVT	Aust	49	79.275	10.889				Aust > NES (t=6.473, p<.001) ES-EO > NES (t=4.870, p<.001) ES-NEO > NES (t=3.293, p<.01)
	ES-EO	37	76.784	9.378	3,199	19.045	<.001	
	ES-NEO	16	76.688	11.418				
	NES	99	66.414	11.605				
SPM	Aust	50	28.940	9.318				Aust > NES (t=2.410, p<.05) ES-EO > NES (t=2.736, p<.01) ES-NEO > NES (t=2.080, p<.05)
	ES-EO	39	29.846	8.809	3,200	4.147	<.01	
	ES-NEO	17	30.118	7.664				
	NES	98	24.888	9.852				
SSW	Aust	50	15.800	5.848				Aust > NES (t=4.538, p<.001) ES-EO > NES (t=2.569, p<.05) ES-NEO > NES (t=3.677, p<.001)
	ES-EO	39	14.103	5.185	3,200	9.020	<.001	
	ES-NEO	17	16.588	6.256				
	NES	98	11.704	4.829				
SSC	Aust	49	21.694	8.052				Aust > NES (t=4.054, p<.001) ES-EO > NES (t=2.624, p<.01) ES-NEO > NES (t=2.751, p<.01)
	ES-EO	38	20.211	8.098	3,193	6.269	<.001	
	ES-NEO	17	21.294	6.762				
	NES	93	16.828	6.043				
List	Aust	49	27.224	8.466				Aust > NES (t=4.577, p<.001) ES-EO > NES (t=2.918, p<.01) ES-NEO > NES (t=3.433, p<.001)
	ES-EO	38	25.105	7.300	3,296	9.470	<.001	
	ES-NEO	15	28.267	8.803				
	NES	98	20.959	7.485				
AM4	Aust	48	18.708	11.022				Aust > NES (t=2.646, p<.01) ES-EO > NES (t=3.563, p<.001) ES-NEO > NES (t=2.199, p<.05)
	ES-EO	37	20.730	10.423	3,195	5.301	<.01	
	ES-NEO	17	19.529	9.811				
	NES	97	14.052	9.413				
AM5	Aust	48	15.146	6.046				Aust > NES (t=2.686, p<.01) ES-NEO > NES (t=2.394, p<.05)
	ES-EO	38	14.368	5.304	3,197	3.597	<.05	
	ES-NEO	17	15.706	4.997				
	NES	98	12.510	5.325				
CD	Aust	51	14.392	5.920				
	ES-EO	37	13.892	6.578	3,199	2.368	NS	
	ES-NEO	16	16.125	5.365				
	NES	99	12.475	6.024				

TABLE A3

Grade 6 Results : Means and Standard Deviations on each test, and results of analyses of variance and t-tests

Test	Group	N	Mean	SD	Results of Analyses of Variance df	F	p	Results of t-tests Significant Differences only shown
PPVT	Aust	62	89.258	11.956				Aust > NES (t=6.128, p<.001) ES-EO > NES (t=6.751, p<.001) ES-EO > ES-NEO (t=3.065, p<.01)
	ES-EO	39	93.846	12.136	3,205	23.337	<.001	
	ES-NEO	13	82.385	10.087				
	NES	94	74.915	15.657				
SPM	Aust	61	34.852	8.528				Aust > NES (t=2.123, p<.05) ES-EO > NES (t=2.847, p<.01)
	ES-EO	40	36.550	7.093	3,202	3.604	<.05	
	ES-NEO	13	36.000	10.832				
	NES	92	31.500	10.185				
SSW	Aust	60	23.767	7.786				Aust > NES (t=4.352, p<.001) ES-EO > NES (t=4.140, p<.001)
	ES-EO	40	24.250	7.695	3,201	9.241	<.001	
	ES-NEO	13	22.538	7.287				
	NES	92	18.054	7.990				
SSC	Aust	62	25.710	9.820				Aust > NES (t=3.849, p<.001) ES-EO > NES (t=2.535, p<.05)
	ES-EO	38	24.053	8.007	3,199	5.665	<.001	
	ES-NEO	13	24.077	9.069				
	NES	90	19.922	8.590				
List	Aust	62	30.629	9.233				Aust > NES (t=4.137, p<.001) ES-EO > NES (t=4.278, p<.001)
	ES-EO	38	32.132	9.668	3,200	9.156	<.001	
	ES-NEO	12	29.917	8.317				
	NES	92	24.217	9.566				
AM4	Aust	59	35.085	9.769				
	ES-EO	39	34.538	7.960	3,197	0.491	NS	
	ES-NEO	13	36.462	11.865				
	NES	90	33.433	11.930				
AM5	Aust	60	20.233	5.598				
	ES-EO	39	20.282	4.310	3,198	2.013	NS	
	ES-NEO	13	19.385	6.539				
	NES	90	18.222	6.098				
CD	Aust	62	16.274	5.341				
	ES-EO	39	16.513	4.109	3,203	0.076	NS	
	ES-NEO	13	15.923	5.664				
	NES	93	16.108	5.128				

TABLE A4

Additional Tests, Grade 4 and Grade 6 Samples. Means, Standard Deviations and Results of Analyses of Variance and t-tests.

