evaluation of the 1998 summer schools programme

full report

Marian Sainsbury
Louise Caspall
Angus McDonald
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Ian Schagen

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1 Introduction

This report details the findings of the evaluation of the 1998 summer schools programme. This evaluation was conducted by the National Foundation for Educational Research (NFER) under contract to the Department for Education and Employment (DfEE). It covered three types of summer school: the expanded Summer Literacy Schools programme; pilot Summer Literacy Schools for children with special educational needs; and pilot Summer Numeracy Schools.

1.1 Summer Schools in 1998

Summer schools for 11-year-olds were one of the first initiatives of the new government elected in May 1997, and an initial pilot took place that year during August. The pilot programme consisted of about 50 Summer Literacy Schools in various parts of England. The schools had to offer 50 hours each of focused literacy tuition, but had flexibility as to how to organise this programme. The evaluation of this first year (GB.DfEE, 1997) revealed a mixed picture. There was a good deal of evidence of motivation and enthusiasm on the part of teachers and pupils, and the children who took part gained in reading confidence. The evaluation showed a fall in reading test scores over the period from May to September 1997, with no significant difference between those children who had attended summer schools and those who had not. However, some of the summer schools used other tests to assess the children over the shorter period of the summer school itself, and reported gains in scores over this period (Andrews, 1997).

The evaluation of the 1997 Summer Literacy Schools gave rise to a *Working Guidance* document to underpin planning for 1998. This year saw a considerable expansion of the Summer Literacy Schools programme, with 558 centres taking part, again nationally across England. Schools were once more required to provide 50 hours of focused literacy tuition, but the *Working Guidance* gave specific advice on aims, organisation, planning, teaching, learning and practical questions.

As in 1997, the Summer Literacy Schools were aimed at children of 11 years old, who were transferring from Key Stage 2 to Key Stage 3, which generally involves a move from primary to secondary school. Summer Literacy Schools took place, for the most part, in secondary schools, and the children attending them were mainly those due to transfer to that same school in the autumn term. The participating children were selected from those who had not achieved the national expected standard of Level 4 in their Key Stage 2 English tests taken in May. The teachers organising the summer schools selected the pupils in consultation with their primary schools. Most Summer Literacy Schools had

places for 30 children, who might be taught as a whole class some of the time, but were often taught in smaller groups.

In addition to the mainstream Summer Literacy Schools, there was, for the first time in 1998, a Special Educational Needs Pilot. This also focused upon literacy, but was aimed at children with special educational needs of various kinds. Some of the schools in the pilot were mainstream schools and drew their pupils from those in the mainstream whose literacy attainments were a long way below the national expected standard - Level 2 or Level 1 of the National Curriculum. Others were special schools and included, for the most part, children with statements of special educational needs who would benefit from extra help in literacy. There were 15 of these pilot centres, each offering places to about 15 pupils. Because of the children's special needs, not all of the summer school participants in this programme were 11-year-olds. Their ages ranged from eight to 16 years, with most between 11 and 13.

Further, there was in 1998 a Summer Numeracy Schools Pilot, focusing on improving children's attainments in mathematics. These were organised along similar lines to the Summer Literacy Schools. Each one provided places for about 30 children of 11 years of age who had not yet reached the target of National Curriculum Level 4. There were around 50 Summer Numeracy Schools.

1.2 Aims of the Evaluation

The aims of the summer school programme were to:

- raise pupils' standards in reading and writing, or in mathematics
- improve pupils' attitudes to literacy / mathematics
- contribute to a smoother transfer into secondary schools, in particular, by increasing access to the secondary curriculum.

Correspondingly, the aims of the evaluation of the summer school programme were to:

- assess the progress made in the course of the summer school by means of straightforward tests of literacy or of mental arithmetic, or by means of an assessment instrument developed for children with special educational needs
- investigate pupils' attitudes to literacy or to mathematics and any changes in attitude that occurred in the course of the summer school

- evaluate the process of setting and monitoring individual targets in qualitative terms in order to contribute to the understanding of effective summer school provision.

1.3 Methodology

In order to address these aims, the methodology adopted for the evaluation had three strands: assessments of standards; an attitude questionnaire; and an examination of target setting.

1.3.1 Assessing Standards

In order to assess the standards achieved and the progress made during the summer schools, a range of tests and assessments was adopted to suit the levels of the children and the practical requirements of the circumstances. The summer school teachers were asked to test all the children, usually on the first and last days of the summer school.

Summer Literacy Schools

In the Summer Literacy Schools, a straightforward test of reading was required in order to provide a manageable assessment at the beginning and end of the programme. The test used was the NFER-NELSON Group Reading Test 6-14. The great majority of participants in Summer Literacy Schools took parallel forms 'X' and 'Y' of this test, designed for pupils of nine years and over. A crossover design was used, so that half of the sample took form 'X' at the beginning and form 'Y' at the end, and the other half took the two forms in reverse order. These forms are described as 'context comprehension' tests. They consist of a number of paragraphs of continuous prose, of increasing difficulty. Within each, there are gaps in certain sentences into which the most suitable word, from five multiple-choice options, is to be inserted. The test is presented in Optical Mark Reader format for ease of marking.

For those children whose reading level was well below that expected for their age, and who could not be expected to access forms 'X' and 'Y' of the Group Reading Test, forms 'A' and 'B' of the same test were used instead. The decision as to which form to use was left to the summer school teachers. Forms 'A' and 'B' have a sentence completion format. That is, instead of paragraphs of continuous prose, the tests consist of a number of simple sentences, each of which has one word omitted, to be selected by the pupil from a multiple choice format. These forms are designed for pupils from six years upwards, and the first few items have picture prompts.

The tests are all part of a linked series. Children's raw scores and their ages can be used to calculate an age standardised score, and these scores can be directly compared

whichever form of the test is used. Age standardised scores are designed to have an average of 100 and a standard deviation of 15. About two-thirds of the population can be expected to have a standardised score in the range 85-115, and 95 per cent of the population a score between 70 and 130. The standardised scores therefore give an indication of the standing of the summer school children in relation to the national population, at both time points.

The details of the testing programme for the 1998 Summer Literacy Schools therefore differed in some important respects from the 1997 exercise. The Key Stage 2 test used in 1997 takes a broad definition of reading according to the National Curriculum, including inferential understanding and the ability to comment on style and organisation of texts. The Group Reading Test used in 1998, by contrast, focuses upon the particular aspects of reading addressed by the manageable sentence completion format. Further, the timing of the testing was different in 1998, in that both the initial and the final tests were administered within the period of the summer school, whereas in 1997 the testing had taken place in May and September. Further, the 1997 evaluation had a control group for comparison purposes, whereas the 1998 evaluation did not. However, the use of standardised tests means that the standardisation sample can be regarded as a proxy for a control group.

The Special Educational Needs Pilot

For the Special Educational Needs Pilot, there was also a choice of assessment depending upon the characteristics of the children. Some pupils in this programme took forms 'A' and 'B' of the Group Reading Test as described above, resulting in an age standardised score.

For others, a set of assessment criteria especially designed for pupils with special educational needs was used. These criteria were designed to be suitable for children with all kinds of special needs, including profound and multiple learning difficulties. They consist of steps leading up to the baseline Desirable Outcomes and then to National Curriculum Levels 1, 2 and 3, with some steps also between levels. Assessments are made by teacher observation rather than by taking a specific test form. For this survey, three areas of criteria were included: reading; writing; and speaking and listening. They will be described further in Chapter 3. Some children did both assessments.

The Summer Numeracy Schools Pilot

For Summer Numeracy Schools, a mental calculation test was used. This test was developed as part of the National Numeracy Project and aimed at pupils in Year 5, so

expected to be suitable for the lower attainers in Year 6. It consists of 30 questions covering, approximately, Levels 3-5 of the National Curriculum. Only one form of this test was available, so the same test was used at both the beginning and the end of the summer school. The test results were calculated in terms of raw scores out of 30; age standardised scores were not available.

Background Data

In order to set the results of the assessments in context, all summer school teachers were asked to provide background data on participating pupils. The data requested consisted of sex, date of birth, ethnicity, eligibility for free school meals, special educational needs, English as an additional language, Key Stage 2 test results and hours of attendance at summer school. Additional information on the nature of the children's special needs was collected for those in the Special Educational Needs Pilot.

1.3.2 Attitude Questionnaires

A further aim of the summer school programme was to improve pupils' confidence in their own abilities and to foster positive attitudes to learning. Children's attitudes to their literacy or numeracy can be expected to have an important, but complex, relationship to their learning. Enjoyment of the work and confidence in one's own abilities are likely to accompany success in a subject. However, it is not straightforward to describe any causal relationship between attitude and attainment. It is likely that children who enjoy a subject will make progress within it; but it is also likely that those who do well at their work will enjoy it for that reason. Similarly, children with high levels of confidence are likely to be willing to work hard to experience further success; but successful pupils can be expected to be more confident for that very reason. Children's selection for summer school was likely to be related to their attitudes in various ways: those selected needed to be likely to attend regularly and to gain from the experience. The 1997 evaluation suggested that children attending summer schools in that year had relatively high levels of reading enjoyment but low levels of confidence.

As in 1997, attitude questionnaires were devised to give some measure of children's attitudes to their summer school studies. The questionnaires for the literacy schools were similar to those used the previous year, and were again entitled *Reading Survey*. For numeracy, a new questionnaire was designed along similar lines to the literacy one. These consisted in the main of statements such as 'I like reading stories' or 'I think I am good at maths', to which the children responded by ticking a box to agree, disagree, or indicate 'not sure'. The full questionnaires are reproduced in Appendix A4.

1.3.3 Setting and Monitoring Targets

As part of the planning of teaching and learning at summer schools, children were expected to have individualised targets for their own learning, to be monitored in the course of the summer school. These were intended to specify what achievements were sought, in terms of progress in literacy or numeracy. An investigation of the way in which the targets were set and monitored was undertaken in order to contribute to the knowledge base for future summer schools.

Unlike the other elements of the evaluation, this consisted of a qualitative study focusing upon a small number of pupils in a subsample of summer schools. Researchers visited each of the schools in the subsample at the beginning and the end of the period of the summer school. In consultation with the teachers, they selected four children in each school whose targets were investigated in some detail. In the course of the visits, the researchers observed any target setting activities and discussed the targets and the approaches with teachers and children.

