

LITERACY IN MALTA



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The 1999 National Survey of the Attainment of Year 2 Pupils

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THE PROJECT TEAM

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Faculty of Education, University of Malta

EXECUTIVE SUMMARY

Scope

- The first ever National Literacy Survey in Malta was carried out in March 1999.
- Attainment in literacy was measured in both Maltese and English, using equivalent parallel tests.
- Of the 101 schools in Malta with Year 2 pupils, all but one participated. Information was supplied for a total of 5,417 pupils. After excluding those without key variables, such as a test score, full information was available on 4,554 pupils for both Maltese and English.

Main findings

- The average raw score on both tests was quite high.
- The tests clearly identified pupils with literacy difficulties.
- Girls achieved significantly higher average scores than boys in both languages.
- Pupils whose first language was Maltese (90 per cent of the sample) achieved a higher average score on the *Maltese* test than those whose first language was English, while on the *English* test those whose first language was English achieved a higher average score than those whose first language was Maltese.
- Only about one-eighth of the children had had less than two years' pre-school education. Those children had significantly lower average scores in both languages than those who had had more pre-school education.
- Pupils who had special educational needs and/or were receiving complementary education had significantly lower average scores in both languages than other pupils.
- Pupils whose mothers and/or fathers were better educated, and those whose fathers had more middle-class jobs, achieved significantly higher average scores than others in both languages.
- Pupils in Church and private independent schools achieved significantly higher average scores than pupils in state schools in both languages.
- Schools in South Eastern Malta had the highest average scores, and those in Inner Harbour and Gozo the lowest, in both languages.

Implications

Most Year 2 pupils were making good progress in literacy in both Maltese and English, and this bilingual and biliterate outcome was a very positive finding.

The standardisation of the test in both languages has the potential to provide a useful educational and research tool.

From the detailed findings, it is possible to draw up two profiles, of the Maltese children most and least likely to succeed:

- most likely: a girl from South East region, attending a Church or private independent school, the child of highly educated parents, father in a professional job
- least likely: a boy from Inner Harbour or Gozo, attending a state school, the child of poorly educated parents, father unemployed or in a low-paid job.

However, these profiles do not mean that pupils fitting the 'most likely to succeed' profile are to be regarded as not needing help or attention. On the other hand, teachers should not have low expectations of what children who fit the 'least likely to achieve' profile can achieve.

The Maltese education system is clearly doing a lot to overcome initial inequalities, both because there are schools and pupils who buck these trends, and because of the good overall standard of attainment.

However, in view of recent developments concerning boy/girl differences in attainment, it could be considered worrying for those concerned with education that the gap between boys and girls should be so large. A similar consideration may apply to regions of the country.

Main recommendations

- Children whose raw score was 20 or less in either language should be identified to their schools, so that intensive individual support can be given to any of these children who are not already receiving it.
- Gender differences in attainment: action is required to ensure that boys do not fall behind in this important life skill. Gender differences may be reduced or reversed in other subjects and these may need their own strategies.

- Differences between state schools and Church and private independent schools: a policy aim could be that state education will be as good as independent.
- Regional differences need to be investigated.
- Where extra resources are put in to implement policies to reduce inequalities, careful evaluation will be essential to measure their impact.
- This survey could be the start of a thorough programme of assessment in different subjects and over time, for example by repeating this Year 2 survey after (say) four years, and/or by following up this cohort of children in about four years' time.

CHAPTER ONE

BACKGROUND

The Maltese Islands in the Mediterranean Sea have two official languages. Maltese, a Semitic language, is the native tongue. English is used widely and is taught from early on at school. For Malta and Gozo, it is the Language of Wider Communication (LWC).

In primary schools, oracy skills in English are introduced early on alongside Maltese at the kindergarten level and the beginning of Year 1 (five- and six-year-olds) of formal schooling. Literacy skills in English are introduced later on in Year 1. In Year 2 (six- to seven-year-olds), further oracy and literacy work is carried out in both Maltese and English. Increasingly, as children move from primary to secondary and then into tertiary education, English gains in importance.

Literacy in both languages is therefore essential; hence the decision of the Ministry of Education and the University of Malta to carry out this national survey of literacy attainment in March 1999. It was decided that this, the first national survey of educational performance undertaken in Malta, should focus on the reading attainment of Year 2 pupils, in both Maltese and English.

This survey was preceded by a pilot study. The pilot study took place in early June 1998 and the report on that study (Mifsud *et al.*, 1998) served also as a consultation document for refining the planning of the survey. The Ministry of Education commissioned both studies from the Literacy Unit of the Faculty of Education of the University of Malta.

CHAPTER TWO

AIMS

The objectives of this project were:

- to conduct a national survey of the literacy attainment in both Maltese and English of all Maltese Year 2 pupils in state, Church and private independent primary schools
- to produce literacy tests in both Maltese and English for Year 2 pupils
- to obtain raw and standardised scores on both versions of the test for Maltese Year 2 pupils
- to provide feedback to all schools regarding the pupils' levels of literacy in both Maltese and English
- to investigate the relationship between the pupils' levels of literacy and background variables at pupil, home and school levels
- to analyse the data using multilevel modelling, which takes into account the hierarchical structure of the data at school and pupil level
- to provide information on the levels of attainment in literacy of Maltese Year 2 pupils for the benefit of all stakeholders in Maltese education: the pupils themselves, their parents and teachers, administrators and policy makers
- to encourage public debate on the implications of the results for educational and social policy in Malta.

CHAPTER THREE

HOW THE SURVEY WAS CARRIED OUT

3.1 Tests

One problem faced by those who would like to investigate literacy skills in the Maltese situation is the lack of availability of standardised tests. There have been some attempts to design and trial word reading tests in Maltese and English by Falzon (1972), and in Maltese by Bartolo (1988). For children in Year 1, there is also a Maltese-language version of Clay's *Concepts About Print Test* (Martinelli, 1996). But these tests are either dated, or narrowly focused on the reading of single words, or not appropriate for the Year 2 age range.

English

After inspection of and consultation on the range of available English-language tests, a standardised British test was chosen for assessing the pupils' level of attainment in English. The test selected was the *Literacy Baseline* within the *Reading Progress Tests* series (Vincent *et al.*, 1996a). This test is the first of a series of seven standardised tests developed by the East London Assessment Group at the University of East London in England. The *Literacy Baseline* is designed to measure pre-literacy and initial literacy skills that are usually associated with later success in learning to read. It covers children's early development and includes the reading a child would encounter at home or at school.

The test is designed to be administered to small groups of pupils and covers different aspects of literacy. These are:

- phonological awareness: initial sounds (six items)
- phonological awareness: rhymes (two items)
- literacy concepts (seven items)
- letters: names (four items) and sounds (four items)
- reading: picture to word (five items)
- reading: word to picture (three items)
- reading: sentence to picture (two items)
- spelling (seven items).

The test contains 40 items in all, and is standardised (in Britain) for the age range 5 years 0 months to 6 years 2 months (5:00–6:02). The decision to use it with somewhat older Maltese children took account of the fact that for most Maltese children English is an additional language.

Maltese

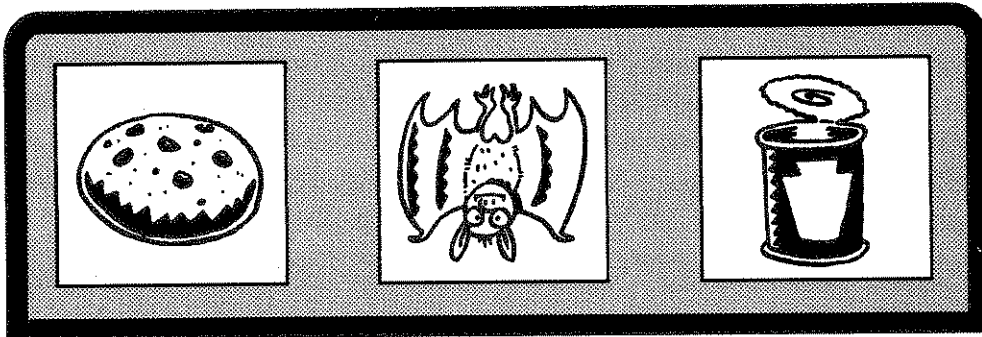
A Maltese parallel version of the *Literacy Baseline* (Mifsud *et al.*, 1998a) was devised by a group of Maltese educators who are specialists in the Maltese language and have extensive teaching experience. An important criterion was that the words chosen should be high-frequency words that seven-year-old children encounter at home or school. According to Grech (1997), the most frequent themes treated in Maltese literature for children are their own lives, nature and animals. His study provided guidelines for the test designers as to which words would be most familiar to Year 2 pupils. It was also important that items were highly imageable (that is, could easily be depicted through pictures) as pictures are included in the test as stimuli (memory triggers).

The *Literacy Baseline* features mainly monosyllabic English nouns. Since the Maltese language, being Semitic, does not possess a vast repertoire of monosyllabic nouns, bisyllabic high-frequency and familiar nouns were used.