Test	Group	N	Mean	SD	Results of Analyses of Variance df	F	p	Results of t-tests Significant Differences only shown
Grade 4								
AM12	Aust	24	13.167	4.013				
	ES-EO	16	13.875	3.519	3,88	2.005	NS	
	ES-NEO	9	14.222	3.420				
	NES	43	11.674	4.127				
RWK	Aust	24	22.042	8.265				Aust > NES (t=2.823, p<.01) ES-EO > NES (t=2.960, p<.01) ES-NES > NES (t=2.361, p<.05)
	ES-EO	17	22.706	7.540	3,88	4.424	<.01	
	ES-NEO	9	23.222	10.022				
	NES	42	16.525	7.249				
RC	Aust	25	21.400	7.427				
	ES-EO	17	20.529	7.559	3,89	1.873	NS	
	ES-NEO	9	20.556	8.502				
	NES	42	17.214	7.735				
Grade 6								
AM12	Aust	28	16.036	4.509				
	ES-EO	21	15.619	4.489	3,105	1.151	NS	
	ES-NEO	7	17.571	3.690				
	NES	53	14.698	4.681				
RWK	Aust	28	19.464	6.426				Aust > NES (t=5.192, p<.001) ES-EO > NES (t=2.857, p<.01)
	ES-EO	22	17.000	8.130	3,109	8.553	<.001	
	ES-NEO	8	15.875	4.454				
	NES	55	12.400	5.556				
RC	Aust	28	17.393	7.004				Aust > NES (t=3.942, p<.001) ES-EO > NES (t=2.458, p<.05)
	ES-EO	22	15.727	7.554	3,109	5.260	<.01	
	ES-NEO	8	13.500	4.598				
	NES	55	12.055	5.148				

TABLE A5

Comparison between mean scores of Australian group and NEO group with over five years residence in Australia

Grade 2	Australian			NEO: Over 5 yrs residence				
	N	Mean	SD	N	Mean	SD	t	p
PPVT	54	65.407	8.302	87	58.988	7.571	4.715	<.001
CPM	54	20.444	4.693	91	19.077	5.186	1.589	NS
SPRD	55	71.200	10.899	91	67.769	12.152	1.717	NS
MAT1	54	32.426	3.775	88	29.091	6.565	3.401	<.001
MAT2	54	32.611	3.123	88	29.909	5.945	3.086	<.01
MAT3	52	35.288	9.868	88	30.341	11.168	2.642	<.01
MAT4	54	52.704	8.593	88	46.886	11.736	3.159	<.01
CD	54	11.778	6.751	88	8.045	6.102	3.398	<.001
Grade 4								
PPVT	49	79.275	10.889	85	69.953	10.875	4.777	<.001
SPM	50	28.940	9.318	85	26.941	9.232	1.210	NS
SSW	50	15.800	5.848	85	13.000	5.099	2.814	<.01
SSC	49	21.694	8.052	83	18.301	6.431	2.663	<.01
List	49	27.224	8.466	83	23.325	8.032	2.641	<.01
AM4	48	18.708	11.022	84	15.905	10.050	1.488	NS
AM5	48	15.146	6.046	85	13.447	5.717	1.612	NS
CD	51	14.392	5.920	85	13.329	5.807	1.026	NS
AM12	24	13.167	4.018	44	12.432	4.089	0.713	NS
RC	25	21.400	7.427	43	18.674	7.809	1.413	NS
RWK	24	22.042	8.265	43	18.535	7.977	1.703	NS
Grade 6								
PPVT	62	89.258	11.956	79	80.620	12.608	4.130	<.001
SPM	61	34.852	8.528	78	34.115	8.614	.503	NS
SSW	60	23.767	7.786	78	20.692	7.572	2.336	<.05
SSC	62	25.710	9.820	77	22.299	8.541	2.189	<.05
List	62	30.629	9.233	77	27.156	8.937	2.244	<.05
AM4	59	35.085	9.769	77	35.273	11.116	- .103	NS
AM5	60	20.233	5.598	77	19.078	5.714	1.184	NS
CD	62	16.274	5.341	79	16.456	4.883	- .211	NS
AM12	28	16.036	4.509	43	15.488	4.585	.495	NS
RWK	28	19.464	6.426	45	13.822	5.491	3.998	<.001
RC	28	17.393	7.004	45	13.178	5.180	2.948	<.01