A semi-structured observation and interview schedule was devised, with a separate one to be used for each focus pupil. This schedule was similar for both literacy and numeracy. Identifiers for researcher, teacher and pupil were entered, and the pupil's individual targets were then listed. Next, researchers were asked to record the conduct of the target-setting interview, where there was one. There was then space to note the teacher's responses at interview, with some question prompts such as the evidence of attainment on which the targets were based. Notes of the pupil interview followed, and finally there was space for the researcher to record any comments on his or her observations. The final observation and interview schedule followed a similar format.

The flexible format of the observation and interview schedules was intended to allow researchers to record their findings, whatever form the target setting took. It could not be assumed, for example, that an individual teacher-pupil target setting interview would always take place, so information about how the targets were decided might need to be derived from the teacher interview rather than observation. Whatever the nature of the information, researchers were asked to structure their reports in a similar way. The information from individual reports was then collated to allow a description of the range of targets and approaches, together with 'Case Study' examples of practice in particular schools.

1.4 The Samples

In the two pilot programmes, the Special Educational Needs Pilot and the Summer Numeracy Schools Pilot, the target sample consisted of all summer schools. For the Summer Literacy Schools, however, a 10 per cent sample was drawn, giving about 55 participating schools. Although the Summer Literacy Schools programme was in its second year, only one of the schools drawn in the sample had run a summer school in 1997. Thus, almost all the teachers in the Summer Literacy Schools were also new to summer schools, although they were able to benefit from the *Working Guidance* produced as a result of 1997 experience.

For the testing programme and the attitude questionnaires, the target pupil sample consisted of all the children in all the participating summer schools. This was, however, dependent upon the provision of complete data by the schools. For each child, the full data set consisted of an initial test or assessment, a final test or assessment, initial and final attitude questionnaires, and complete background data collected on a pupil data form. Because one or more of these data sources were missing in some cases, the achieved samples fell short of the targets. In particular, it proved difficult for some summer school teachers to provide full background data on the pupils, as information was not available from primary schools.

The samples that form the basis for the results in this report were defined in order to obtain the largest possible sample size with complete enough data for the necessary analyses. For this purpose, the test sample and the questionnaire sample were treated separately. For literacy, pupils were included if they had at least an initial test or questionnaire and a final one, together with background data that included at least a date of birth so that age standardised scores could be calculated. For numeracy, dates of birth were not necessary, so the samples were defined as pupils who had completed tests or questionnaires at both time points. Further details are given in Appendix A1. Where the analyses required a wider range of background variables, the samples were correspondingly smaller. The sample sizes are given in Table 1.1.

Table 1.1: Size of test and questionnaire samples

	Number of pupils	Boys %	Girls %
Summer Literacy Schools			
Test form X/Y	1032		
Test form A/B	152		
Total test sample	1184	45	55
Questionnaire sample	1155	53	47
Special Educational Needs Pilot	**Number of pupils**	**Boys %**	**Girls %**
Test form A/B	158	62	38
Assessment criteria	107	74	26
Questionnaire sample	175	63	37
Summer Numeracy Schools Pilot			
Test sample	1132	47	53
Questionnaire sample	1121	47	53

The case study sample was much smaller, to allow in-depth study in the course of two researcher visits. Table 1.2 gives these numbers.

Table 1.2: Size of case study samples

	Number of schools	Number of visits	Number of pupils
Summer Literacy Schools	6	12	48
Special Educational Needs Pilot	4	8	32
Summer Numeracy Schools Pilot	6	12	48

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2 Summer Literacy Schools

This chapter presents the data from the evaluation of the Summer Literacy Schools. Reading test data was obtained from the Group Reading Test (GRT) and the attitudes of Summer Literacy School pupils towards reading were collected using a *Reading Survey* questionnaire. Analyses by background variables, using the multilevel modelling technique, will also be reported. National Curriculum results were available for only about one-third of this sample, so no analysis of these results will be presented here.

2.1 Age Standardised Reading Test Scores

All scores from the GRT were converted into age standardised scores. These included scores from 1032 Summer Literacy School pupils who took versions 'X' and 'Y' of the GRT, and also 152 who took versions 'A' and 'B' as their teachers had judged that these children would not be able to access the more difficult tests. The age standardised score distributions for the initial tests, taken on the first day of the summer schools (initial), and the final tests, taken on the last day of the summer schools (final), are given in Appendix A2 Table A2.1 to A2.4. Separate score distributions are given for each of the test types: sentence completion and context comprehension.

Age standardised scores were used as they are a convenient means of comparing children's scores which bring two advantages. First, the scores are placed on a standard metric, having a mean (average) of 100 and a standard deviation (a measure of spread) of 15. They are also transformed to have a normal distribution so that the percentage of children above any given score is known from the characteristics of the distribution. As an example, in the population on which the test is standardised, 16 per cent of children will have standardised scores of less than 85. The second advantage is the statistical removal of the effects of age. It is well known that even within a year group (say Year 6) there will be small but persistent differences in score related to age, with the oldest children gaining the highest scores on average. Hence, in the English system, children born in the autumn have higher scores on average than those born in the spring who have higher scores than those born in the summer. The reasons for this are related to many factors including maturational effects, length of schooling and possibly confidence factors through being the most advanced in the class. Whatever the reasons, the relationships of attainment to age can be an intrusive factor in examining differences in scores. For this reason, the effects of the age of each child are removed, giving age standardised scores. Raw scores were converted to age standardised scores using the tables published with the GRT.

Where scores in this chapter are indicated as being 'statistically significant', this means that there is a less than five per cent probability that these differences occurred by chance.

2.1.1 Reading Test Results

Table 2.1.1 shows the mean age standardised scores and standard deviations for children when tested at the beginning of the summer schools (initial) and at the end (final).

Table 2.1.1: Mean age standardised scores and standard deviations for initial and final assessments

	Initial test	Final test
Mean age standardised score	88.6	88.9
Standard deviation	10.2	10.5

Of the pupils who attended the Summer Literacy Schools for whom the minimum necessary data was available, 645 were boys and 539 were girls. Table 2.1.2 shows the age standardised scores and standard deviations from the GRT for boys and girls separately. Comparisons between girls and boys indicated that their scores did not differ significantly at either point in time, although girls tended to have slightly lower test scores than boys.

Table 2.1.2: Mean age standardised scores and standard deviations for initial and final assessments by sex

		Initial test	Final test
Mean age standardised score	Boys	89.1	89.6
	Girls	87.9	88.1
Standard deviation	Boys	10.6	11.0
	Girls	9.7	9.8

2.1.2 Differences in Reading Test Results Between Initial and Final Tests

The differences in age standardised scores between the initial and final tests are shown in Table 2.1.3. It can be seen that GRT scores increased by an average of 0.3 age standardised score points, an increase that was not found to be statistically significant. That is, the small increase over this short time period could have occurred by chance alone, and average scores neither improved nor deteriorated. However, when considering these findings it should be noted that the standard deviation of the difference is considerable, indicating that there was a substantial variation in score change between initial and final assessments. Because of this degree of variation, the percentage of pupils whose scores increased, decreased and remained the same are also reported in Table 2.1.3. This shows that although 47 per cent of pupils improved on their age standardised scores between the initial and final assessments, the scores of 53 per cent remained the same or decreased over the summer school period.

Table 2.1.3: Mean difference in age standardised scores between initial and final assessments and percentages of pupils showing score changes

Mean difference (gain)	Standard deviation	Percentage of pupils whose scores increased	Percentage of pupils whose scores remained the same	Percentage of pupils whose scores decreased
+0.3	8.2	47	8	45

Changes in age standardised scores were examined separately for boys and girls, and the results of this can be seen in Table 2.1.4. The improvement for boys was greater than that for girls, but this difference was not statistically significant. Again, the standard deviations are high compared to the actual changes in scores, indicating that there was considerable variation in scores between the initial and final assessments. Table 2.1.4 shows that the proportion of pupils whose scores increased, decreased or stayed the same was similar for boys and girls, with just under half showing an increase in scores, and just over half showing a decrease or remaining constant.

Table 2.1.4: Mean difference in age standardised scores between initial and final assessments by sex and percentages of pupils showing score changes

	Mean difference in age standardised score	SD	Percentage of pupils whose scores increased	Percentage of pupils whose scores remained the same	Percentage of pupils whose scores decreased
Boys	+0.5	8.1	47	8	45
Girls	+0.2	8.3	46	7	47

2.1.3 Multilevel Modelling

Explanation of Multilevel Modelling

Multilevel modelling is a statistical technique, which takes account of data grouped into similar clusters at different levels. For instance, pupils are grouped into classes, which are grouped into schools, which are grouped into local education authorities. In such cases, entities (e.g. pupils, classes, and schools) which are grouped together at any level are assumed to have some degree of similarity not shared by others belonging to different groups. The model used in this evaluation is described in Appendix A3.

Within this hierarchy of levels there is a single measure of interest, the dependent variable, which is related to a number of other variables, known as the 'explanatory' variables. The explanatory variables may be defined at any level of the model. For instance, in the pupil / class / school model, some variables may refer to the pupil, some to the class, and others to the school. In total, the explanatory variables provide a set of measurements that is used to explain the behaviour of the dependent variable. The technique identifies those explanatory variables that have a significant effect, either in a positive or negative sense, and the extent of this effect. It also identifies those explanatory variables that have no significant effect.

In this study a three-level model was used, with the levels being the **summer schools,** the **pupils,** and the **time point.** The time point may be thought of as the assessment occasion, either for the reading tests or for the completion of the *Reading Survey*. About 25 explanatory variables were used in the model; some of these showed a significant positive effect, some showed a significant negative effect, while the remaining showed no significant effect either way. The level of significance applied was the five per cent level.

A breakdown of the explanatory or background variables associated with the reading test scores can be seen in Appendix A1, and further details about the explanatory variables in relation to the multilevel model may be found in the Appendix A3. The present multilevel model examined the effects of the explanatory variables on GRT scores. Further models are reported below which examine the effects of explanatory variables of responses to the *Reading Survey*. For all models, some of the background data recorded on the Pupil Data Forms were missing. Where this occurred, missing values were replaced with the average of those values present.