The Maltese test contained exactly the same number of items as the English version, and covered the same skills, except for a difference in the section dealing with letter names and sounds. Here, only letter names were used for this version as the difference between the letter names and sounds is not so pertinent in Maltese. The page layout, graphic style and typeface were identical to those in the English version.

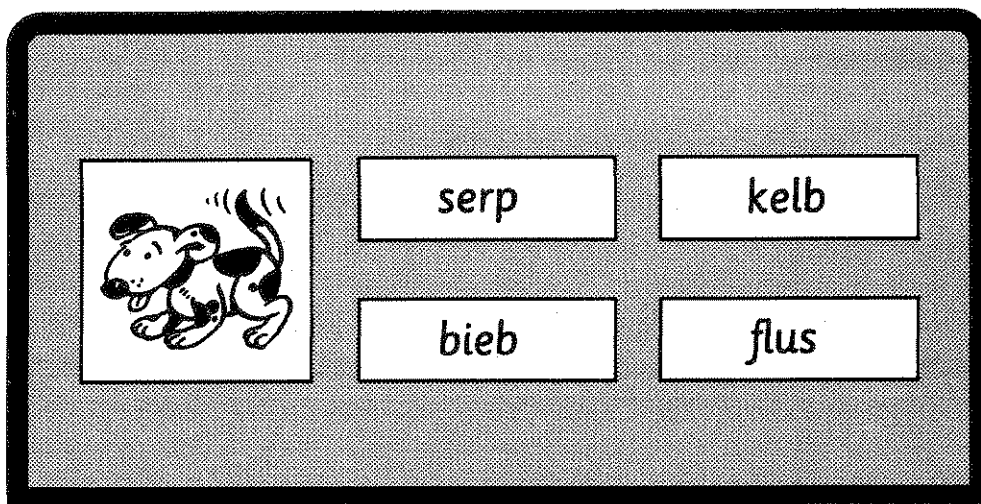
A taste of the Maltese and English tests

For example, in the section concerned with phonological awareness, which dealt with initial sounds and rhyme, the children in the test group were presented with test items that featured three or four pictures. We present here the practice item from the first part of the test which deals with the discrimination of different initial sounds.



Test administrators were asked to point to the above practice item and to ask the children to look at the pictures. The test administrator would then point at the three pictures in turn and say: 'The first one is a bun, the next one is a bat, and the last one is a tin.' The three words were to be repeated clearly and naturally while pointing at the pictures. Then the test administrator explained to the children that they now had to find the odd one out. This was done by explaining that bun and bat start with the same sound ('b'), while tin is the odd one out since it starts with a different sound ('t'). Once this was made clear, the children were asked to cross out or underline the picture featuring the odd one out (in this case tin). The test administrator would then check that the practice item had been completed correctly and that the children had understood before moving on to the actual test items (Questions 1–40).

An example of a Maltese test item is depicted below. It is taken from the test section dealing with reading.



The test administrator explained that the children should find the word that goes with the picture. In this practice item, the picture featured a 'dog' (in Maltese 'kelb') so the children were to find the word 'kelb' and underline it. Once the children had understood what they were required to do the test administrator would lead them through the test items dealing with 'Reading: picture to word' (Questions 24–28). However, then the test administrator was not to read out any of the words as the children were to read the words silently and indicate their own choice on their test booklet by underlining the word.

Instruction booklets

For the English version of the test, the original teacher's manual (Vincent *et al.*, 1996b) was used as the instruction booklet for test administrators. However, if the test administrators felt that the pupils were not understanding all the instructions in English, they were free to explain in Maltese as well.

For the Maltese version of the test, the original teacher's manual was translated into Maltese and adapted according to the Maltese test items to produce an *Instructions Booklet* (Mifsud *et al.*, 1998b). The test administrators were free to explain in English if there were pupils who were unable to follow the instructions in Maltese.

3.2 Pilot study

A pilot study of the reading attainment in Maltese and English of Maltese Year 2 pupils was carried out in June 1998 (Mifsud *et al.*, 1998a) using the tests just described.

Background data were collected on the pupils and schools involved. The number of pupils tested in both languages was 250. They belonged to 12 Year 2 classes in 12 state primary schools, two in each geographical region of the Maltese islands. The test administrators' ratings showed a high level of approval of the tests. The technical reliability of both tests was satisfactory, though there was a ceiling effect on both. The average score on both tests was high. However, precisely because they 'stretched' the range of scores of low-attaining pupils, the tests also seemed capable of identifying pupils with literacy difficulties.

The main findings of the pilot study were as follows:

- ◆ The average score for both languages was quite high. Therefore most pupils were making good progress in literacy in both languages.
- ◆ Girls' average score was higher than boys', in both languages. However, the difference was statistically significant only for Maltese ($p < 0.001$).
- ◆ Children who had had two years of pre-school education had significantly higher average scores than those who had had one year, in both languages.
- ◆ Children whose fathers had middle-class jobs had a significantly higher average score in English than other children (but not in Maltese).

The pilot study showed that the tests, scoring and statistical systems all worked, and that a full survey could be carried out with minimal adjustment. Because the pilot study had been successful in this sense, the Ministry of Education authorised the Literacy Unit at the University of Malta to proceed with the main survey using essentially the same approach. Just two changes were made.

First, it was decided that all the forms of background data collected in the pilot should again be collected in the main survey, with the exception of mother's occupation. Information on this variable was gathered for only a small number of mothers, and the effort required to gather it would not only be disproportionate to the result, but would also risk discovering that such a high proportion of mothers were 'looking after the home and family' that no statistical analysis would be possible for this variable anyway.

Secondly, it was decided to increase the sophistication of the statistical analysis. For the small sample sizes involved in the pilot it was appropriate to use only straightforward methods (t-tests and analysis of variance). However, for the full national sample planned for the main survey it would be both possible and desirable to use multilevel modelling. This is a technique which makes it possible to separate school- and pupil-level effects, and to investigate the interaction of all the variables on which information has been collected.

3.3 Other research instruments

The other research instruments used in the survey were intended to gather information about the schools, Year 2 classes and pupils involved.

School Questionnaire

A School Questionnaire was designed (see Appendix 1) which requested data at school level: the geographical region of the school, and the number of male and female pupils in Year 2. The Head or Assistant Head of School was requested to provide this information.

Pupil Data Form

A Pupil Data Form (see Appendix 2) was designed which requested information about a variety of pupil- and family-level background variables: age, gender, first language, father's occupation, father's level of education, mother's level of education, special educational needs, and pre-school education.

It was envisaged that the test administrators would be able to obtain most of the information from the Cumulative Record Card (CRC) that schools usually compile for every pupil. The CRC lists the pupil's name, surname, date of birth, father or guardian's name, mother's name, address, father's occupation, and the pupil's personality and behaviour, physique and health, and school(s) attended. Space is also provided for other relevant information and for final reports by the Heads of School.

Additional information which does not feature in the CRC, such as mother's level of education and father's level of education, would need to be obtained through the class teacher or the pupils' parents or primary carer(s).

Suitability and Manageability Questionnaire

The test administrators were asked to complete a short questionnaire (see Appendix 3) on the suitability of the tests for Year 2 pupils, and the manageability of the test administration.

3.4 Samples of schools and pupils

All 101 schools in the Maltese islands with pupils in Year 2 were invited to take part. Only one (a private independent school) declined. Otherwise, the sample included all Year 2 pupils in state, Church and private independent primary

schools in Malta and Gozo (See Table 3.1 below); the total number of pupils on whom data were collected was 5,417 (see Section 4.1).

Table 3.1: Sample of schools and classes

Type of school	No. of schools
State schools	62
Private Church schools	28
Private independent schools	10
Total	100

According to the official definition, Year 2 children in the school year 1998/99 were those born between 1st January 1992 and 31st December 1992 inclusive. Therefore, pupils who were eligible by date of birth for inclusion in the survey, but who were repeating Year 1 or had been 'promoted' to Year 3, were included as they fell within the official age bracket. On the other hand, a small number of pupils who were in Year 2 classes as they were repeating the year but whose age was above the age range of Year 2 pupils completed the tests, but their scores were not used in the data analyses. There were also a few pupils who were in Year 2 classes and completed the tests but who were below the required age (i.e. they were born after 31st December 1992). (For details, see Appendix 4.)

3.5 Test administrators

The test administrators numbered 101. They were complementary teachers, support teachers, Assistant Heads and Heads of School. Since these members of staff are not responsible for a particular class, they were able to attend the training seminar during school hours without disrupting the school schedule.

In Year 2, complementary teachers are usually attached to one or two primary schools in the state sector. Their role is to provide learning support services to children who are underachieving in the basic subjects (Maltese, English and mathematics) at Year 2 level. This support is provided either in class or in withdrawal groups. The same applies to support teachers in the independent sector.

A training seminar was held on 28th January 1999 and included: an introduction to the aims and objectives of the study, their role as test administrators, an introduction to the various research instruments they would be required to complete, and instructions for administering and marking the tests. There were opportunities for questions and feedback throughout. All the test administrators became familiar with all the research instruments and instructions since these were reviewed extensively. At the end of this seminar, they were provided with a pack including the School Questionnaire, Pupil Data Forms, tests and instruction booklets.