TABLE A6

Comparison between mean scores of Australian group and Southern European group with over five years residence in Australia

Grade 2	Australian N	Mean	SD	Southern European: Over 5 yrs Res. N	Mean	SD	t	p
PPVT	54	65.407	8.302	61	58.148	6.382	5.289	<.001
CPM	54	20.444	4.693	64	18.406	4.856	2.306	<.05
SPRD	55	71.200	10.899	64	66.000	12.268	2.426	<.05
MAT 1	54	32.426	3.775	63	28.460	6.710	3.851	<.001
MAT 2	54	32.611	3.123	63	29.714	5.925	3.228	<.01
MAT 3	52	35.288	9.868	63	28.714	11.418	3.265	<.01
MAT 4	54	52.704	8.593	63	45.857	12.239	3.446	<.01
CD	54	11.778	6.751	62	7.710	6.302	3.355	<.01
Grade 4								
PPVT	49	79.275	10.889	59	67.390	9.910	5.933	<.001
SPM	50	28.940	9.318	58	25.017	8.395	2.301	<.05
SSW	50	15.800	5.848	58	11.362	4.124	4.604	<.001
SSC	49	21.694	8.052	57	15.982	4.857	4.491	<.001
List	49	27.224	8.466	58	20.741	6.169	4.571	<.001
AM 4	48	18.708	11.022	58	13.483	9.372	2.638	<.01
AM 5	48	15.146	6.046	58	11.828	5.161	3.048	<.01
CD	51	14.392	5.920	59	12.322	5.803	1.848	NS
AM 12	24	13.167	4.018	30	11.333	4.063	1.656	NS
RC	25	21.400	7.427	29	16.586	6.690	2.506	<.05
RWK	24	22.042	8.265	29	15.966	5.852	3.126	<.01
Grade 6								
PPVT	62	89.258	11.956	53	77.415	11.846	5.317	<.001
SPM	61	34.852	8.528	52	33.058	8.734	1.102	NS
SSW	60	23.767	7.786	52	18.865	7.287	3.423	<.01
SSC	62	25.710	9.820	51	20.137	6.800	3.431	<.01
List	62	30.629	9.233	52	25.385	8.727	3.097	<.01
AM 4	59	35.085	9.769	51	34.137	11.221	0.474	NS
AM 5	60	20.233	5.598	51	18.333	.971	2.392	<.05
CD	62	16.274	5.341	53	16.623	5.058	-0.358	NS
AM 12	28	16.036	4.509	30	14.667	4.929	1.101	NS
RC	28	19.464	6.426	31	12.452	4.767	4.790	<.001
RWK	28	17.393	7.004	31	12.484	5.150	3.087	<.01