Results of Multilevel Model for Reading Test Scores

Reading test scores from the GRT were used as the dependent variable for this multilevel model. Background variables that had a significant effect on the dependent variable at the five per cent level are commented on below, both for this model and subsequent ones presented in this report. The full statistics associated with each of the background variables and plots of variables with 95 per cent confidence intervals can be found in Appendix A3.

Initial and final assessment points

The multilevel model confirmed that the small improvement in GRT scores that occurred between the initial and final assessments was non-significant.

Stage of special educational needs

There was a significant negative effect associated with an increase in the stage of pupils' special educational needs as defined by the Code of Practice. That is, the higher the stage on the Code, the lower the score. Pupils with more severe special needs also made less progress during the summer schools.

Age in completed months

This variable showed a significant negative effect, with older pupils tending to have lower reading test scores than younger pupils.

May 1998 reading test scores

Reading test scores were positively associated with Key Stage 2 test scores from May 1998. This indicates a positive association between reading ability as assessed through the National Curriculum Key Stage 2 reading test and the GRT.

GRT version

A significant effect was observed for the different versions of the GRT. Although pupils made improvements on both versions of the test, overall scores were significantly higher for children who took versions X/Y compared to those who took versions A/B. This is to be expected, as teachers were instructed to give versions A/B only to children who were unable to access forms X and Y.

Initial GRT score

Pupils who scored lower on the GRT at the initial assessment were observed to make more progress than those who obtained higher initial scores.

2.1.4 Discussion

The analysis indicated that, in the course of the summer schools, children's reading ability, as measured by standardised test scores, neither improved nor deteriorated significantly.

These results may at first sight seem to be at variance with the findings from the 1997 summer school report by Sainsbury *et al.* (1997). However, the differences between the methodologies of the two studies, explained in Chapter 1, were so great that no comparison is possible.

2.2 Attitudes to Reading

Attitudes towards reading were measured with a *Reading Survey* questionnaire. This instrument was a modified version of the one developed for the evaluation of the first Summer Literacy Schools initiative in the summer of 1997 (Sainsbury *et al.*, 1997). The present instrument contained 15 items that assessed a variety of attitudes towards reading, including frequency of reading at home and the types of material that children liked to read. In total, 1155 children completed the *Reading Survey* questionnaire at both the initial and final assessment points, and had the required background data. Copies of the *Reading Survey* with the percentage of responses to each question from the initial and final assessments can be seen in Appendix A4.

2.2.1 Structure of the Reading Survey Questionnaire

The attitude statements on the questionnaire were deliberately not arranged in any particular order. To avoid the possibility that children might give positive answers because they felt that was expected of them, positive and negative statements were intermingled. In order to make more sense of the questionnaire outcomes, therefore, it was necessary to gather together statements addressing related attitudes.

This was done by means of a factor analysis of the *Reading Survey* data gathered from the initial assessment at the beginning of summer school. The results of this analysis were verified by means of a factor analysis from the data gathered at the time of the final assessment, towards the end of the summer schools. Factor analysis is a statistical technique that seeks out clusters of related subject matter by identifying patterns of similar responses. The factor analysis of the reading attitude statements on these questionnaires revealed two factors, which were stable across questionnaires and samples. The first of these will be termed *'Reading Enjoyment'* and consists of the following:

Positive responses to:

- I like reading stories.
- I can usually find a book I want to read.
- I like going to the library.

Together with negative responses to:

- I like watching television better than reading books.
- I think that books are boring.
- I only read at school.

The second factor identified by the analysis will be described as *'Reading Confidence'*. It consists of:

Positive responses to:

- When I read a book, I usually finish it.
- I think I am a good reader.
- If I get stuck on a word I can usually work it out.

Together with negative a response to:

- I think reading is hard.

For the following discussion of attitudes, these two scales will be taken as the principal indicators of children's attitudes to reading. A 'scale score' was computed for each one, and comparisons will be based on these scale scores. The third indicator will be *'Reading Frequency'*: an average of the responses to the following question.

- How often do you read at home?

Every day	Most days	Not often	Never

It should be noted that the third indicator is less reliable than the other two because it is based on only one question. The possible score ranges for each of the three scales are given in Table 2.2.1.

Table 2.2.1 Possible score ranges for the three *Reading Survey* questionnaire indicators

Reading Survey indicator	Possible score range
Reading Enjoyment	-6 to +6
Reading Confidence	-4 to +4
Reading Frequency	0 to +3

Statistical tests were applied to these scores to identify significant changes in attitudes. Where scores are described as 'significantly different', this indicates that there is less than a five per cent probability that the pattern occurred by chance alone. The findings from the *Reading Survey* are discussed below.

2.2.2 Reading Enjoyment

The means and standard deviations for *Reading Enjoyment* can be seen in Table 2.2.2. This shows that there was an increase in *Reading Enjoyment* between the initial and final assessments, suggesting that summer schools had a positive impact on children's enjoyment of reading. This change between the assessment points was highly statistically significant.

Table 2.2.2: Means and standard deviations for *Reading Enjoyment* by assessment point

	Initial assessment	Final assessment
Mean	2.2	2.8
Standard Deviation	3.0	2.8

2.2.3 Reading Confidence

The means and standard deviations for *Reading Confidence* can be seen in Table 2.2.3. As with *Reading Enjoyment*, a statistically significant change in *Reading Confidence* was seen between the initial and the final assessment. At the time of final assessment, children reported higher levels of *Reading Confidence* than they had when the *Reading Survey* was initially completed, again suggesting that Summer Literacy Schools had a positive effect on children's attitudes towards reading.

Table 2.2.3: Means and standard deviations for *Reading Confidence* by assessment point

	Initial assessment	Final assessment
Mean	1.1	1.5
Standard Deviation	2.0	1.9

2.2.4 Reading Frequency

Table 2.2.4 shows the means and standard deviations for self-reports of *Reading Frequency*. It can be seen that *Reading Frequency* is higher at the time of final assessment than initial assessment, a difference that is statistically significant.

Table 2.2.4: Means and standard deviations for *Reading Frequency* by assessment point

	Initial assessment	Final assessment
Mean	1.7	1.9
Standard Deviation	0.7	0.7

2.2.5 Multilevel Modelling

Multilevel models, as explained above, were conducted on the scales derived from the *Reading Survey* questionnaire. These models used *Reading Enjoyment*, *Reading Confidence* and *Reading Frequency* as the dependent variables and the results for each are reported below.

Results of Multilevel Model for Reading Enjoyment

The multilevel model confirmed that self-reported *Reading Enjoyment* improved over the summer school period. Girls and pupils who were eligible for free school meals also reported higher levels of *Reading Enjoyment*, but children with special educational needs scored lower on this attitude measure.

Results of Multilevel Model for Reading Confidence

As with *Reading Enjoyment*, the multilevel model for *Reading Confidence* confirmed that there was a significant improvement in this over the summer school period, and children with special educational needs reported lower levels of confidence. Higher levels of *Reading Confidence* were observed for Black pupils and those who had higher Key Stage 2 results from the May 1998 tests.

Results of Multilevel Model for Reading Frequency

Self-reported *Reading Frequency* increased significantly between the initial and final completion of the *Reading Survey*. Girls and Asian children reported that they read more

frequently outside of school, but pupils with special educational needs reported lower levels of *Reading Frequency*.

2.2.6 Discussion

For each of the three scales derived from the *Reading Survey*, significant improvements in attitudes towards reading were seen between the initial and final assessments for children attending the Summer Literacy Schools. At the end of the summer schools children reported that they enjoyed reading more, were more confident about their reading ability, and that they read more frequently at home. Many of the additional background variables associated with changes in attitudes towards reading were identified in the report of the 1997 Summer Literacy Schools (Sainsbury *et al.*, 1997), particularly the effects of sex and special educational needs status.

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3 The Special Educational Needs Pilot

This chapter reports the data from the assessment criteria, the Group Reading Test (GRT) and the attitudes to reading of Summer Literacy School pupils with special educational needs that were collected using the *Reading Survey* questionnaire.

3.1 Assessment Results

3.1.1 Assessment Criteria Scores

There were 107 children for whom the assessment criteria scores were completed at the beginning and end of summer school.

The assessment criteria are those under consultation by the Qualifications and Curriculum Authority in 1998 and are listed in Appendix A2. For the purpose of analysis, the following assessment criteria scores were given, corresponding to the level descriptions:

Level	P1	P2	P3	P4	P5	P6	P7	P8	1C	1B	1A	2C	2B	2A	3
Score	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

The score distributions for the initial assessments, on the first day of summer school, and for the final assessments, completed on the last day of summer school, for Reading, Writing, Speaking and Listening are given in Appendix A2 (Table A2.9).

Table 3.1.1 shows the mean scores and standard deviations for children assessed at the beginning of the summer schools (initial) and at the end (final).

Table 3.1.1: Mean scores and standard deviations for initial and final assessments

	Initial assessment	Final assessment
Mean Score		
Reading	10.2	10.9
Writing	9.8	10.4
Speaking and Listening	10.4	11.4
Standard Deviation		
Reading	2.0	2.2
Writing	2.0	2.1
Speaking and Listening	2.2	2.2

These mean scores out of 15 relate to the table above, so the mean score for Reading of 8.39 refers to the description around P8 (towards 1C) as the average typical level of attainment. There were significant increases in the scores between the initial and final assessments for Reading, Writing and Speaking and Listening.

There were 79 boys and 28 girls who had their details completed for the assessment criteria at the start and end of summer school. Table 3.1.2 shows the mean scores and standard deviations for boys and girls.

Table 3.1.2: Mean scores and standard deviations for initial and final assessments for boys and girls

		Initial assessment	Final assessment
Mean Score			
Boys			
	Reading	10.1	10.8
	Writing	9.9	10.3
	Speaking & Listening	10.5	11.3
Girls			
	Reading	10.5	11.2
	Writing	9.7	10.5
	Speaking & Listening	10.2	11.7
Standard Deviation			
Boys			
	Reading	1.9	2.0
	Writing	2.0	2.0
	Speaking & Listening	2.2	2.1
Girls			
	Reading	2.3	2.5
	Writing	2.3	2.4
	Speaking & Listening	2.2	2.4

All the scores between the initial and final assessment were statistically significant for Reading, Writing and Speaking and Listening, for both boys and girls.