The test administrators from schools in Gozo did not attend the main training seminar as the ferry was not operating due to bad weather. Therefore, a meeting was held in Gozo on 17th February 1999 for the Gozitan test administrators.

A follow-up meeting was held on 5th March 1999 so that the test administrators could provide feedback regarding the tests and return all tests and other research instruments to the Literacy Unit.

3.6 Data collection

Each class was administered the Maltese and English tests. To reduce practice effects, the teachers were asked to administer the Maltese test first to the pupils who were listed as even numbers and the English test first to the pupils listed as odd numbers on the class register/list. Test administrators were to allow at least one day between the administration of the two versions of the test.

Pupils who were absent on one of the testing days were allowed to sit for the test if they returned to school the following day. The tests were administered to groups of not more than ten pupils at a time. All items were presented orally by the test administrator, except for the reading sections towards the end of the test. The pupils were given a test booklet and the test administrator took them through the test item by item, giving the pupils adequate time to complete each item before proceeding to the next. It was very important for the pupils to complete their answers without discussion, collaboration or copying. The test administrator encouraged the pupils to attempt all questions and explained that the answers should be indicated by clearly marking a choice.

Each section of the tests included a practice item. The test administrator proceeded with the rest of the section only after making sure that all the pupils had understood what should be done and giving feedback as to whether their

responses on the practice item were right or wrong. During the rest of the test, only feedback relating to the method of answering was allowed (if more than one choice had been marked or if the child was at the wrong item). Where there were target words, these were repeated twice and up to three times if requested. Suggested wording and detailed item-by-item instructions for the test administrators were provided in the instruction booklets for both the Maltese and English tests.

3.7 Scoring the tests

The test administrators were trained to score the tests according to the instructions in the original teacher's manual (English version; Vincent *et al.*, 1996b) and the adapted instructions booklet (Maltese version; Mifsud *et al.*, 1998b). Each right answer was awarded one mark.

Before data entry, some tests were checked at random to ensure that the test administrators' marking was accurate, and the level of accuracy was found to be satisfactory. Moreover, both the individual item scores (right/wrong) and the total score as calculated by the marker were entered; computer calculation of the total score from the item scores provided a cross-check on the marker's accuracy.

After data entry, three tests for each language from each Year 2 class were checked at item level with the original test booklets. If any errors were encountered, a thorough check of all that class's test booklets was carried out.

CHAPTER FOUR

HOW THE DATA WERE ANALYSED

This section first gives the size of the achieved sample and some technical data on the reliability of the tests. The rest of the section is devoted to reporting how the statistical analyses of the test results were carried out. The use of multilevel modelling and the standardisation of the tests are described.

4.1 The achieved samples

The tests were administered in early March 1999 in 246 classes containing Year 2 pupils in 100 schools. Data were gathered on 5,417 pupils. Of these, 117 were outside the required age range, which for Year 2 pupils at the date of testing was 6 years 2 months to 7 years 1 month (6:02–7:01). Because of pupil absences, the numbers of Year 2 pupils who took the tests were as shown in Table 4.1.

Table 4.1: Achieved pupil samples

Number of pupils taking Maltese test	4,788
Number of pupils taking English test	4,822
Number of pupils entered into multilevel analyses	4,554

The numbers given in the first two lines of the table formed the basis for the raw score analyses reported in Section 5. Table 4.1 also gives the number of pupils whose test scores were entered into the multilevel analyses reported in Section 6. This number is slightly smaller than for the raw score analyses because of pupil absences and some missing background variable information (for details see Appendix 4).

4.2 Suitability and manageability

The 101 test administrators were asked to complete a suitability and manageability questionnaire. The suitability of the tests referred to the pupils' level and ability. The manageability of the tests dealt with whether the test administrators felt the tests were manageable to administer to the pupils. Their ratings of the Maltese and English versions of the tests were largely positive – see Tables 4.2 and 4.3.

Table 4.2: Suitability ratings (N=101)

	Maltese	English
Very suitable	51	46
Fairly suitable	48	51
Borderline	2	4
Unsuitable	0	0

Table 4.3: Manageability ratings (N=101)

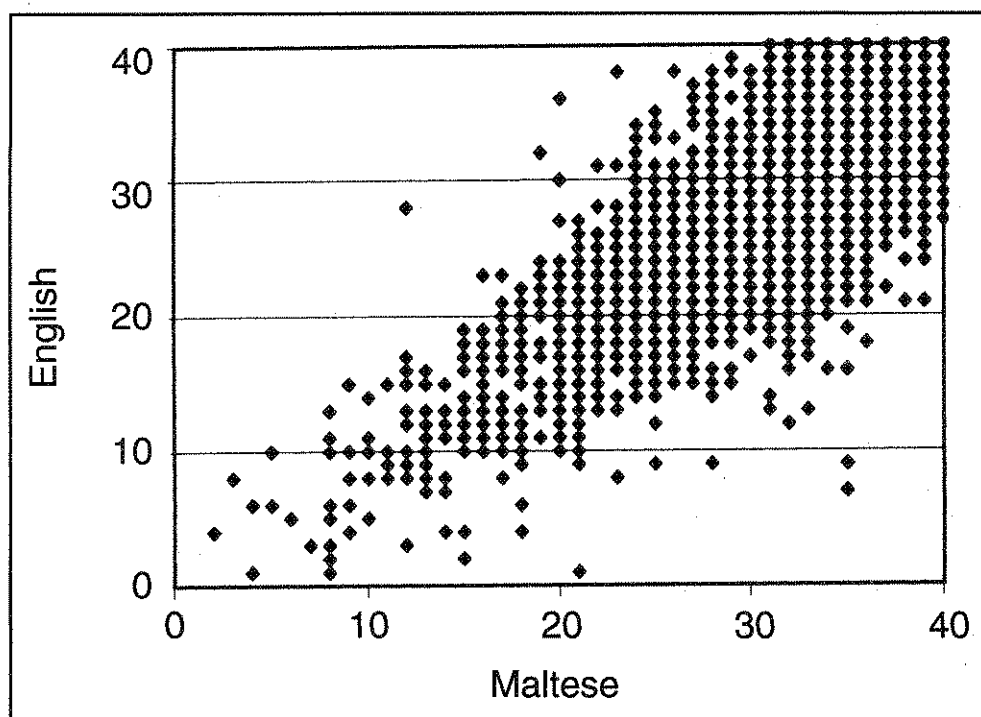
	Maltese	English
Very manageable	79	65
Fairly manageable	21	35
Borderline	1	1
Unmanageable	0	0

4.3 Reliability

The reliability of the tests was estimated in two ways: the correlation between the two versions, and their internal reliability. Also, the tests had been administered in counterbalanced order (half of the pupils took Maltese first, while half took English first).

The correlation between the two tests for all schools was very high: on Pearson's Product-moment coefficient of linear correlation, $r=0.81$. Figure 4.1 illustrates the correlation.

Figure 4.1: Correlation between Maltese and English tests



Cronbach's standardised alpha computed from correlations also indicated clearly that both the Maltese ($\alpha = 0.84$) and the English ($\alpha = 0.85$) versions of the test had high internal reliability.

4.4 Raw scores

The immediate output of the statistical analyses was average raw scores. In themselves, these provided only one useful finding, the high level of overall attainment in the two languages (see Section 5.1). More importantly, the raw scores served as input to the calculation of standardised scores, and to multilevel modelling.

4.5 Standardised scores

An age-standardisation on a British sample already existed for the *Literacy Baseline* (Vincent *et al.*, 1996b). However, English is usually a second language for Maltese pupils. For this reason a separate age-standardisation of

the English test was carried out on the Maltese sample. The Maltese test was age-standardised with the same pupils. Both standardisations were performed by Dr Denis Vincent of the University of East London in England. Thus there now exist parallel standardised Maltese and English literacy tests for Maltese Year 2 children.

As is well known, older children perform better on average than younger children, even within the 12-month span represented in this survey. The process of age-standardisation aims to take account of this so that scores for children of different ages may be reported on a comparable basis.

In the standardisation process, the raw scores were transformed on to a scale with a mean (average) of 100 and a standard deviation (s.d.) of ± 15 . By definition, two-thirds of all the scores then fell between 85 and 115, and one-sixth each below 85 and above 115. At the extremes, one child in 40 (2.5 per cent) fell more than two standard deviations below the mean (i.e. below 70), and one in 40 more than two standard deviations above the mean (i.e. above 130). Below 85 and above 130, precise standardised scores are not usually given because of the inaccuracy of calculating them from small numbers of raw scores.

Standardisation takes each child's age at the date of testing into account. The tables of norms form a matrix, in which one axis is the child's raw score, and the other axis is the child's age in years and completed months. Looking up the cell where the two facts about a child intersect gives that child's standardised score.