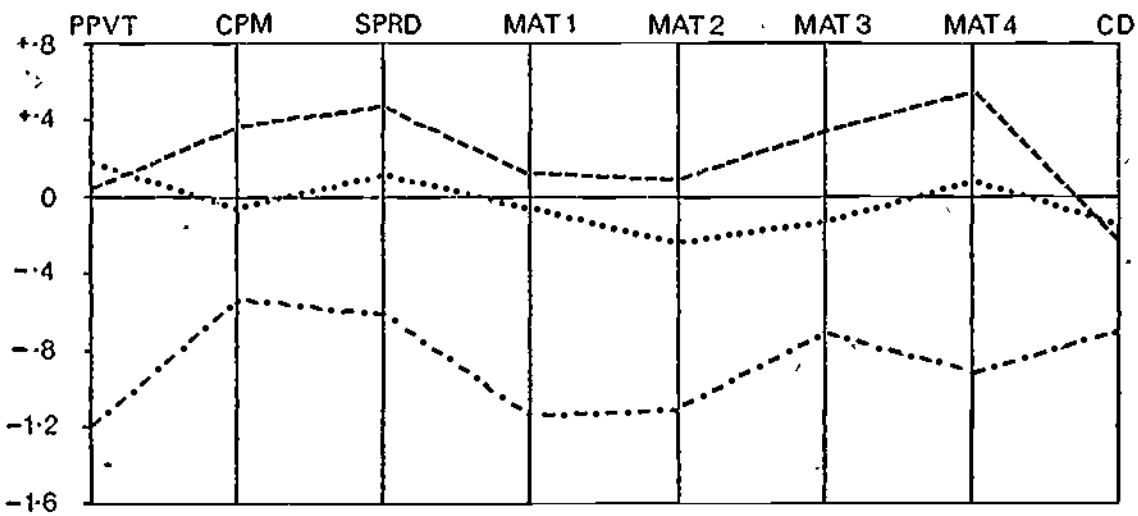
APPENDIX 2

GRAPHS

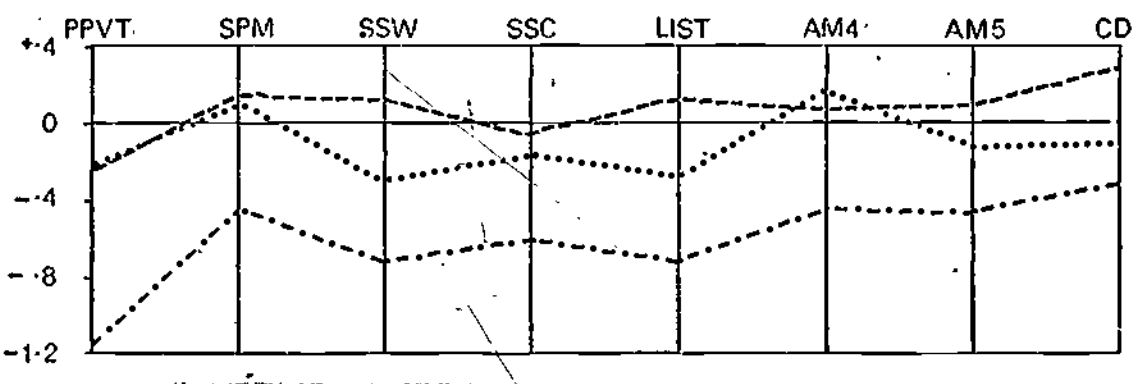
ILLUSTRATING

RESULTS

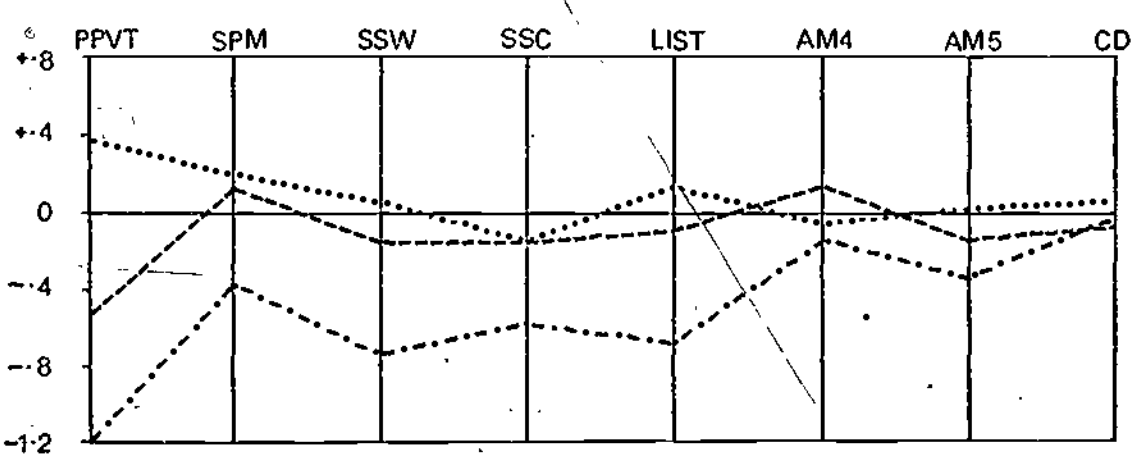