3.1.2 Group Reading Test Scores

All scores from the GRT were converted into age standardised scores. There were 158 pupils who took version 'A' and 'B' of the GRT as well as completing their Pupil Data

Form. The age standardised score distributions for the initial tests, on the first day of summer school, and the final tests, taken on the last day of summer schools, are given in Appendix A2, Tables A2.11 and A2.12. The age standardised scores tables include 46 pupils whose ages were outside the range of the standardised tables. These pupils were counted as aged 12 years and 11 months, which was the maximum age. The age standardised scores for these pupils will therefore be overestimates and the averages should be treated with caution as a result.

Table 3.1.3 shows the mean age standardised scores and standard deviations for children tested at the beginning of the summer schools and at the end. Full score distributions are given as Tables A2.9 and A2.10 in Appendix A2.

Table 3.1.3: Mean age standardised scores and standard deviations for initial and final tests

	Initial test	Final test
Mean age standardised score	82.4	81.6
Standard deviation	14.3	13.2

These figures include the 46 outside the range of the table.

The difference between initial and final scores was not significant. That is, test scores did not show either an improvement or a deterioration in the course of the summer schools.

Of the 158 pupils who had GRT scores, 98 were boys and 60 were girls. Table 3.1.4 shows the age standardised scores and standard deviations from the GRT for boys and girls separately.

Table 3.1.4: Mean age standardised scores and standard deviations for initial and final assessments for boys and girls

		Initial test	Final test
Mean age standardised score	Boys	82.1	79.9
	Girls	82.9	84.3
Standard deviation	Boys	14.3	11.9
	Girls	14.4	14.7

The difference between initial and final scores for boys showed a statistically significant fall. There was no significant difference for girls.

3.1.3 Discussion

There was a significant difference in initial and final scores for the assessment criteria but not for the GRT. The very different nature of the two assessment instruments must be taken into account. The criteria were targeted in particular at children with special educational needs. The fact that the criteria were assessed by teacher judgement may also be relevant to the differing results.

3.2 Attitudes to Reading

Attitudes towards reading were measured with the same *Reading Survey* questionnaire, introduced in section 2.2. In total, 175 children completed the *Reading Survey* questionnaire at both the initial and final assessment points. Appendix A4 reproduces the questionnaires with the percentages of respondents to each questionnaire marked in.

3.2.1 Structure of the *Reading Survey* Questionnaire

Section 2.2.1 above describes the structure of the *Reading Survey* questionnaire in detail. In order to make more sense of the questionnaire outcomes, it was necessary to gather together statements addressing related attitudes, as before, in section 2.2.1. The factor analysis of the reading attitude statements on these questionnaires again revealed two factors, which were fairly stable across questionnaires and samples. The first factor will be described as *Reading Enjoyment* and consists of the same statements as in section 2.2.1 on the Summer Literacy Schools.

The second factor identified by the analysis will be described as *Reading Confidence*. It has almost the same profile as that identified and described in Section 2.2.1. The only difference is that the question 'I like reading silently by myself' was identified as a component of *Reading Confidence*. This did not emerge from the factor analysis as a component of *Reading Confidence* for the mainstream sample.

The third indicator will be *Reading Frequency*: an average of the response to the following question:

How often do you read at home?			
Every day	Most days	Not often	Never

Statistical tests were applied to these scores to identify significant differences. Where scores are described as 'significantly different', this indicates that there is less than a five per cent probability that the pattern occurred by chance alone. The findings from the *Reading Survey* are discussed below.

3.2.2 Reading Enjoyment

The means and standard deviations for *Reading Enjoyment* can be seen in Table 3.2.1. This shows that there was a small increase in *Reading Enjoyment* between the initial and final assessments. This change between the assessment points was not statistically significant, however. It is noteworthy that the levels of *Reading Enjoyment* recorded by these pupils were lower than those in the mainstream sample. This would seem to bear out the finding reported in Section 2.2.5 above, that children with special educational needs tended to enjoy reading less than those without.

Table 3.2.1: Means and standard deviations for *Reading Enjoyment* by assessment point

	Initial assessment	**Final assessment**
Mean	1.4	1.5
Standard deviation	3.2	2.6

3.2.3 Reading Confidence

The means and standard deviations for *Reading Confidence* can be seen in Table 3.2.2. A highly statistically significant change in *Reading Confidence* was seen between the initial and the final assessment. At the time of final assessment, children reported higher levels of *Reading Confidence* than they had when the *Reading Survey* was initially completed, suggesting that Summer Literacy Schools had a significant positive effect on this aspect of children's attitudes towards reading.

Table 3.2.2: Means and standard deviations for *Reading Confidence* by assessment point

	Initial assessment	Final assessment
Mean	1.2	2.2
Standard deviation	2.6	2.4

3.2.4 Reading Frequency

Table 3.2.3 shows the means and standard deviations for self-reports of *Reading Frequency*. It can be seen that *Reading Frequency* is greater at the time of final assessment than initial assessment, a difference that is statistically significant. These values are similar to those in the mainstream sample.

Table 3.2.3: Means and standard deviations for *Reading Frequency* by assessment point

	Initial assessment	Final assessment
Mean	1.7	1.8
Standard deviation	0.9	0.9

3.2.5 Discussion

For each of the three factors derived from the *Reading Survey*, improvements in attitudes towards reading were seen between initial and final assessments for children with special educational needs attending summer school. These improvements were statistically significant for *Reading Confidence* and *Frequency*. In other words, at the end of summer school children reported that they were more confident about their reading ability and that they read more frequently at home.

3.3 Conclusions

Summer school for children with special educational needs proved to be a positive experience, from the evidence in this section.

Children's scores on the assessment criteria in Reading, Writing and Speaking and Listening showed a statistically significant improvement. However, scores for those children tested on the GRT did not show any statistically significant difference between the initial and final test. Numbers in both samples were relatively small, so it is difficult to draw any definite conclusions from these findings. However, those organising similar summer schools in future years should consider carefully what kind of assessment instrument is best suited to their pupils.

Children's *Reading Confidence* and *Frequency* showed a statistically significant improvement on the *Reading Survey* questionnaire. Thus, like the pupils in the mainstream summer schools, the attitudes of these children towards their reading improved.

4 Summer Numeracy Schools

This chapter presents the findings of the analyses of the outcomes of the initial test and final test of mental arithmetic administered in all Summer Numeracy Schools. Comparisons are made in terms of improvement in test scores, performance of boys and girls and performance of pupils at different levels as measured by the Key Stage 2 National Curriculum test. Background variables such as hours of attendance at the Summer Numeracy School, stage of special educational needs, ethnicity and English as a foreign language are also analysed to determine which, if any, factors are significantly related to performance. Findings on attitudes to mathematics will also be reported.

4.1 Test Scores

4.1.1 Initial Test Scores

The same test was used in both the initial test and the final test. The measure used was the Year 5 mental arithmetic test of the National Numeracy Project, selected because any pupils within project schools would not have recent experience of the tests. This test was standardised on Year 5 children and thus it was not possible to compare progress of the Year 6 pupils in the Summer Numeracy Schools with the general population. The test was delivered through a taped administration to ensure all pupils had equal time to respond.

The distribution of initial total scores on this test is given in Table A213 in Appendix A2. Table 4.1.1 shows the mean (average) score and standard deviation (a measure of spread) of the initial test of mental arithmetic. This analysis is based on pupils for whom data were available for both the initial and final tests, that is, pupils who were absent for either test are omitted. The total sample size was 1132, of whom 529 were male and 596 were female. (No data were available on the remaining 7 children.) The total number of marks available for the test was 30.

Table 4.1.1: Initial test scores

	Mean	Standard deviation
All	13.3	5.2
Boys	13.4	5.4
Girls	13.3	5.2

There is no significant difference between performance of boys and girls on the initial mental arithmetic test.

4.1.2 Final Test Scores

Table 4.1.2 shows the mean score and standard deviation of the second mental arithmetic test of the Summer Numeracy Schools. The sample sizes are as for the initial test.

Table 4.1.2: Final test scores

	Mean	Standard deviation
All	17.3	5.9
Boys	17.2	6.0
Girls	17.3	5.7

Again, there is no significant difference between performance of boys and girls.

4.1.3 Differences in Scores between the Initial Test and the Final test

Table 4.1.3 shows the differences in the mean scores for the two mental arithmetic tests. The difference between the means of the initial and final test scores is highly significant, hence there is evidence of improvement in ability in mental arithmetic, as measured by this test, over the summer school period.

Table 4.1.3: Differences in mean scores between the initial test and the final test

	Mean	Standard deviation
All	3.9	3.7

The range of change in test scores was large, spreading from –9 to 21. The variation in improvement is illustrated in Figure 4.1.1 and, for boys and girls separately, Figure 4.1.2. Some children scored fewer marks, or the same mark, on the final test when compared to their mark on the initial test. However nearly three-quarters of the sample improved their score. Almost five per cent of pupils improved by 10 or more marks. Pupils attaining higher scores on the initial test tended to make less progress than those attaining lower

scores. This is unsurprising given that such pupils would have fewer opportunities to demonstrate increased understanding. A further explanation could be that teaching programmes may have focused towards pupils working at Level 3.

It is interesting to note that the greatest changes, both positive and negative, are shown by girls. However, as has already been noted, these differences are not statistically significant.