Children whose standardised scores fall within the range 85–115 can be considered in the broad 'average' band of attainment. Those between 116 and 130 are gifted, and those above 130 exceptional. Those between 84 and 70 are likely to be struggling with literacy, and therefore probably with the whole of their education, and require support; and those below 70 are severely disabled for learning and require very special attention.

It would be pointless to reproduce the distributions of standardised scores because by definition they would be identical for both languages – the standard normal or Gaussian distribution, perhaps better known as the 'bell curve'. For the same reason no findings based on the standardised scores are reported, since they would merely replicate the standard facts about the standard distribution. But the standardised tests have the potential to serve as very useful educational and research tools.

4.6 Multilevel modelling

In education, as in many other areas of research, data occur in a structured arrangement. Schools contain classes, which in turn are made up of pupils. In general it occurs that there is a degree of similarity between the lower-level elements within a higher-level element. Thus pupils within a school will be more similar to each other than they will be to pupils chosen at random from the entire population of schools and pupils. This hierarchical quality is not acknowledged in the standard 'traditional' statistical techniques, but the technique of **multilevel modelling** (Goldstein, 1995; Bryk and Raudenbush, 1992) has been developed precisely to take account of hierarchical structures. This is the technique used here.

Two levels are considered here: school and pupil. Other levels of grouping are possible, such as classes within schools. However, school and pupil are considered to be the two most important here: a substantial proportion (slightly under 30 per cent) of Maltese primary schools have only one Year 2 class, so that for them school and class effects would not be separately identifiable.

Table 4.4 shows the background variables used in the multilevel modelling analyses, with their subcategories. These factors were considered first singly, then together.

Table 4.4: Background variables used in multilevel modelling, with subcategories

Pupil variables	Subcategories
Gender	Male Female
Age	Up to 6 years 7 months at date of testing* Over 6 years 7 months at date of testing*
First language	Maltese (including Maltese and other) English (including English and other) Bilingual Maltese and English Other
Years of pre-school education	One year Two years Three years Four years None
Special educational needs	Special educational needs Receiving complementary education Special educational needs and receiving complementary education None

**Date of testing: March 1999*

Home variables	Subcategories
Mother's education	No schooling Primary only Secondary Pre-university and vocational courses University Other
Father's education	No schooling Primary Secondary Pre-university and vocational courses University Other
Father's occupation	Professional Administrative and managerial Higher clerical, skilled craftsmen, technicians Skilled manual workers, foremen Semi- or unskilled workers, labourers Other
School variables	Subcategories
Number of Year 2 classes in the school	1 class 2 classes 3 classes 4 classes 5 classes 6 classes 7 classes 8 classes
Type of primary school	State school 'A' State school 'C' Private Church school Private independent school
Geographical region of the school	Inner Harbour Outer Harbour South Eastern Western Northern Gozo

Note: 'State A' schools are primary schools which contain kindergarten and Years 1 to 3, and 'State C' schools are primary schools which contain kindergarten and Years 1 to 6.

As noted above, information on mother's occupation was not collected in this survey. In the pilot study (Mifsud *et al.*, 1998), it was possible to gather information on this variable for only 15 per cent of mothers.

Two parallel multilevel analyses were carried out, one for Maltese, the other for English. The outcome variable in each of these was the raw score. To aid in interpretation of the results of the analyses, we can say that one mark in the Maltese test corresponds approximately to just over a third of a year, obviously a substantial difference at the age of six. Similarly, it may help interpretation in a Maltese context to note that a difference of one mark on the English score corresponds to just under four months' progress, and this again is a substantial difference. These equivalences should not be taken too far. In particular, since we have data for a range of just one year, it would be misleading to say that a difference of (say) 12 marks was equivalent to four years: it would be preferable to say that it was highly educationally significant.

CHAPTER FIVE FINDINGS: RAW SCORES

5.1 Main results

Table 5.1 presents the main raw score results for the two test versions, overall and by gender.

Table 5.1: Average raw scores for Maltese and English tests, overall and by gender

	MALES			FEMALES			OVERALL		
	Mean	s.d.	N	Mean	s.d.	N	Mean	s.d.	N
Maltese	32.4	6.5	2,433	33.5	6.0	2,355	32.9	6.3	4,798
English	29.2	7.3	2,950	30.5	6.7	2,372	29.9	7.0	4,822

Key: Mean = average score; s.d. = standard deviation; N = sample size.

The maximum score on both tests was 40. The overall average score on the Maltese version (32.4) was 82 per cent of the maximum, and the overall average score for English (29.2) was 75 per cent of the maximum. The skew in the results towards the top end of the range is clearly visible in Figures 5.1 and 5.2, which show the distributions of scores for the two tests.

Figure 5.1: Distribution of raw scores on Maltese test

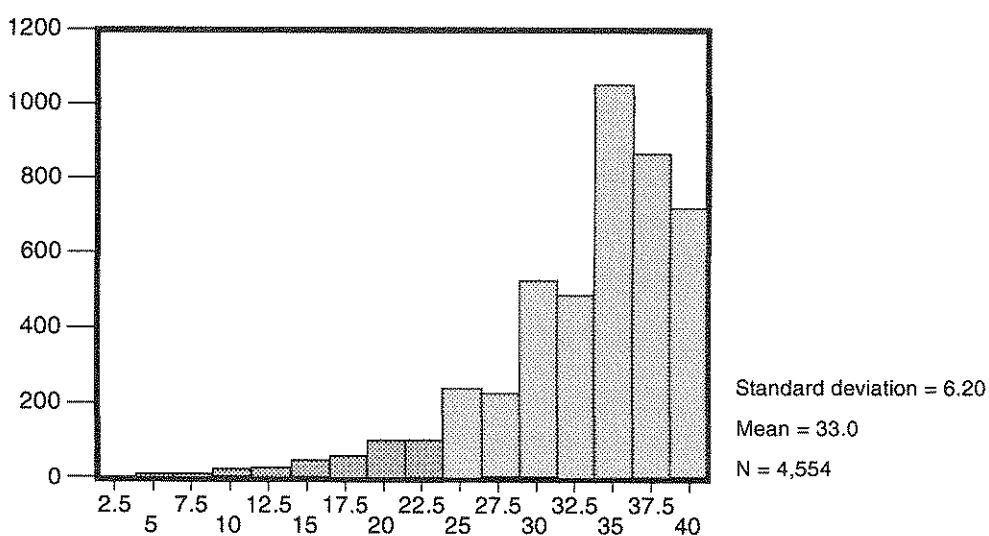
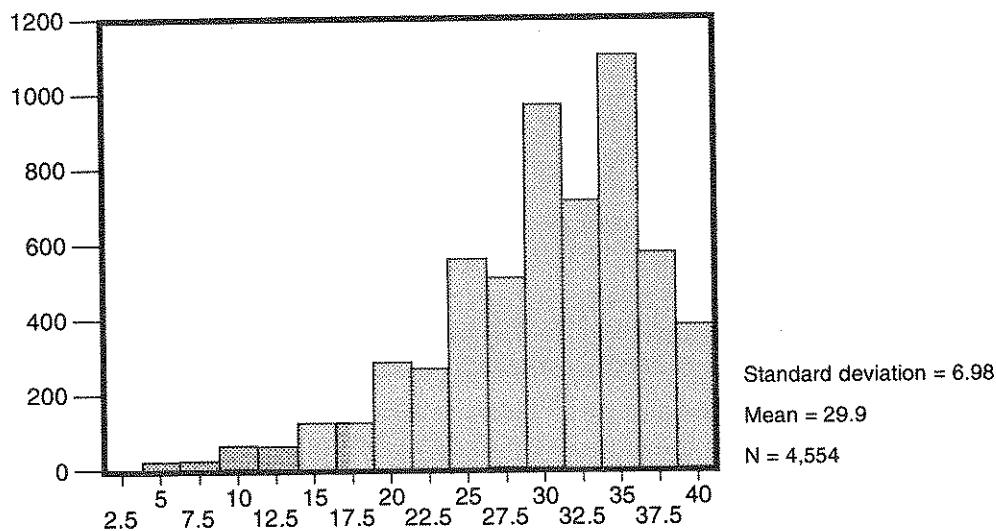


Figure 5.2: Distribution of raw scores on English test



This 'ceiling effect' suggests that the tests were slightly easy for Maltese Year 2 pupils. In the original discussion of tests to use for English, both the *Literacy Baseline* (intended for Year 1 children in the British system) and the next level up in the *Reading Progress Tests* series (Level 1, intended for Year 2 children in the British system) were considered. Level 1 was thought to be somewhat too demanding for Maltese Year 2 children to attempt in their second language, and the *Literacy Baseline* was accordingly chosen. In the event, the high average scores on both tests mean that Year 2 children were not faced with inappropriately difficult tests (which would have been unfortunate in the first ever national survey), and that they achieved good overall results in both languages.

However, Figures 5.1 and 5.2 also show that a minority of Year 2 children achieved very low scores. In a sense, this was also a useful outcome of the survey, since the tests were able to identify these children, who might well need extra teaching for literacy, in both languages; and the tests might therefore continue to serve as screening devices for pupils who need this special attention (see Table 5.2).