Grade 2



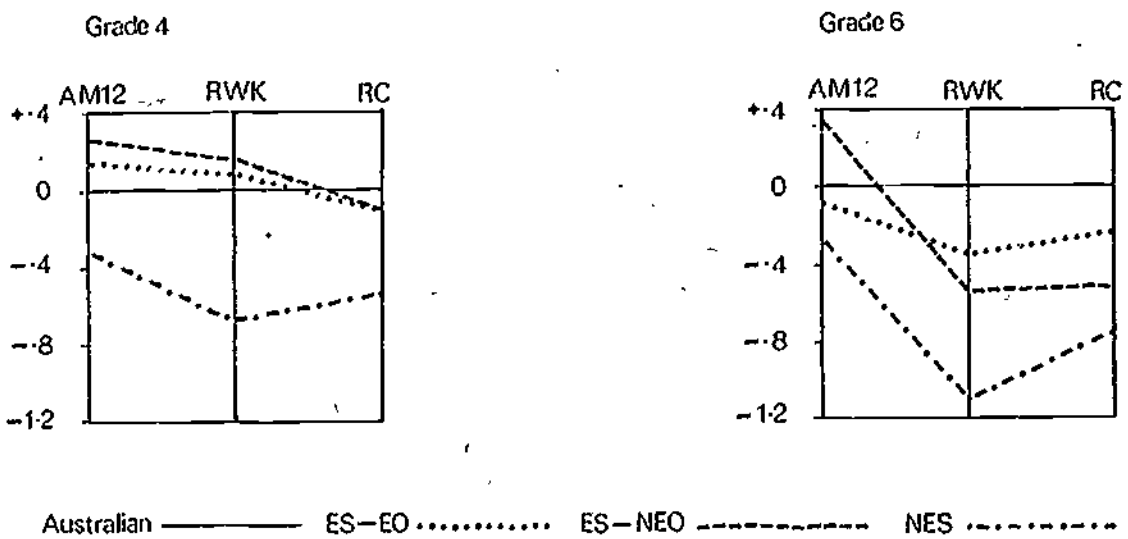
Grade 4



Grade 6



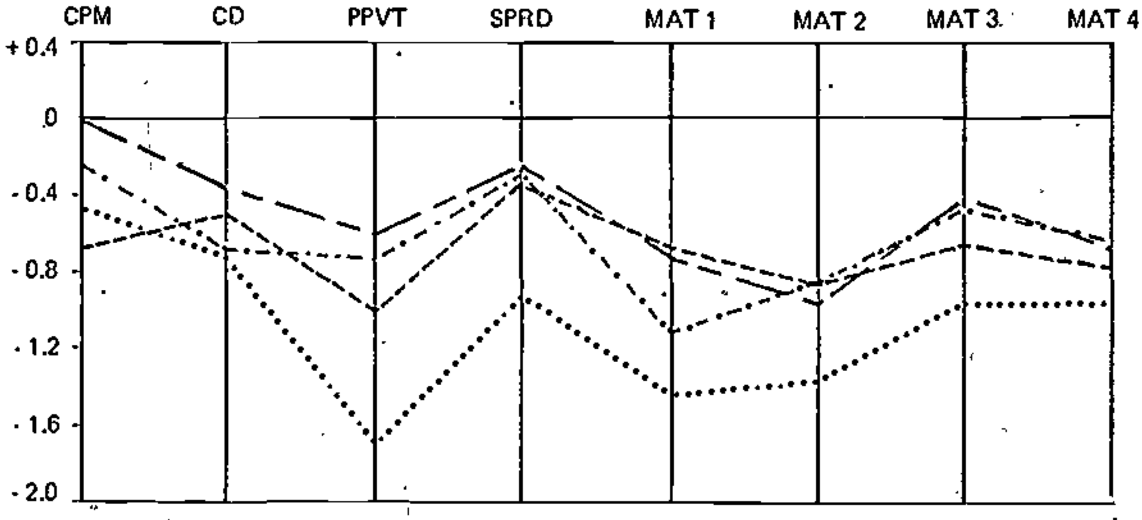
Australian ——— ES–EO ····· ES–NEO - - - - - NES -·-·-·-