Figure 4.1.1: Distribution of mental test score changes

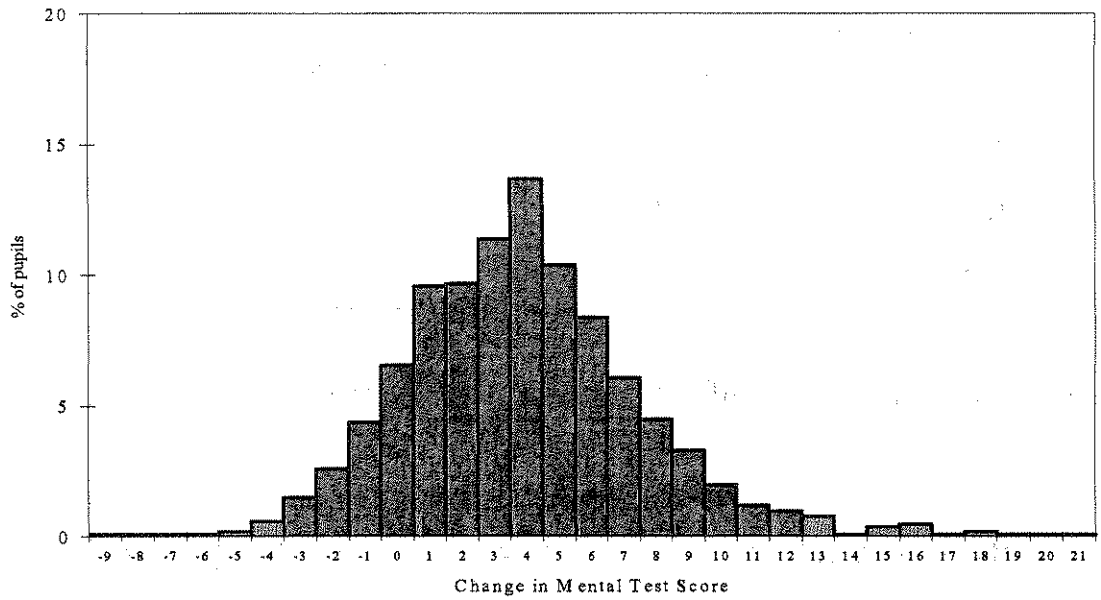
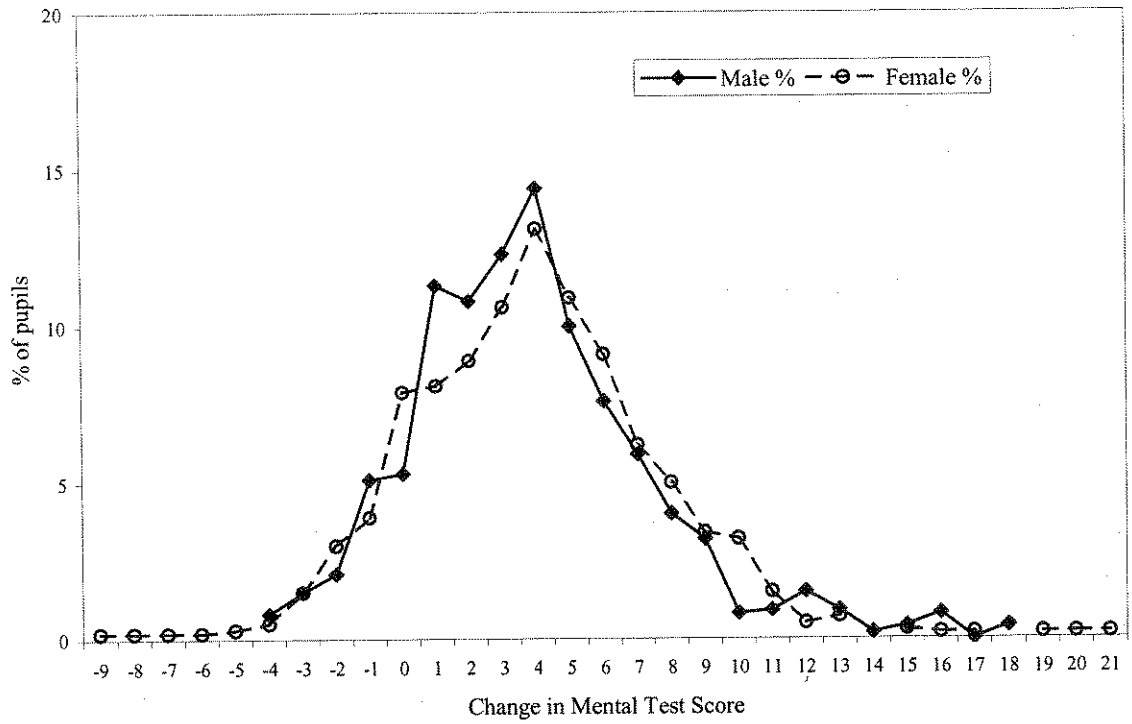


Figure 4.1.2: Distribution of mental test score changes – boys and girls



4.2 National Curriculum Levels

4.2.1 Initial Test Levels

The summer schools were targeted at children who failed to reach Level 4 in their Key Stage 2 tests in May 1998. Due, probably, to the compressed time scale for collection of the results of the Key Stage 2 mathematics tests, many of the data were incomplete. Where complete data were available, they were used to determine National Curriculum level awarded. For some pupils the only data available were from teacher assessment. These two types of assessment have been combined. Table 4.2.1 shows the breakdown by National Curriculum level for the children attending Summer Numeracy Schools who took both the initial and final tests. Data were available on 946 pupils. Even though the Summer Numeracy Schools were intended for those pupils at Level 3, over 15 per cent of pupils attending were above this level. Almost 12 per cent of the summer school group were assessed at working at Level 2 or below.

Table 4.2.1: Percentages of pupils at each level, as measured by test scores or by teacher assessment

	Below Level 2	Level 2	Level 3	Level 4	Level 5
Pupils	4.1%	7.3%	71.9%	16.6%	0.1%

In both the initial test and the final test, the groups were significantly different to each other - that is children with higher National Curriculum test levels scored higher on both tests than those with lower levels. However, as the teaching programmes of the Summer Numeracy Schools were originally designed for pupils working at Level 3, pupils assessed at Level 3 might have showed greater improvement. Table 4.2.2 shows that this is not the case; no significant difference was found in mean improvement score between groups. In other words, pupils at all levels tended to improve equally, suggesting, perhaps, flexibility of teaching programmes.

Table 4.2.2: Differences in mean scores between the initial test and the final test

	Differences in Mean Scores	Standard Deviation
Pupils assessed at below Level 3	3.7	4.3
Pupils assessed at Level 3	3.7	3.7
Pupils assessed at above Level 3	4.0	3.2

4.3 Analysis of Performance on Individual Test Items

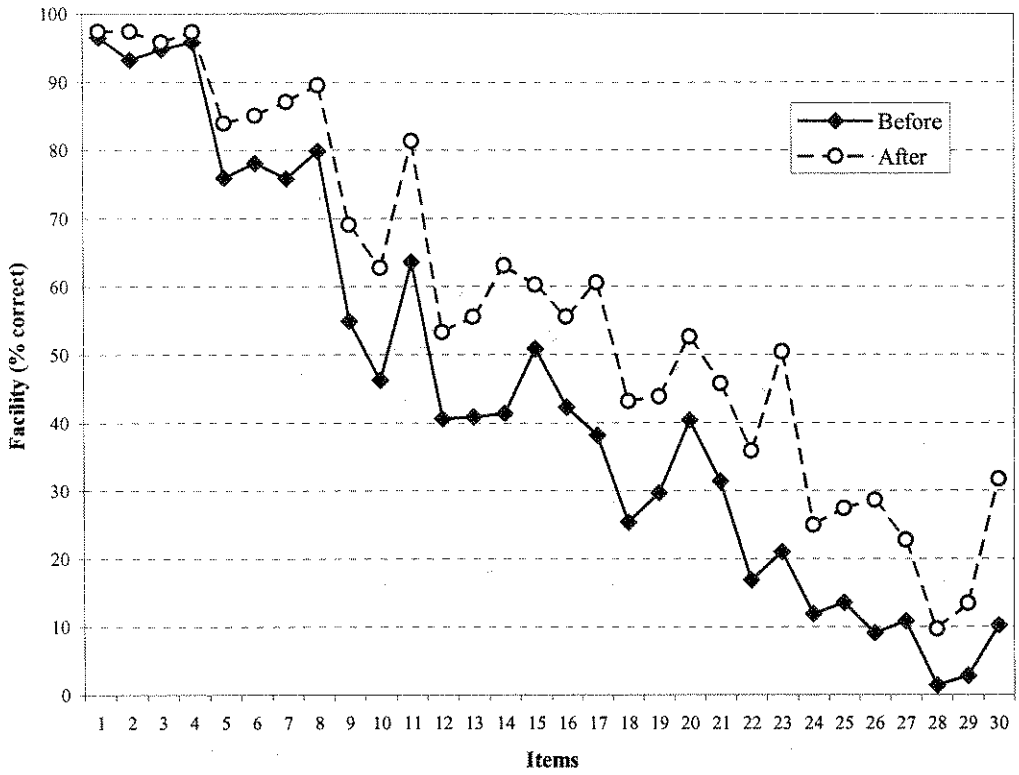
In mathematics, unlike in reading, an analysis of individual test items can reveal which aspects of the subject children find easy or difficult, and identify the areas of mathematics where improvements took place.

4.3.1 Individual Test Items

The facility rate (percentage correct) for each test item in both the initial test and the final test is shown in Table A2.15 in Appendix A2. The sample size is 1134, that is all pupils

in the sample who took both tests. In each question there is improvement in facility, the mean improvement being 13.1 per cent. Figure 4.3.1 illustrates these improvements.