Table 5.2: Numbers and percentages of children identified as needing support

Raw score obtained	Maltese (N = 4,798)		English (N=4,822)	
	N	%	N	%
20 or less	274	5.7	542	11.2
Between 21 and 25	345	7.2	664	13.8

Since on both the Maltese and English tests the highest raw score children could achieve was 40, the cut-off points were set at the 50 per cent level. Therefore, children who scored 20 marks or less as a raw score are identified as needing intensive individual support. Children in the bracket who obtained between 21 and 25 marks are also in need of support. They may not need quite as much support as the ones who obtained 20 marks or less; however, they should be monitored for progress and given support, perhaps less intensive and in small groups.

5.2 Summary

- ◆ The high average raw scores showed that most pupils were making good progress in both languages.
- ◆ But a 'tail' of underachieving pupils could be identified in both languages, and these pupils need additional support.

CHAPTER SIX

FINDINGS: MULTILEVEL MODELLING

In this section, the results of the multilevel analyses are described, starting with the Maltese results, followed by the English results.

6.1 Maltese

Table 6.1 shows the results of the multilevel analyses, first with all the variables taken singly ('unadjusted'), and then including all variables simultaneously ('adjusted'). The aim of this sort of analysis is to estimate the differences between the subgroups when as many of the other potential influences as possible are taken into account. Thus, if we found that one region of the island scored more highly than another, it might be less an effect of the schools in that area than because it was a wealthier area, and more of the parents were more highly educated. Multilevel modelling attempts to take account of this.

The interpretation of one section of Table 6.1, namely the gender effect, will be described in some detail (below) to facilitate the interpretation of the rest.

Table 6.1: Unadjusted and adjusted results: Maltese: all data (N=4,554)

			Unadjusted				Adjusted			
		N	Fitted const.	SE	Chi-sq	p	Fitted const.	SE	Chi-sq	p
Pupil variables										
Gender	Boys	2,324	0.00	0.00	48.8	<.001	0.00	0.00	28.9	<.001
	Girls	2,230	1.31	0.19			0.86	0.16		
Age	Up to 6:07	2,171	0.00	0.00	62.8	<.001	0.00	0.00	52.6	<.001
	Over 6:07	2,383	-1.38	0.17			-1.10	0.15		
First language	Maltese	4,103	0.00	0.00	12.2	<.001	0.00	0.00	20.7	<.001
	English	368	-0.90	0.38			-1.16	0.33		
	Bilingual	21	0.31	1.28			0.97	1.09		
	Other	62	2.03	0.83			1.78	0.70		
Years of pre-school education	0	43	0.00	0.00	59.6	<.001	0.00	0.00	34.6	<.001
	1	496	1.83	0.93			-0.17	0.80		
	2	3,583	4.04	0.90			1.47	0.77		
	3	247	4.30	0.97			1.26	0.83		
	4	18	5.03	1.67			2.28	1.42		
	Missing	167	3.08	1.14			1.32	0.97		

Special educational needs	None	3,858	0.00	0.00	1249.4	<.001	0.00	0.00	1062.4	<.001
	SEN	242	-8.75	0.36			-8.22	0.35		
	Complem	335	-8.09	0.32			-7.23	0.31		
	SEN+comp	119	-8.56	0.52			-7.49	0.51		
Home variables										
Mother's education	Other	412	0.00	0.00	153.7	<.001	0.00	0.00	42.3	<.001
	None	9	-2.57	1.96			-3.56	1.84		
	Primary	317	-0.37	0.50			-1.25	0.67		
	Secondary	3,071	2.59	0.39			0.48	0.61		
	Pre-univ	550	3.18	0.45			0.63	0.65		
	University	195	4.59	0.57			1.59	0.73		
Father's education	Other	462	0.00	0.00	167.0	<.001	0.00	0.00	12.7	<.05
	None	21	-1.54	1.31			-1.35	1.27		
	Primary	443	0.40	0.44			0.20	0.62		
	Secondary	2,472	2.30	0.36			0.61	0.58		
	Pre-univ	732	3.63	0.40			1.15	0.60		
	University	424	4.13	0.45			1.05	0.65		
Father's occupation	Other	589	0.00	0.00	156.0	<.001	0.00	0.00	25.4	<.001
	Professional	297	3.81	0.44			1.57	0.45		
	Admin etc	664	3.34	0.36			1.34	0.35		
	Clerical	739	3.42	0.34			1.31	0.33		
	Skilled	1,083	2.50	0.32			0.98	0.30		
	Semi-, un-	1,182	1.18	0.32			0.46	0.30		
School variables										
No. of Y2 classes	1	535	0.00	0.00	14.6	<.05	0.00	0.00	5.2	NS
	2	1,301	-0.61	0.60			-0.02	0.49		
	3	956	-0.62	0.73			0.51	0.58		
	4	806	-2.51	0.78			-0.79	0.79		
	5	490	0.19	1.03			0.65	0.96		
	6	239	-1.03	1.66			-0.84	1.42		
	7	141	-1.91	2.03			0.36	1.66		
	8	86	-3.82	1.13			-1.11	1.07		
Type of school	State A	1,612	0.00	0.00	29.9	<.001	0.00	0.00	10.1	<.05
	State C	1,342	0.71	0.59			0.64	0.73		
	Church	1,042	2.82	0.64			1.62	0.79		
	Private	558	3.52	0.80			2.12	0.80		
Region	Inner H	1,191	0.00	0.00	10.7	NS	0.00	0.00	25.8	<.001
	Outer H	1,210	1.26	0.66			1.37	0.53		
	South Eastern	546	2.29	0.85			3.35	0.70		
	Western	601	2.04	0.81			2.22	0.63		
	Northern	515	0.73	0.91			0.77	0.76		
	Gozo	324	1.05	0.80			0.92	0.65		

Note: 'State A' schools are primary schools which contain kindergarten and Years 1 to 3, and 'State C' schools are primary schools which contain kindergarten and Years 1 to 6.

Pupil variables

6.1.1 Gender

The column labelled *N* gives the numbers of boys and girls, which are nearly equal. Differences in attainment between the categories, here between boys and girls, are described by setting the results for one 'base' group (here boys) equal to zero, and then expressing scores for other groups as differences from this base group. The 'unadjusted' difference in attainment between girls and boys was 1.31, much larger than the standard error of this difference (0.19), suggesting that the difference was statistically significant. It is generally recommended that a better means of assessing statistical significance is by using the deviance, and comparing the deviances of the relevant groups using the statistical test known as chi-squared. Here the chi-squared value was 48.8, with one degree of freedom (d.f.), which was statistically significant at the 0.001 level, i.e. very highly significant – such a difference would occur by chance on no more than one occasion in a thousand.

The columns for 'adjusted' results give the result after allowing for all the other factors. The difference was smaller (0.86), but still very highly statistically significant (chi-squared = 28.9 with 1 d.f., $p < 0.001$).

6.1.2 Age

There was, as expected, a relationship between pupil's age at testing and attainment in reading. Two groups were compared in the analyses, those aged 6:02–6:07 at the date of testing, and those aged 6:08–7:01. The difference between the average marks for these two groups was 1.38, of the order of one-fifth of a standard deviation in the unadjusted analysis, and rather less, 1.10, in the adjusted analysis. As suggested in Section 4.6, since these two groups differed in average age by approximately six months, this could be taken as an informal yardstick for assessing the extent of differences for other factors in these analyses.

6.1.3 First language

Ninety per cent of the respondents had Maltese as their first language. Unsurprisingly, those whose first language was Maltese performed substantially better on the Maltese test than those whose first language was English. 'Other language' pupils and those who were bilingual in Maltese and English apparently scored higher, but because they were small groups they were not significantly better than either Maltese or English speakers. In the adjusted analysis, the size of the differences between the three major categories changed but they were in the same order.

6.1.4 Pre-school education

Pupils who had attended pre-school, especially those attending for two or more years, did substantially better than those who had not. In the adjusted analysis, this effect was reduced after taking into account parental occupation and education to the extent that it vanished for those attending for only one year. It may be that there is a greater tendency for parents with more education themselves or in higher social class occupations to send their children to pre-school education. It is notable that approximately seven-eighths of the pupils in the study had had at least two years of pre-school education. It is almost as though there has been an unofficial lowering of the age of entry to education.

6.1.5 Special educational needs

Those requiring special education or receiving complementary education did substantially worse than other pupils, each of the three groups, special, complementary, and special and complementary, averaging between eight and nine marks lower than the rest. This difference was statistically significant at the 0.001 level, i.e. very highly significant. This applied also to the adjusted results, though the difference was slightly smaller.

Home variables

6.1.6 Mother's education

The scores for the mother's education groups differed very substantially and increased with the mother's education level. After adjusting for the other factors, the differences and the statistical significance were reduced, though the ordering effectively remained the same.

6.1.7 Father's education

The scores for the father's education groups differed very substantially and increased with the father's education level. After adjusting for the other factors, the differences and the statistical significance were reduced, though the ordering effectively remained the same.