Comparison of four main groups : Additional Tests

Figure 2

Grade 2



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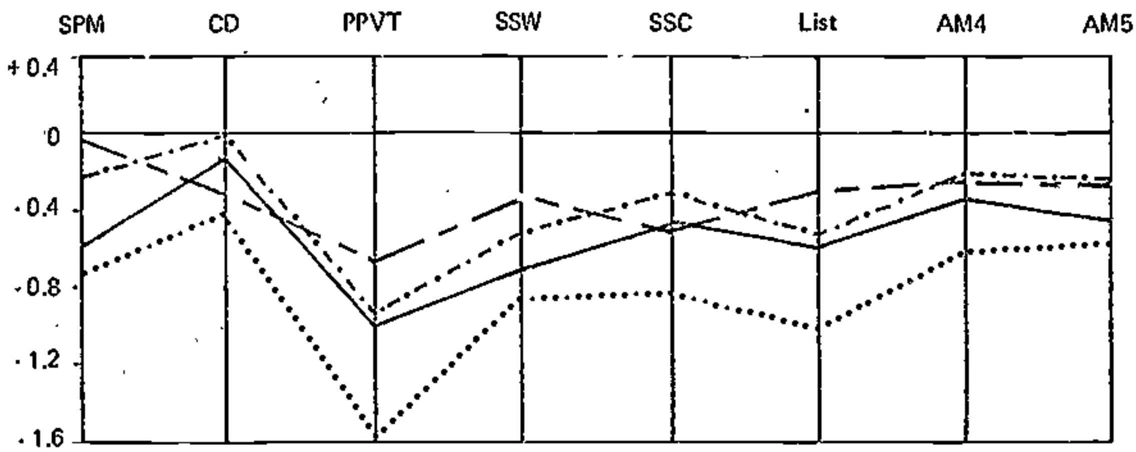
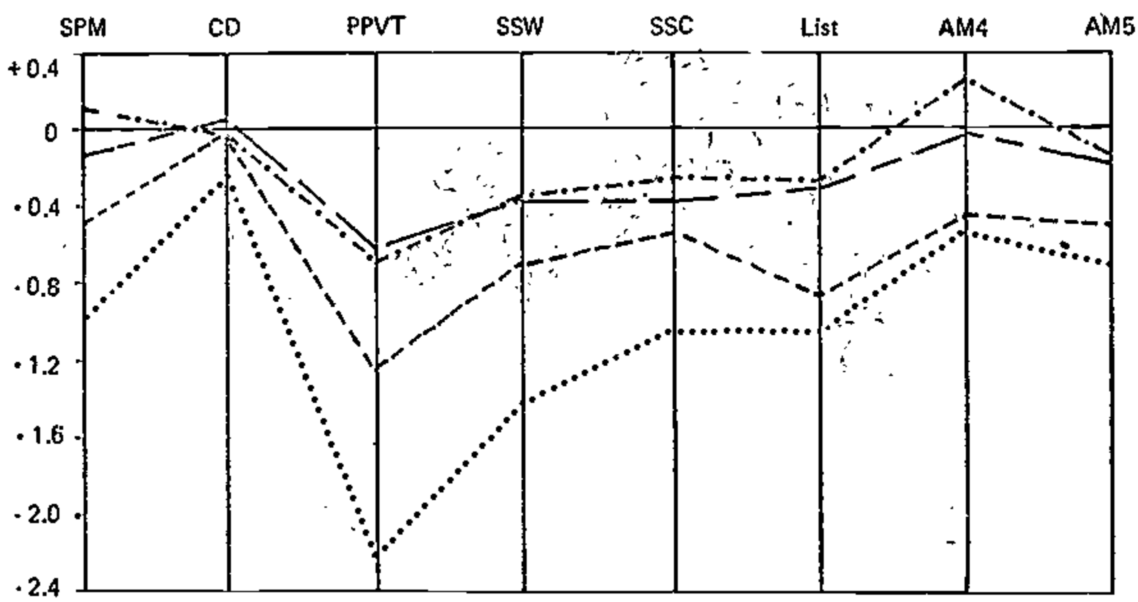


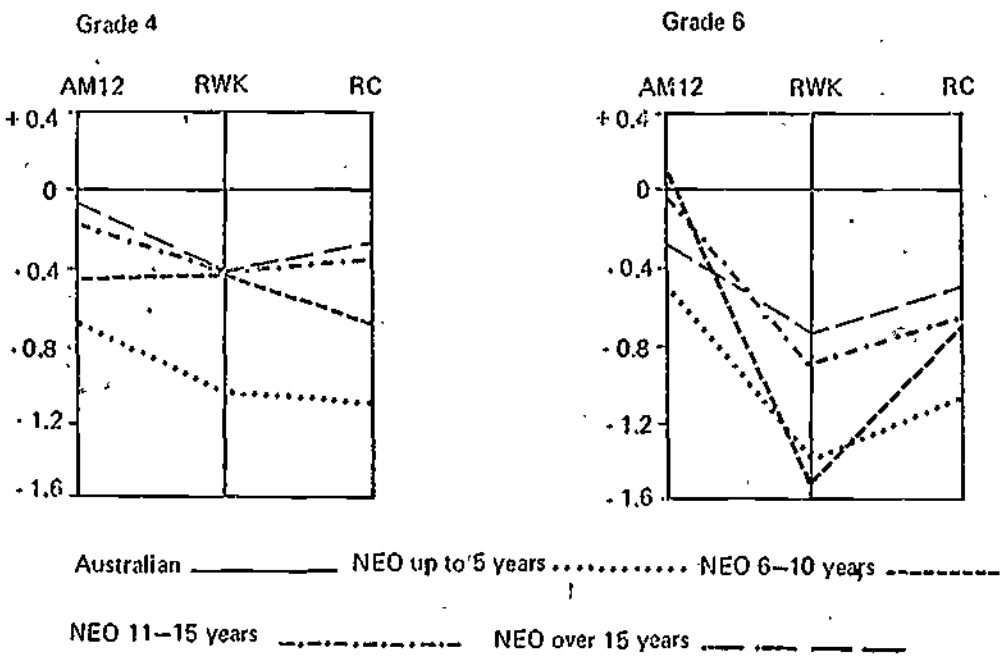
Grade 6



Australian ———— SE: up to 5 years ·········· SE: 6–10 years — — — — —

SE: 11–15 years — — · — · — SE: over 15 years —— — ——

Comparison between Australian Group and NEO Group divided according to period of residence in Australia