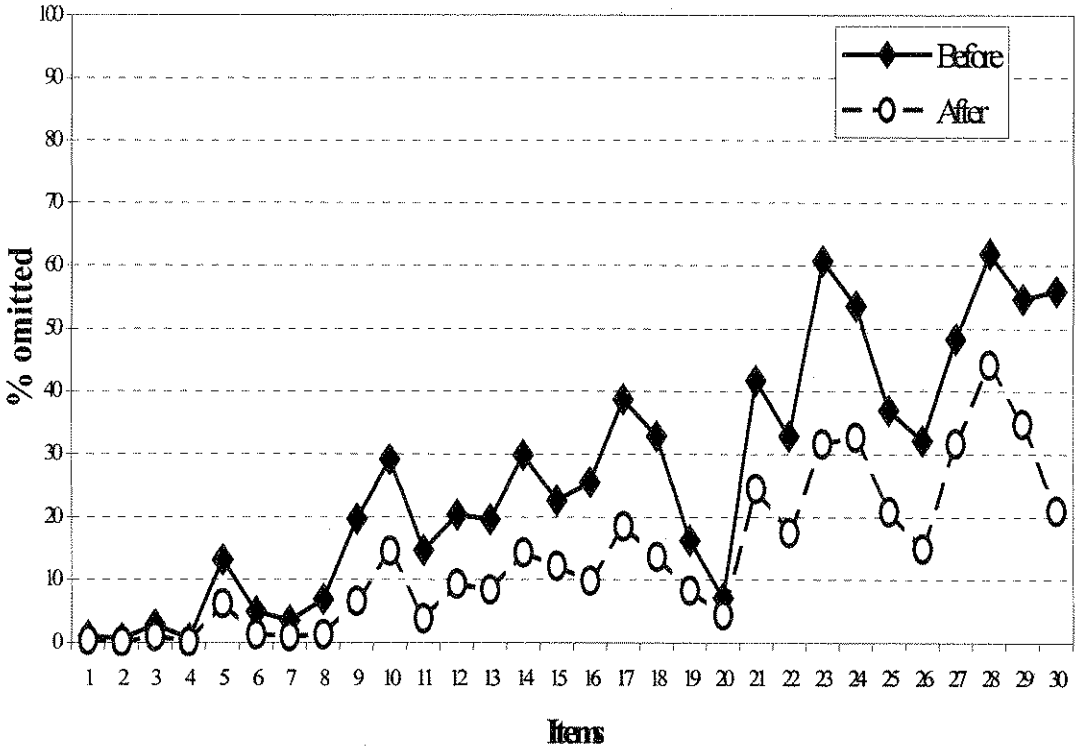
Figure 4.3.1: Overall facilities for the initial test and the final test



Of the four questions with the highest percentage gains, two focus on table facts - question 14 *Seven multiplied by nine* and question 17 *Divide forty-nine by seven.* Question 10 *Eight times six* has also increased more than the mean, confirming an improvement of knowledge of table facts by pupils attending the summer school. The two other questions with the highest gains include formal mathematical language - question 23 *What is the square root of eighty-one?* and question 30 *What is two cubed?* It would appear that teachers at the Summer Numeracy Schools seem to have used and taught appropriate mathematical terminology.

The difficulty of a test question can be determined not only by the percentage of children who succeed in answering the question correctly, but also by the percentage of children who make no response. In general, the harder the question is perceived to be, the more likely it is that the omission rate will increase. The omission rate can therefore be interpreted as a measure of difficulty and as a measure of confidence. Figure 4.3.2 shows the omission rate for each test item in both the individual and final tests.

Figure 4.3.2: Percentage of pupils omitting each question



As has already been stated, there was a significant increase in performance on the final test. The fall in omission rates in the final test confirms that the children became more confident, possibly through gaining experience of similar questions throughout the summer school. Question 28 *What is eighteen multiplied by twenty-five?* proved the most challenging question in both the initial test (facility 1.4 per cent) and the final test (facility 9.7 per cent). This question also has the highest omission rate in both tests (61.9 per cent and 44.3 per cent respectively). Although the overall improvement in test scores almost certainly implies that effective mental strategies were taught throughout the Summer Numeracy Schools, it may be that in the limited time available insufficient time could be devoted to working with larger numbers. Question 29 *What is fifteen per-cent of two hundred?* also proved difficult (facility rates 2.8 per cent and 13.5 per cent, omission rates 54.8 per cent and 34.8 per cent). It may be the case that teachers concentrated on basic numeracy rather than extending the number system. A further point of note is that 7 children in the initial test (0.6 per cent), and 29 children in the final test (2.6 per cent), answered question 29 with '30 per cent' rather than '30' indicating partial understanding of percentages. Similarly 2.4 per cent and 5.7 per cent of children answered question 23 *What is the square root of eighty-one?* by '9×9' or '9^2', indicating understanding of relationships though not of notation.

4.4 Background Variables

Data were collected on pupils attending the Summer Numeracy Schools in an attempt to analyse factors affecting performance as measured by the mental arithmetic tests. As has already been stated, collection of complete data proved difficult for many schools. The sample sizes for the following analyses therefore vary. A further analysis was then carried out, through multilevel modelling, to confirm or reject these suggestions of significant factors affecting performance.

4.4.1 Hours of Attendance at Summer Numeracy School

Each summer school was to run a teaching programme of 50 hours. Of 1131 children for whom data were available, 96.3 per cent attended for 30 hours or more and 93.8 per cent attended for 40 hours or more. Nonetheless, there was a highly significant correlation, confirmed by multi-level modelling, between hours of attendance at the summer school and increase in performance on the mental arithmetic tests – that is, the more hours a child attended, the more likely he or she was to improve on his or her test score.

4.4.2 Special Educational Needs

Data were collected on the stage of special educational needs of pupils attending the Summer Numeracy Schools. Of 786 pupils for whom data were available, 253 (32.2 per cent) were identified as having special educational needs. This included 21 for whom a statement had been produced, and 13 who were in the process of having a statement produced. One hundred and thirty-eight of the 253 pupils had an individual educational plan.

In the final test, pupils who already had a statement did significantly better than the 13 pupils awaiting their statement. As sample sizes are small these data should be treated with caution. However, it may be that teachers adapted the teaching programme where they were aware that specific needs had been formally identified.

The multilevel modelling confirmed that pupils without special educational needs did significantly better than all other groups in both the initial test and the final test. Overall, the more severe the special educational needs that had been identified, the less progress was made.

4.4.3 Free School Meals

Of the 818 children for whom there were data, 303 (37.0 per cent) were entitled to free school meals. This was not found to be a significant factor in performance.

4.4.4 Ethnicity

Data were available for 1048 pupils. 77.3 per cent of these pupils were described as White. The remaining groups included 8.4 per cent described as Black and 11.6 per cent described as Asian. There was no significant difference between the initial or the final test scores for any groups. However, Asian pupils, particularly those described as of Pakistani origin, made significantly more progress than any other racial group, including White. The multi-level modelling confirmed this difference in performance between Asian and other pupils.

4.4.5 English as an Additional Language

Of the sample of 993 children, 85.3 per cent were described as native speakers. A further 8.7 per cent were classified as very fluent users of English in most social and learning contexts. The remaining children had various degrees of fluency in English, including a few children who were new to English. Unsurprisingly, a timed mental arithmetic test, with little time to translate the computation into the first language, process in that language and then translate back, disadvantages non-fluent English speakers. There was some evidence that fluent users of English scored significantly higher than native speakers in both tests. However, this finding was not confirmed by multi-level modelling which controlled for a greater number of factors.

4.4.6 Performance on the Key Stage 2 Mental Arithmetic Test

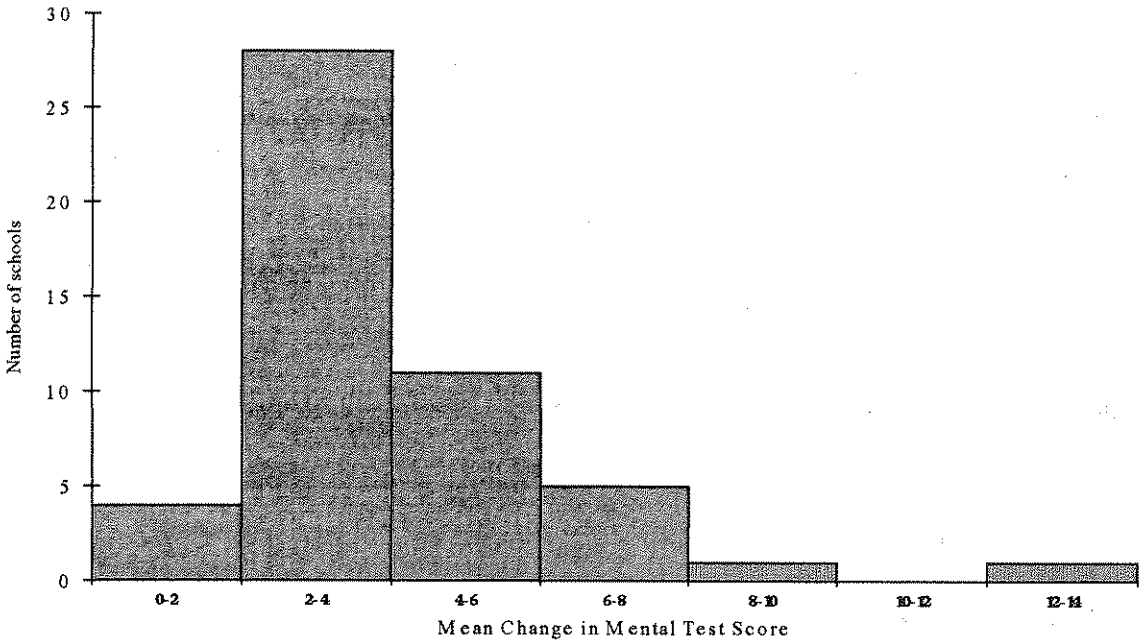
The score from the mental arithmetic component of the Key Stage 2 tests was available for 511 children. As both the Key Stage 2 tests and the initial mental arithmetic test for the Summer Numeracy School were measuring performance in mental arithmetic before any intervention, the significant relationship between the scores obtained on these two tests is unsurprising. The relationship between the Key Stage 2 mental arithmetic test score and the final test score is also highly significant. Multilevel modelling confirmed that the children who did well at Key Stage 2 tended to do well on both the Summer Numeracy School tests.

4.5 Average Increase in Mental Test Scores by Summer School

Fifty-one schools participated in the pilot of the Summer Numeracy Schools. One of these schools focused on Year 7 rather than Year 6 pupils, and hence did not form part of this research. Analysis of performance in each summer school was based on the number of pupils for whom there was both an initial and final test score. The range of pupils attending varied from 11 to 32. In all 50 summer schools there was a significant increase

in performance on the mental arithmetic tests. Figure 4.5.1 illustrates the mean changes in score.