6.1.8 Father's occupation

The differences in scores between the father's occupation groups were very substantial and statistically significant, and substantially followed the same ordering as in the classification itself. After allowing for other variables, including father's education and mother's education, these differences were reduced, though they remained statistically significant and in essentially the same order.

School variables

6.1.9 Number of Year 2 classes

Unadjusted differences between schools with different numbers of Year 2 classes were just statistically significant, but adjusted differences were not.

6.1.10 Type of school

In the unadjusted analysis, Church and private independent schools did substantially better than state schools. In the adjusted analysis, the difference was reduced, but still statistically significant.

6.1.11 Region

The unadjusted differences in mean score between the regions were not statistically significant. However, in the adjusted analysis for this variable, unlike all the other variables, the differences became more significant: the differences between both South Eastern and Western and Inner Harbour were statistically significant, and those between Gozo and Northern and South Eastern.

As a follow-up to the findings on region, it can be noted that the region variable is not really relevant to Church and private independent schools, since they typically draw their pupils from a wide catchment area. For this reason, the analyses were repeated, confining attention to those in state schools only. The results are shown in Table 6.2. It can be seen that when the analyses were confined to state schools, the differences on the region variable were statistically significant in both unadjusted and adjusted analyses. South Eastern and Western pupils performed better than Inner Harbour pupils, and South Eastern better than Gozo, in the unadjusted analysis. In the adjusted analysis, the only significant differences were that South Eastern pupils performed better than those in Inner Harbour and Gozo.

Table 6.2: Unadjusted and adjusted results: Maltese: state schools (N=2,954)

			Unadjusted				Adjusted				
			N	Fitted const.	SE	Chi-sq	p	Fitted const.	SE	Chi-sq	p
Pupil variables											
Gender	Boys	1,542	0.00	0.00	37.6	<.001	0.00	0.00	24.8	<.001	
	Girls	1,412	1.46	0.24			0.99	0.20			
Age	Up to 6:07	1,419	0.00	0.00	50.7	<.001	0.00	0.00	48.7	<.001	
	Over 6:07	1,535	-1.70	0.24			-1.42	0.20			
First language	Maltese	2,869	0.00	0.00	12.4	<.01	0.00	0.00	7.6	NS	
	English	52	-2.72	0.92			-1.73	0.77			
	Bilingual	8	0.72	2.30			1.42	1.90			
	Other	25	2.42	1.31			1.54	1.12			
Years of pre-school education	0	27	0.00	0.00	73.2	<.001	0.00	0.00	36.9	<.001	
	1	237	2.24	1.31			-0.57	1.11			
	2	2,537	5.86	1.24			1.84	1.06			
	3	105	6.44	1.40			1.36	1.18			
	4	6	6.45	2.91			3.26	2.46			
	Missing	42	4.24	1.63			2.50	1.41			
Special educational needs	None	2,319	0.00	0.00	922.2	<.001	0.00	0.00	766.8	<.001	
	SEN	186	-9.05	0.46			-8.46	0.44			
	Complem	330	-8.06	0.35			-7.04	0.34			
	SEN+comp	119	-8.47	0.57			-7.28	0.55			
Home variables											
Mother's education	Other	177	0.00	0.00	117.3	<.001	0.00	0.00	23.1	<.001	
	None	3	-4.23	3.72			-1.96	3.37			
	Primary	255	0.66	0.65			-0.70	0.89			
	Secondary	2,177	3.48	0.53			0.79	0.83			
	Pre-univ	271	4.27	0.65			0.96	0.89			
	University	71	7.09	0.92			2.74	1.10			
Father's education	Other	222	0.00	0.00	151.3	<.001	0.00	0.00	16.1	<.01	
	None	13	-3.32	1.82			-3.63	1.72			
	Primary	386	1.19	0.56			0.15	0.78			
	Secondary	1,759	3.03	0.48			0.58	0.75			
	Pre-univ	440	4.67	0.55			1.20	0.80			
	University	134	6.56	0.72			1.71	0.94			
Father's occupation	Other	505	0.00	0.00	127.6	<.001	0.00	0.00	23.5	<.001	
	Professional	99	4.15	0.73			1.85	0.51			
	Admin etc	189	4.25	0.56			1.81	0.42			
	Clerical	398	4.24	0.45			1.21	0.37			
	Skilled	807	2.78	0.39			0.78	0.36			
	Semi-, un-	956	1.46	0.38			0.85	0.36			

School variables										
No. of Y2 classes	1	194	0.00	0.00	12.1	NS	0.00	0.00	9.4	NS
	2	659	0.12	0.80			0.10	0.70		
	3	534	0.45	0.90			0.91	0.82		
	4	706	-1.63	0.89			-1.23	0.81		
	5	395	1.12	1.10			0.57	1.00		
	6	239	0.49	1.45			-1.27	1.35		
	7	141	-0.42	1.81			-0.13	1.67		
	8	86	-2.88	1.25			-1.26	1.11		
Region	Inner H	506	0.00	0.00	22.0	<.001	0.00	0.00	15.1	<.01
	Outer H	867	1.51	0.70			1.10	0.73		
	South Eastern	531	3.53	0.77			2.89	0.78		
	Western	429	2.93	0.81			1.75	0.83		
	Northern	398	1.32	0.88			0.24	0.89		
	Gozo	223	1.27	0.83			0.31	0.81		

6.2 English

Table 6.3 shows the results of multilevel analyses, first with all the variables taken singly ('unadjusted'), and then including all variables simultaneously ('adjusted').

Table 6.3: Unadjusted and adjusted results: English: all data (N=4,554)

			Unadjusted				Adjusted			
		N	Fitted const.	SE	Chi-sq	p	Fitted const.	SE	Chi-sq	p
Pupil variables										
Gender	Boys	2,324	0.00	0.00	50.7	<.001	0.00	0.00	30	<.001
	Girls	2,230	1.41	0.20			0.91	0.17		
Age	Up to 6:07	2,171	0.00	0.00	75.2	<.001	0.00	0.00	66.7	<.001
	Over 6:07	2,383	-1.58	0.18			-1.29	0.16		
First language	Maltese	4,103	0.00	0.00	20.9	<.001	0.00	0.00	16	<.001
	English	368	1.50	0.40			1.01	0.35		
	Bilingual	21	0.94	1.34			1.37	1.14		
	Other	62	2.46	0.88			2.02	0.73		
Years of pre-school education	0	43	0.00	0.00	47.7	<.001	0.00	0.00	26.1	<.001
	1	496	1.57	0.97			0.12	0.83		
	2	3,583	3.67	0.93			1.53	0.80		
	3	247	4.02	1.02			1.24	0.87		
	4	18	5.29	1.75			2.83	1.48		
	Missing	167	2.90	1.21			1.72	1.01		

Special educational needs	None SEN Complem SEN+comp	3,858 242 335 119	0.00 -8.27 -8.74 -9.85	0.00 0.38 0.34 0.55	1230 <.001	0.00 -7.77 -7.78 -8.61	0.00 0.37 0.33 0.53	1055.1 <.001	
Home variables									
Mother's education	Other None Primary Secondary Pre-univ University	412 9 317 3,071 550 195	0.00 -3.78 -0.25 2.54 3.96 5.57	0.00 2.05 0.53 0.42 0.48 0.60	183.4 <.001	0.00 -4.88 -1.01 0.40 1.07 1.88	0.00 1.91 0.70 0.64 0.67 0.75	44.1 <.001	
Father's education	Other None Primary Secondary Pre-univ University	462 21 443 2,472 732 424	0.00 -1.60 0.28 2.22 4.11 5.04	0.00 1.36 0.46 0.38 0.42 0.47	220.2 <.001	0.00 -1.01 0.13 0.67 1.44 1.34	0.00 1.32 0.64 0.60 0.63 0.68	19 <.01	
Father's occupation	Other Professional Admin etc Clerical Skilled Semi-, un-	589 297 664 739 1,083 1,182	0.00 4.90 4.13 3.51 2.47 1.09	0.00 0.47 0.38 0.36 0.33 0.33	197.5 <.001	0.00 1.92 1.65 1.19 0.95 0.43	0.00 0.47 0.36 0.34 0.31 0.31	29.9 <.001	
School variables									
No. of Y2 classes	1 2 3 4 5 6 7 8	535 1,301 956 806 490 239 141 86	0.00 -1.25 -0.09 -2.99 0.46 -2.73 -3.70 -4.70	0.00 0.80 0.97 1.06 1.41 2.49 2.74 1.36	15.9 ~.03	0.00 -0.45 0.90 -0.80 0.77 -0.70 -0.17 -1.22	0.00 0.51 0.60 0.81 0.98 1.45 1.71 1.11	10.4 NS	
Region	Inner H Outer H South Eastern Western Northern Gozo	1,296 1,240 553 624 517 324	0.00 1.32 1.06 1.53 1.54 0.19	0.00 1.00 1.28 1.23 1.38 1.18	3.2 NS	0.00 1.77 3.41 2.02 1.63 0.58	0.00 0.54 0.71 0.65 0.77 0.67	26.4 <.01	
Type of school	State A State C Church Private	1,612 1,342 1,042 558	0.00 1.16 6.04 7.64	0.00 0.62 0.67 0.84	92.1 <.001	0.00 1.39 4.66 5.23	0.00 0.75 0.81 0.82	60.4 <.001	

Note: 'State A' schools are primary schools which contain kindergarten and Years 1 to 3, and 'State C' schools are primary schools which contain kindergarten and Years 1 to 6.