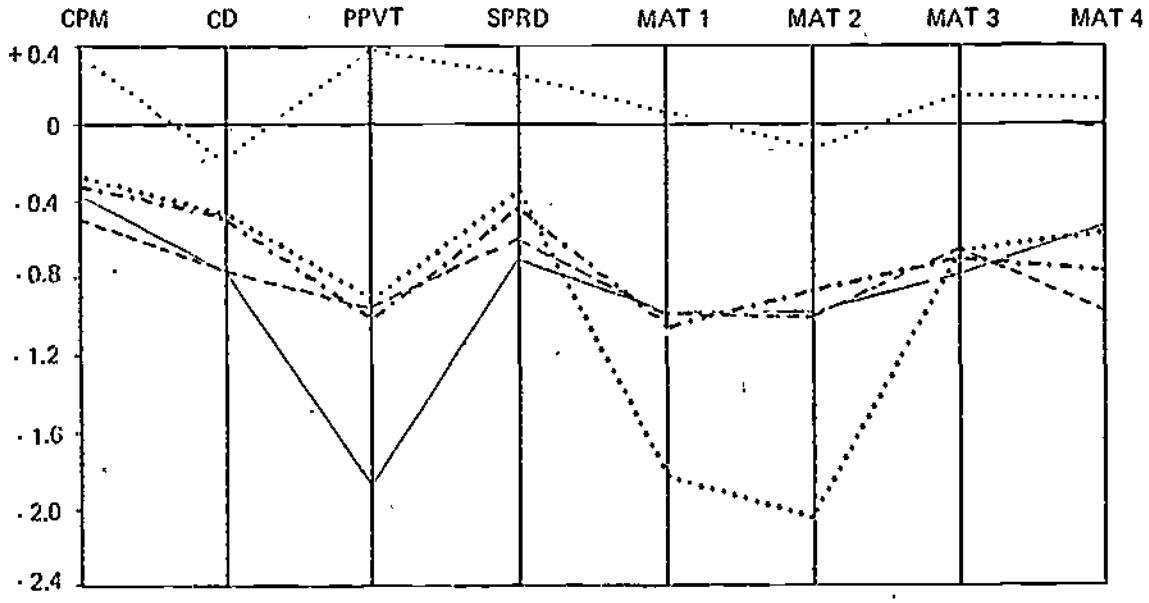


Comparison between Australian Group and NEO Group divided according to period of residence in Australia : Additional Tests