Figure 4.5.1: Distribution of School Mean Changes in Score



Most schools showed a mean improvement in score of between 2 to 6 points. Four of the schools showed a mean improvement of less than 2 points; two schools showed much greater mean improvement with 9.3 points and 12.5 points respectively. Although the two schools with the highest change in scores had slightly higher than average initial test scores, so did one of the schools showing the least improvement.

4.6 Summary and Discussion

4.6.1 Limitations of the Methodology

It is not known to what extent change in test score could be due to using the same instrument for both tests. Teachers were asked not to discuss the initial test with pupils, or to reveal that the same test would be used at the end of the summer school. It is not known whether teachers concurred with this request. Teachers may have related their teaching programme to weaknesses identified in the tests; where evidence of teaching programmes exists it supports the fact that teachers targeted general areas such as *Understand and use squares and square roots* rather than the more specific *Know that the square root of 81 is 9* as required by question 23 of the test. Some evidence (through

observation and / or marking and sometimes through teachers identifying culprits) was found of pupils copying answers from other pupils. Future consideration might usefully be given to ways of ensuring pupils work on their own during the mental arithmetic tests.

4.6.2 Summary of Findings

The analysis of the test scores shows that for all Summer Numeracy Schools, the mean performance of pupils' ability in mental arithmetic, as measured by the Year 5 National Numeracy Project Mental Arithmetic Test, increased significantly. No evidence was found of difference in performance, or of increase in performance, between boys and girls. Multilevel modelling confirmed that Asian pupils and pupils with higher Key Stage 2 test scores tended to have higher test scores, whilst pupils with special educational needs tended to have lower test scores and make less progress. The more hours attended at the summer school, the more progress was likely to be made. The questions showing the greatest improvement in test score were questions addressing table facts or using mathematical language.

4.7 Attitudes to Mathematics

4.7.1 Questionnaire Responses

The initial questionnaire was completed by children at the beginning of the Summer Numeracy Schools. In an attempt to avoid performance on the mental arithmetic test influencing views of mathematics, schools were asked to administer the questionnaire before administering the test. The same questionnaire was given to pupils at the end of the summer school period, and again teachers were asked to administer the questionnaire before the final test of mental arithmetic.

The questionnaire aimed to establish pupils' views of mathematics, and to determine whether their views changed over the summer school period. Two preliminary questions were asked to enable teachers to ensure that children understood how to complete the questionnaire; these responses have not been analysed. Various attitudes to mathematics statements were then given and the children were asked to indicate whether they agreed, or disagreed, with the statement, or whether they were not sure.

Appendix A4 reproduces one of the questionnaires, with the percentage of responses to each question marked in. In each case, the figure in the top left refers to the percentage of responses to the initial questionnaire; the figure in the bottom right refers to the percentage of responses to the final questionnaire. Totals do not always make 100, due both to rounding errors and to children who omitted the question.

4.7.2 Factor Analysis

The attitude statements on the questionnaire were deliberately not arranged in any particular order. To avoid the possibility that children might give positive answers because they felt that was expected of them, positive and negative statements were intermingled. In order to make more sense of the questionnaire outcomes therefore, it was necessary, as in the literacy questionnaires, to gather together statements addressing related attitudes.

This was done by means of a factor analysis, as previously described. The factor analysis of the mathematics attitude statements on these questionnaires revealed three factors. The first of these can be termed *Enjoyment of Mathematics* and consists of the following:

Positive responses to :

- I like maths.
- I really enjoy maths.
- I think I am good at maths.

Together with negative statements to:

- I think maths is boring.
- I like most other subjects better than maths.

The second factor identified by the analysis can be described as *Confidence in Mathematics*. It consists of:

Positive responses to :

- Maths is usually easy for me.
- I think I am good at maths.

Together with negative responses to:

- I think maths is hard.
- I feel worried when I'm in maths lessons.
- I learn things in maths and then I forget them.

The statement 'I think I am good at maths.' appears in both pupils' perception of mathematics as enjoyable and pupils' perception of their own confidence with the subject.

The third factor to emerge from the analysis can be termed *Irrelevance of Mathematics.* It consists of three statements:

Positive responses to:

- I think maths is only useful in maths lessons.
- I think only clever people can do maths.

Together with negative statements to:

- I need to do well in maths to please my family.

The four other statements did not emerge from the factor analysis, indicating responses were inconsistent or unconnected.

4.7.3 Changes in Attitude amongst Summer School Pupils

Responses were available for 1121 children who had completed attitude questionnaires at both the beginning and end of the summer school. Analysis of these data shows a highly significant increase not only in pupils' enjoyment of mathematics but also in pupils' confidence levels in their own mathematical ability. A further highly significant decrease

in pupils' perception of mathematics as irrelevant occurred; that is over the course of the summer school period, children considered mathematics as being more relevant to their lives. Table 4.2.1 shows the results for both the initial questionnaire and final questionnaire. A score of zero would correspond to the response 'not sure' on each relevant question.

Table 4.7.1: Mean Scores for each identified factor

	Initial Questionnaire		Final Questionnaire	
	Mean	**sd**	**Mean**	**sd**
Enjoyment of Mathematics (possible score range – 8 to 8)	1.9	4.9	3.8	4.3
Confidence in Mathematics (possible score range – 5 to 5)	0.2	2.6	1.1	2.6
Mathematics as Irrelevant (possible score range – 3 to 3)	–0.9	1.5	–1.3	1.4

Responses were also analysed to determine the percentage of pupils who changed their mind between surveys. Of particular interest are the pupils who answered 'yes' at one time point and 'no' at a different time point. For example: to the statement *I like maths*, 17.6 per cent of pupils initially stated 'no'. Of these pupils, 39.0 per cent stated 'yes' (and 26.9 per cent stated 'not sure') in the second questionnaire. As this change in mind occurred over such a short time period, it is reasonable to assume that the change was due to the intervention of the Summer Numeracy School. Similarly, of those who responded to the statement *I think maths is hard,* only 43.2 per cent of pupils remained of that opinion by the end of the summer school. Interestingly, 19.5 per cent of pupils who initially stated they did not think maths was hard changed their mind and stated 'yes' in the second questionnaire. One possible explanation could be that these pupils had found the fast pace and inter-active nature of some of the sessions more demanding than the style of mathematics previously experienced.

Some of the questions in the survey related specifically to mathematics and the child's family. Although 'family' did not appear as a factor in the factor analysis, patterns of change within specific questions leads to the possibility that attendance at Summer Numeracy Schools changed some pupils' perceptions of how their family viewed mathematics. For example, to the statement *People in my family think maths is hard*, 44.2 per cent of pupils in the initial questionnaire indicated 'no'. Of these, only 3.8 per cent changed their minds and said 'yes' in the final questionnaire. However, to the same statement, 9.7 per cent of pupils initially said 'yes'. The majority of these children went

on to change their minds, indicating 'no' (30.3 per cent) or 'not sure' (26.6 per cent) at the second time point. Very few (less than 3 per cent) children changed from 'yes' to 'no' to the statement *Someone at home can help me if I get stuck in maths*, whereas over 53.3 per cent changed from 'no' to 'yes'. One of the aims of the Summer Numeracy Schools was to encourage parental involvement. Most schools aimed to set homework that involved discussion at home, and it may be that greater discussion and involvement of parents enabled children to have a fresh viewpoint.

4.7.4 Background Variables

Background data were collected on pupils attending the Summer Numeracy Schools. Collection of complete data was difficult for many schools given the limited time available. The data were analysed with respect to the three factors identified, that is *Enjoyment of Mathematics, Confidence in Mathematics,* and *Irrelevance of Mathematics*. The sample size changed according to the variable. As for the analysis of test scores in mental arithmetic, multilevel modelling was used to confirm, or reject, significant factors affecting pupils' views.

Gender

Responses were analysed from 1114 children, of whom 523 were boys and 591 were girls. There was no significant difference between boys and girls on attitudes to enjoyment of mathematics, or to perception of mathematics as irrelevant, on either the initial questionnaire or the final questionnaire. However, there was significant evidence, at the 5 per cent level, that girls improved more than boys in their perception of the relevance of mathematics. Analysis of confidence in mathematics shows a highly significant difference between boys and girls. In both the initial questionnaire and the final questionnaire, boys indicated a higher confidence rate than girls, and no evidence was found that change in confidence varied according to gender. Multi-level modelling confirmed that although the confidence levels of both boys and girls rose significantly, the boys started, and finished, with significantly higher confidence scores than the girls. It would appear that attendance at the Summer Numeracy Schools helped pupils feel more confident, but did not enable girls to raise their confidence levels to those of the boys.

Hours of Attendance at Summer Numeracy School

Each summer school was to run a teaching programme of 50 hours. Multilevel modelling confirmed that pupils with more hours of teaching in the summer school tended to have greater increases in mathematics enjoyment. However number of hours attended was not

a significant factor when considering confidence in mathematics or perception of mathematics as irrelevant.

Special Educational Needs

Data were collected on the stage of special educational needs of pupils attending the Summer Numeracy Schools. Of the 779 pupils for whom there are data, 247 were identified as having some form of SEN. Some evidence exists that the group of children classified as 'teachers expressing concern', (that is with no formal identified special needs) started the summer school with lower scores for enjoyment of mathematics than pupils without identified SEN. However, by the second questionnaire the difference was no longer significant. There was no significant difference between any other groups at either time point, that is statemented children and others with some form of official recognition of special educational needs showed similar degrees of enjoyment of mathematics than those without SEN.

Analysis of responses indicating confidence in mathematics shows, in both questionnaires, a significant difference between those children with special educational needs and those without. Further analysis suggests that the difference is significant for most of the groups with SEN, and that there is no significant difference between changes in confidence between any groups. In other words, although all children tended to become more confident in their mathematical ability during the course of the Summer Numeracy School, those with special educational needs started, and finished, at a lower level of confidence than those without SEN. This finding is confirmed by multi-level modelling.

Similar conclusions can be drawn to pupils' perception of mathematics as irrelevant. Multi-level modelling confirmed that pupils with special educational needs showed significantly different scores to those without special educational needs at both time points, that is they were more likely to perceive mathematics as being of use only in the classroom. Again, during the summer school all groups changed in their attitude, perhaps because many summer schools aimed to involve the wider community, but those with special educational needs started, and finished, at a lower base than those without SEN.