Pupil variables

6.2.1 Gender

The column labelled *N* gives the numbers of boys and girls, which were nearly equal. The unadjusted difference in attainment between girls and boys was 1.41, much larger than the standard error of this difference (0.20), suggesting that the difference was statistically significant. The effect was statistically significant at the 0.001 level, i.e. very highly significant. The adjusted columns give the result after allowing for all the other factors. The difference was smaller (0.91), but still very highly statistically significant (chi-squared = 30.0 with 1 d.f.).

6.2.2 Age

There was, again as expected, a relationship between pupil's age at testing and attainment in reading. Two groups were compared in the analyses, those aged 6:02–6:07, and those aged 6:08–7:01 at the time of testing. The difference between the average marks for these two groups was 1.58, of the order of one-fifth of a standard deviation in the unadjusted analysis, and rather less, 1.29, in the adjusted analysis. As in the Maltese test, since these two groups differed in average age by approximately six months, this could be taken as an informal yardstick for assessing the extent of differences for other factors in these analyses.

6.2.3 First language

Unsurprisingly, those whose first language was English performed substantially better on the English test than those whose first language was Maltese. The highest-performing group were the 'Other' group, though the differences between them and the rest were not statistically significant. (This group was relatively small and only included for completeness.) The results for the adjusted analysis were comparable.

6.2.4 Pre-school education

Pupils who had attended pre-school for two or more years did substantially better than those who had not, though this effect was not statistically significant for those attending for only one year. It may be that there is a greater tendency for parents with more education themselves or in higher social class occupations to send their children to pre-school education.

6.2.5 Special educational needs

Those requiring special education or receiving complementary education did substantially worse than other pupils, each of the three groups, special,

complementary, and special and complementary, averaging between eight and ten marks lower than the rest. This difference was statistically significant at the 0.001 level, i.e. very highly significant. This applied also to the adjusted results, though the difference was slightly smaller.

Home variables

6.2.6 Mother's education

The scores for the mother's education groups differed very substantially and increased with the mother's education level. After adjusting for the other factors, the differences and the statistical significance were reduced, though the ordering effectively remained the same.

6.2.7 Father's education

The scores for the father's education groups differed very substantially and increased with the father's education level. After adjusting for the other factors, the differences and the statistical significance were reduced, though the ordering effectively remained the same.

6.2.8 Father's occupation

The differences in scores between the father's occupation groups were very substantial and significant and followed the same ordering as the classification itself. After allowing for other variables, including father's education and mother's education, these differences were substantially reduced, though they remain statistically significant and in the same order.

School variables

6.2.9 Number of Year 2 classes

Unadjusted differences between schools with different numbers of Year 2 classes were statistically significant, with a suggestion that schools with smaller numbers of classes did better. In the adjusted analysis, these differences were not statistically significant.

6.2.10 Type of School

In the unadjusted analysis, Church and private independent schools did substantially better than state schools. In the adjusted analysis, differences were reduced, but still statistically significant.

6.2.11 Region

As with the Maltese test results, the unadjusted differences in mean score between the regions were not statistically significant. In the adjusted analysis, on the other hand, the differences were statistically significant. Pupils in the Inner Harbour performed substantially worse than those in Outer Harbour, South Eastern and Western regions. South Eastern pupils also performed significantly better than those in Gozo.

As in the Maltese language analyses, the region results were replicated confining the analyses to state schools only. Table 6.4 shows that both unadjusted and adjusted differences between region were statistically significant. In the unadjusted analysis, Outer Harbour, South Eastern, Western and Northern all performed better than Inner Harbour. In the adjusted analysis, differences were reduced, with the only statistically significant differences being South Eastern significantly outperforming Inner Harbour and Gozo.

Table 6.4: Unadjusted and adjusted results: English: state schools (N=2,954)

			Unadjusted				Adjusted			
		N	Fitted const.	SE	Chi-sq	p	Fitted const.	SE	Chi-sq	p
Pupil variables										
Gender	Boys	1,542	0.00	0.00	38.5	<.001	0.00	0.00	25.8	<.001
	Girls	1,412	1.54	0.25			1.04	0.20		
Age	Up to 6:07	1,419	0.00	0.00	49.4	<.001	0.00	0.00	44.9	<.001
	Over 6:07	1,535	-1.74	0.25			-1.41	0.21		
First language	Maltese	2,869	0.00	0.00	5.6	NS	0.00	0.00	5.4	NS
	English	52	0.26	0.95			1.18	0.80		
	Bilingual	8	1.84	2.39			2.16	1.97		
	Other	25	3.03	1.36			1.79	1.16		
Years of pre-school education	0	27	0.00	0.00	68.8	<.001	0.00	0.00	36.4	<.001
	1	237	2.60	1.36			0.53	1.15		
	2	2,537	6.17	1.29			2.77	1.09		
	3	105	6.82	1.45			2.17	1.22		
	4	6	8.79	3.02			5.92	2.54		
	Missing	42	4.73	1.69			3.90	1.45		
Special educational needs	None	2,319	0.00	0.00	923.8	<.001	0.00	0.00	773.7	<.001
	SEN	186	-8.43	0.48			-7.90	0.46		
	Complem	330	-8.63	0.36			-7.57	0.36		
	SEN+comp	119	-9.63	0.59			-8.44	0.57		

Home variables											
Mother's education	Other	177	0.00	0.00	141.3	<.001	0.00	0.00	28.8	<.001	
	None	3	-6.24	3.84			-4.07	3.48			
	Primary	255	0.83	0.68			-0.24	0.92			
	Secondary	2,177	3.57	0.55			1.02	0.85			
	Pre-univ	271	5.06	0.67			1.61	0.92			
	University	71	8.51	0.95			3.79	1.13			
Father's education	Other	222	0.00	0.00	178.3	<.001	0.00	0.00	18.0	0.01	
	None	13	-2.72	1.88			-2.70	1.78			
	Primary	386	1.14	0.58			-0.03	0.81			
	Secondary	1,759	3.04	0.49			0.52	0.77			
	Pre-univ	440	5.31	0.57			1.49	0.82			
	University	134	7.24	0.74			1.63	0.97			
Father's occupation	Other	505	0.00	0.00	141.9	<.001	0.00	0.00	23.9	<.001	
	Professional	99	4.90	0.76			2.00	0.72			
	Admin etc	189	4.62	0.58			1.89	0.53			
	Clerical	398	4.52	0.47			1.86	0.44			
	Skilled	807	2.79	0.41			1.17	0.38			
	Semi-, un-	956	1.41	0.40			0.75	0.37			
School Variables											
No. of Y2 classes	1	194	0.00	0.00	11.5	NS	0.00	0.00	10.1	NS	
	2	659	-0.41	0.88			-0.45	0.78			
	3	534	0.27	1.00			0.63	0.92			
	4	706	-2.06	0.98			-1.88	0.91			
	5	395	0.45	1.23			-0.22	1.13			
	6	239	-0.06	1.65			-2.06	1.56			
	7	141	-1.49	2.04			-1.59	1.90			
	8	86	-3.64	1.34			-2.18	1.20			
Region	Inner H	506	0.00	0.00	17.8	<.01	0.00	0.00	12.6	0.03	
	Outer H	867	1.91	0.81			1.56	0.83			
	South Eastern	531	3.73	0.89			3.10	0.89			
	Western	429	2.78	0.94			1.40	0.95			
	Northern	398	2.49	1.03			1.21	1.02			
	Gozo	223	1.56	0.95			0.24	0.91			

6.3 Summary

This summary is based on the adjusted analyses because they remove the effects of other variables. For the results according to region, the analysis with Church and private independent schools excluded is used, this also being the more valid approach.

Pupil variables

- ◆ Girls achieved significantly higher average scores than boys in both languages.
- ◆ Pupils in the upper half of the Year 2 age range had higher average scores in both languages than those in the younger half of the year group.
- ◆ Pupils whose first language was Maltese (90 per cent of the sample) achieved a higher average score on the *Maltese* test than those whose first language was English, while on the *English* test those whose first language was English achieved a higher average score than those whose first language was Maltese.
- ◆ Only about one-eighth of the children had had less than two years' pre-school education. Those children had significantly lower average scores in both languages than those who had had more pre-school education.
- ◆ Pupils who had special educational needs and/or were receiving complementary education had significantly lower average scores in both languages than other pupils.

Home variables

- ◆ Pupils whose mothers and/or fathers were better educated, and those whose fathers had more middle-class jobs, achieved significantly higher average scores than others in both languages.