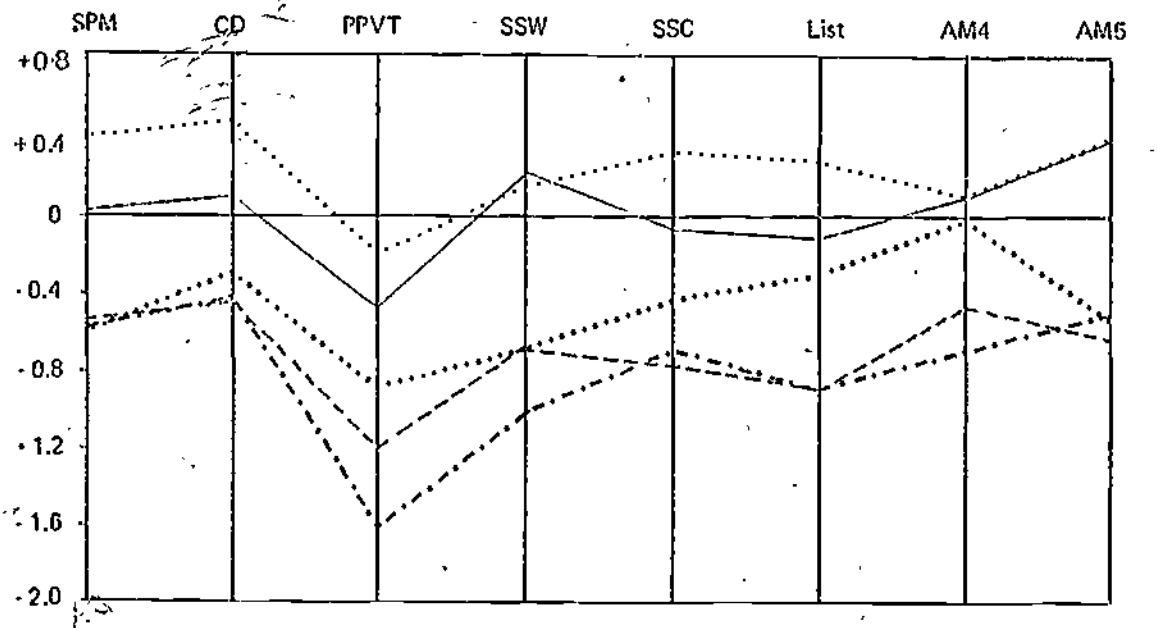
Figure 4

62

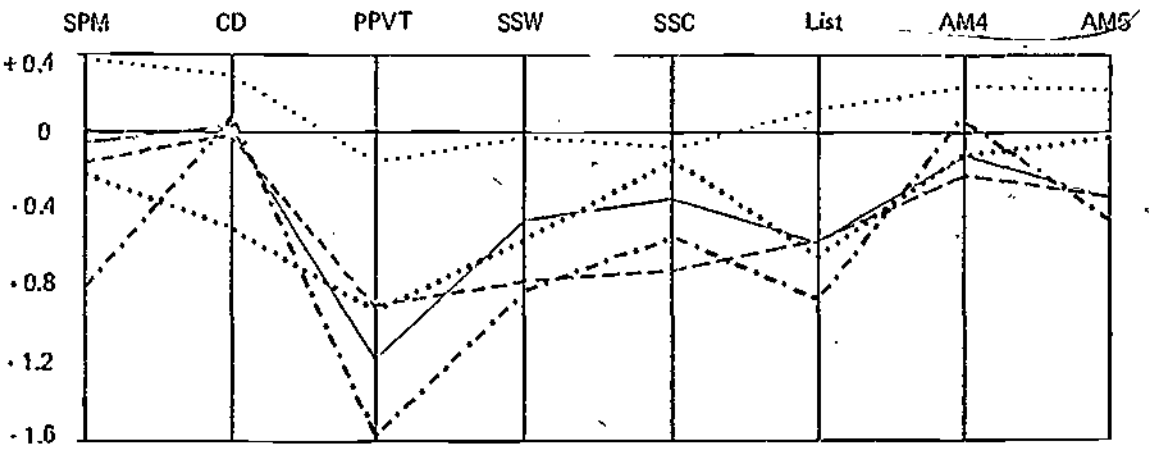
Grade 2



Grade 4



Grade 6



Australian _____ Italian _ _ _ _ _ Greek _ . _ . _ . _ Maltese .....

North European ..... East European _____

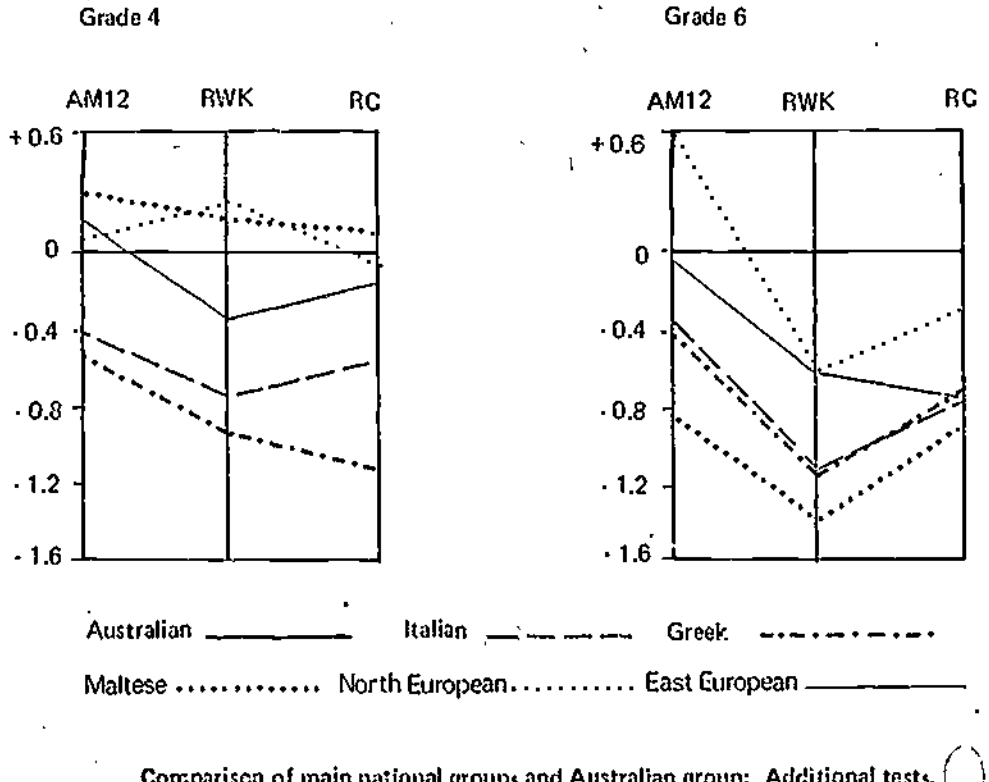

Grade 4
Grade 6
AM12
RWK
RC
+0.6
0
-0.4
-0.8
-1.2
-1.6
Australian
Italian
Greek
Maltese
North European
East European
Comparison of main national groups and Australian group: Additional tests.

Figure 6

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