School variables

- ◆ The number of Year 2 classes in the school had little relationship with pupils' attainment. Thus small and large primary schools appeared to be equally effective.
- ◆ Pupils in Church and private independent schools achieved significantly higher average scores than pupils in state schools in both languages.
- ◆ Schools in South Eastern Malta had the highest average scores, and those in Inner Harbour and Gozo the lowest, in both languages.

CHAPTER SEVEN

IMPLICATIONS AND RECOMMENDATIONS

7.1 Implications

Most Year 2 pupils were making good progress in literacy in both Maltese and English, and this bilingual and biliterate outcome was a very positive finding.

However, in both languages there was a 'tail' of pupils with literacy difficulties.

The tests in Maltese and English identified both those children who require intensive and individual support in literacy and those who should be monitored for progress and given extra support, perhaps less intensive and in small groups.

Schools of all sizes seem to be equally effective in teaching early literacy.

The standardisation of the test in both languages has the potential to provide a useful educational and research tool.

From the detailed findings, it is possible to draw up two profiles, of the Maltese children most and least likely to succeed:

- ◆ most likely: a girl from South East region, attending a Church or private independent school, the child of highly educated parents, father in a professional job
- ◆ least likely: a boy from Inner Harbour or Gozo, attending a state school, the child of poorly educated parents, father unemployed or in a low-paid job.

However, here we must also point out that these profiles do not mean that pupils fitting the 'most likely to succeed' profile are to be regarded as not needing help or attention. On the other hand, children who fit the 'less likely to achieve' profile should not be ignored or made to feel inadequate, almost foredoomed. Also, teachers should not have low expectations of what these children can achieve.

The question then arises of what the education system is doing to overcome initial inequalities. It is clearly doing a lot, both because there are schools and pupils who buck these trends, and because of the good overall standard of

attainment and the effectively universal achievement of bilingualism and biliteracy. However, there is always more that can be done to ensure that all pupils start off on a more equal footing.

7.2 Recommendations

1. The standardised scores of all pupils should be fed back to their schools, with guidance on the interpretation of the scores.
2. Children whose raw score was 20 or less in either language (274 in Maltese, 542 in English) and who are therefore having severe difficulties should be identified to their schools, so that intensive individual support can be given to any of these children who are not already receiving it.
3. Children whose raw score was between 21 and 25 in either language (345 in Maltese, 664 in English) and who may therefore be struggling should also be identified to their schools, so that their progress can be closely monitored and support provided where necessary, perhaps in small groups.
4. Gender differences in attainment: action is required to ensure that boys do not fall behind in this important life skill. Gender differences may be reduced or reversed in other subjects and these may need their own strategies.
5. Differences between state schools and Church and private independent schools: are two-thirds of pupils being condemned to an inferior education? A policy aim could be that state education will be as good as independent.
6. Regional differences are worrying. What are the reasons for the relatively poor performance of pupils in Inner Harbour and Gozo? Poverty? Transient pupils? Immigrants? Investigation appears to be warranted.
7. Recommendations 2 to 6 would require extra resources to implement. If they are implemented, careful evaluation will be essential to measure their impact, the value added to children's attainment.
8. This survey could be the start of a thorough programme of assessment in different subjects and over time. After literacy, the most crucial skill area is numeracy, with science and ICT (information and communications technology) increasingly important. And it would be of great interest to repeat this Year 2 survey after (say) four years, to investigate any changes in the interim; also to follow this cohort of children up in about four years' time, to measure their progress and to investigate factors that might account for differences in that progress.

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APPENDICES

APPENDIX 1 – SCHOOL QUESTIONNAIRE

(TO BE COMPLETED BY THE HEAD OR THE ASSISTANT HEAD)

It would be very helpful if you could provide the following background information on your school. Please circle or mark one answer for each item. Thank you.

1. Type of school:

- Primary A State School 1
Primary C State School 2
Private Independent School 3
Private Church School 4

2. Geographical region of the school:

(Please refer to the attached classification)

- Inner Harbour 1
Outer Harbour 2
South Eastern 3
Western 4
Northern 5
Gozo 6

3. Number of pupils in Year 2 in 1997/8:

_____ boys (1)
_____ girls (2)

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE.

Annex to School Questionnaire

Geographical Regions

The classification of the Geographical Regions of the Maltese Islands as used by the Central Office of Statistics is as follows:

1. Inner Harbour:

Valletta, Floriana, Marsa, Senglea, Cospicua, Vittoriosa, Kalkara, Paola, Sliema, Gzira, Msida, Hamrun, Pietà.

2. Outer Harbour:

Zabbar, Xghajra, Fgura, Tarxien, Luqa, Qormi, Birkirkara, Santa Venera, St. Julian's, San Gwann, Santa Lucia, Pembroke.

3. South Eastern:

Marsascala, Gudja, Ghaxaq, Zejtun, Marsaxlokk, Birzebbugia, Mqabba, Kirkop, Safi, Qrendi, Zurrieq.

4. Western:

Zebbug, Siggiewi, Dingli, Lija, Attard, Mtarfa, Rabat, Bahrija.

5. Northern:

Naxxar, Gharghur, Mellieha, St. Paul's Bay, Mosta, Mgarr.

6. Gozo:

Gharb, Zebbug, Xaghra, Kercem, Victoria, Nadur, Qala, Sannat, Xewkija, Ghajnsielem, San Lawrenz.

APPENDIX 2 – Pupil Data Form

NATIONAL SURVEY OF LITERACY ATTAINMENT OF YEAR 2 PUPILS (1999)
PUPIL DATA FORM

School Name: _____ School Code: _____

[illegible]

Early Literacy Unit 1999

APPENDIX 3 – Test Administrator's Questionnaire

SUITABILITY AND MANAGEABILITY QUESTIONS

1. In your opinion, how suitable was the Maltese language test for the pupils in your school who took it?

Very suitable Fairly suitable Borderline Unsuitable

2. In your opinion, how suitable was the English language test for the pupils in your school who took it?

Very suitable Fairly suitable Borderline Unsuitable

3. In your opinion, how manageable was the Maltese language test to administer in your school?

Very manageable Fairly manageable Borderline Unmanageable

4. In your opinion, how manageable was the English language test to administer in your school?

Very manageable Fairly manageable Borderline Unmanageable

5. Please write any comments about the tests.

English test:

Maltese test:

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE.

APPENDIX 4 – Missing data, exclusions from multilevel analysis, and decisions on recoding

Only one school declined to take part. All 100 other schools with Year 2 pupils agreed to participate, and all 100 of these schools returned School Questionnaires, thus providing complete data on school type, geographical region, and numbers of boys and girls in Year 2. All 100 schools also returned Pupil Data Forms, so that the total number of children on whom data were collected was 5,417.

However, some children who were tested had dates of birth outside the target range (1/1/92–31/12/92). Also, in some cases a child missed one or both of the tests, or not all the background data were provided. For multilevel modelling to be valid, it is essential that the only cases used are those which fall within the target population and for which all the data are available. Therefore children who were outside the age range or for whom incomplete information was available were excluded from the analysis. The numbers of children who were outside the age range, or who missed a test, or for whom various forms of background data were missing, are shown in the following list.

Aged under 74 months (6:02)	79
Aged over 85 months (7:01)	37
Missed Maltese test	619
Missed English test	595

Children who missed either test were excluded from the multilevel modelling analyses in both languages, to ensure comparability of datasets.

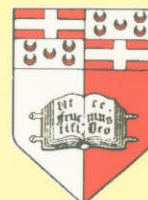
Missing information:

Date of birth	147
Gender	9
SEN	16
First language	29

Total number of children excluded from the analyses: 863 (15.9 per cent)
Total number of children remaining in the analyses: 4,554 (84.1 per cent)
(The number excluded is not the total of the categories above because some children were excluded for more than one reason.)

Rather more cases would have been lost but for a few decisions on recoding background data. The preset categories in the Pupil Data Form for father's

occupation and education and mother's education had made no provision for the possibility that the parent might have died. Where this was the case, it was decided to recode this under 'Other'. Under pre-school education, there were a limited number of cases in which the school did not provide the data. Rather than lose those cases, or assign them arbitrarily to one of the preset categories (e.g. 'None'), it was decided to treat 'Missing' under this heading as a valid category.



The 1999 National Survey of the Attainment of Year 2 Pupils

Main findings and recommendations

- The average score in both languages was quite high, and this bilingual and biliterate outcome was very positive.
- The tests clearly identified pupils with literacy difficulties, and these children should be given additional support.
- Girls achieved significantly higher average scores than boys.
- Children who had had less than two years' preschool education had significantly lower average scores than those who had had more preschool education.
- Pupils who had Special Educational Needs and/or were receiving Complementary Education had significantly lower average scores than other pupils.
- Pupils whose mothers and/or fathers were better educated, and those whose fathers had more middle-class jobs, achieved significantly higher average scores than others.
- Pupils in Church and Private Independent schools achieved significantly higher average scores than pupils in state schools.
- Schools in South Eastern Malta had the highest average scores, and those in Inner Harbour and Gozo the lowest.
- These disparities in achievement need to be discussed and tackled, and follow-up studies undertaken.

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