Free School Meals

Entitlement to free school meals was not found to be a significant factor in any of the analyses of attitude (sample size 921).

Ethnicity

No evidence was found that enjoyment of mathematics varied, before or after, between ethnic groups. However, as confirmed by multilevel modelling, the confidence levels of Asian pupils, particularly those described as of Pakistani origin, were significantly higher in both the initial questionnaire and the final questionnaire than for those of White pupils. Although all groups showed an increase in their confidence over the summer school period, there was no significant difference between rate of change. Asian pupils generally started, and finished, more confident than white pupils. At the first time point, Asian pupils perceived maths as more relevant than most other groups; however by the second time point the only significant difference was between those described as of Pakistani origin and White pupils.

English as an Additional Language

No significant difference was found between groups in enjoyment of mathematics or confidence in mathematics. However, in both the initial questionnaire and the final questionnaire, pupils who were not native speakers indicated that they perceived mathematics as more relevant than those who were native speakers. (Total sample size 988, of which 145 were not native speakers.) No significant difference was found between groups in rate of change - that is, although all groups finished the summer school perceiving mathematics as more relevant than they did when they started the summer school, non-native speakers started, and finished, by indicating that they found it more relevant than did native speakers.

Performance on the Key Stage 2 Mental Arithmetic Test

Significant evidence was found that pupils with higher scores on the Key Stage 2 mental arithmetic test were more confident, and perceived maths as more relevant, than those with lower test scores. Multilevel modelling confirmed that children with higher scores on the Key Stage 2 test also had higher levels of enjoyment.

Summer Numeracy School Attended

Analysis shows that in 94 per cent of the Summer Numeracy Schools, pupils showed a positive gain in enjoyment of mathematics over the summer school period. In 60 per cent of the schools this gain was statistically significant, that is there is less than a 5 per cent chance that the gain occurred by chance. No school showed a significant decrease in scores of enjoyment of mathematics.

Almost identical statistics were found in the analysis of changes in confidence in mathematics, with 62 per cent of schools showing a significant positive gain, 94 per cent showing a gain and no school showing a significant decrease. Only one school showed a decrease in scores measuring both enjoyment and confidence, however this decrease was not significant and could have therefore have occurred by chance.

Pupils in all schools showed a decline in scores measuring mathematics irrelevance. In 46 per cent of schools this difference was statistically significant.

4.7.5 Summary Findings

The analysis of responses to the questionnaire shows that there was a significant increase in pupils' enjoyment and confidence over the summer school period, and that pupils perceived mathematics as being more relevant. Although boys and girls both increased in their levels of mathematics confidence, boys were significantly more confident than girls at both time points. Confidence levels of Asian pupils tended to be higher than those of White pupils.

More able pupils, as measured by performance on the Key Stage 2 mental arithmetic test, tended to have higher enjoyment and confidence levels and their perception of mathematics as relevant was also higher. Pupils with special educational needs tended to be less confident and perceive maths as more irrelevant, although there was no significant different in their enjoyment levels. However, the more hours attended at Summer Numeracy School, the more likely it was that a child would show greater increase in enjoyment of mathematics.

5 Target Setting

5.1 Introduction

5.1.1 The Nature of the Study

An important requirement upon all the summer schools was to set targets for each child individually. These targets were intended to specify quite precisely the achievements to be sought in the course of the summer school, in terms of progress in literacy or numeracy. The study of target setting within the summer schools evaluation was exploratory and qualitative in nature. Researchers investigated the ways in which targets were set and monitored in order to provide a descriptive report.

This was done by means of visits to summer schools at the beginning and end of the programme. An observation and interview schedule was devised with target setting as its focus. Four children in each school were selected in discussion with the summer school teachers as the focus for the case studies. Where the target setting took the form of an individual conference, the researcher observed the conferences for these four children. Teachers were interviewed about their approaches to target setting and, where possible, the four children also discussed their targets with the researcher.

In the Summer Literacy School programme, six centres were selected for these visits, representing as far as possible the range of circumstances overall. For the Summer Numeracy Schools Pilot, six centres were also selected. In the Special Educational Needs Pilot, four schools were visited, two of them special schools and two of them extension programmes. This gave rise to a total of 32 visits, two to each of 16 summer schools.

5.1.2 Background to Target Setting

Target setting, both at institutional and individual level, currently has a high profile in educational practice. At institutional level, school targets such as the proportion of children achieving expected levels in the Key Stage 2 national tests are well established and there is a good deal of supporting literature. Target setting at individual level is, however, less well established. Although it was a part of the National Literacy Project, this has not yet given rise to detailed documentation about effective ways of setting and monitoring individual targets.

For the Summer Literacy Schools, the *Working Guidance* document included some information on expectations about target setting, as its Section 3.7. Children at Summer Literacy Schools were to have, at least, an individualised target for reading and one for writing. In addition, the document recognised that general targets could be set for a

group, related to the learning objectives in the scheme of work for that group. The Summer Numeracy Schools did not have such a document, but target setting was briefly addressed as part of the training day.

Although some guidance was available, therefore, the area of target setting was open to different interpretations across the summer schools. Before reporting on the findings from the visits programme, some discussion of these areas of possible variation may be useful. The nature and effectiveness of target setting exercises are affected by:

- the information on which the targets are based
- features of the targets themselves
- 'ownership' of the targets
- the relationship between the targets and the teaching programme
- the way the targets are monitored and assessed.

In considering these areas, a number of 'dimensions' emerge along which variation may occur. These 'dimensions' will be described in this section and the accounts of the findings will also refer to them.

Background Information

The information that could be available for summer school teachers as a background for target setting was of two types. On the one hand, there was individual information about each child's attainments; on the other, reference to structured sets of learning objectives.

The children in the summer schools were between the primary and secondary phases of their education. Summer schools were usually planned by secondary schools, but all the information about individual children's attainments was held by the primary schools. This made the question of the provision of individual diagnostic information of this kind a particularly interesting aspect of the study.

The *Working Guidance* notes for the Summer Literacy Schools recommended the collection of diagnostic data from the pupil's primary school and assessments by the child's Year 6 teacher, with a list of examples of the kinds of information that might be useful. They also suggested an analysis of the child's performance on the Key Stage 2 English tests. These tests were taken by all children in May, externally marked and the scripts returned to schools at the end of June. They consisted of a reading test, *Leaving Home,* a piece of writing completed under test conditions in response to a choice of

stimuli, and a spelling and handwriting test. The completed test papers would provide information on children's ability to handle inferential as well as literal comprehension of texts, their understanding of stylistic and presentational features and a variety of compositional and presentational aspects of writing.

Children also took Key Stage 2 tests in mathematics which could be available to support target setting at Summer Numeracy Schools. These provide information about a variety of aspects of pupils' performance in number, algebra, shape, space, measures and handling data. Other useful information could be obtained from analysis of the Key Stage 2 test in mental arithmetic, also taken in May.

A further possibility for teachers was to use the initial day or two of the summer school to gain first-hand information about pupils' strengths and weaknesses, to inform target setting. This could take the form of a standardised test, a test or exercise devised in school, or various performance tasks such as reading to the teacher, completing a piece of writing or participating in a mathematical investigation.

As well as referring to information about children's individual attainments, summer school teachers also had access to sets of structured teaching and learning objectives in the form of the frameworks for teaching of the National Literacy Strategy and the National Numeracy Project. In the case of the National Literacy Strategy, detailed objectives were set out for work at word, sentence and text level, structured into termly requirements based around particular text types. For the National Numeracy Project, detailed objectives were set out for work in all aspects of mathematics, particularly in numbers and the number system, calculations and making sense of number problems. These objectives were cross referenced to expectations for pupils' attainment at the end of each school year. These documents therefore provided reference sets of possibilities for defining targets in the light of children's overall attainment and the teaching focus of the summer school.

One dimension of variability which emerges from this discussion is, therefore, how diagnostic the targets were, in the sense of how well matched to individual children's known attainments and needs. The findings about the sources of information on which teachers based their targets in this study are principally derived from the teacher interviews, together, in some cases, with written documentation produced by the summer schools.

The Targets

The Summer Literacy Schools *Working Guidance* requires 'individualised SMART targets'. The acronym SMART - specific, measurable, achievable, relevant, time-related - provides a useful definition against which to discuss the nature of the targets set for summer school pupils.

Specificity and **measurability** are related aspects. A target such as 'Read three books by the end of the first week' is both specific and measurable. Even here, however, there is some potential for ambiguity in the sense that the books could be full-length novels or short, simple texts. In this case, the target would need to be understood in the context of the sorts of books usually read by that pupil. Other targets can be imagined, however, that might not be so specific, and would be correspondingly difficult to measure: 'Understand aspects of narrative structure', for example. Spelling attainment could be framed in general terms such as 'Improve ability to spell familiar words' or in specific terms such as 'Learn to spell this list of familiar words'.

Similarly, in mathematics, a specific and measurable target in numeracy could be 'Know the seven times table by the end of the week', though again this target could be ambiguous: does knowing '8x9=72', for example, include knowing the number fact that 72÷8=9, or being able to apply the relevant multiplication fact in a problem-solving context? As in literacy, targets could be expressed in general terms such as 'Improve ability to understand and use decimals', or in specific terms such as 'Use decimal notation for tenths and hundredths' or 'Order a set of numbers or measurements all with the same number of decimal places'.

There is some danger, however, that specificity in targets can lead to triviality. Many important educational outcomes, such as understanding narrative structure or selecting an efficient mental calculation strategy, are not readily measurable but are nonetheless important. In this sense, target setting falls into the same category as other types of criterion-referenced assessment. The development of criteria that are both specific enough to be assessable, and general enough to be important, has been the subject of considerable debate. In cases where the target is not readily measurable, some evidence should be identifiable that would nevertheless indicate whether it had been achieved. The summer school teachers' approaches to, and awareness of, these issues were one area of interest of the study.

The **achievability** of the targets, and their **relevance**, relate to the fullness and accuracy of the diagnostic information on which the targets are based. For targets to be achievable for an individual pupil, they must represent attainments that the child is capable of reaching.

To be relevant, they must be related to that child's progress with reference to the overall goals of the summer school in terms of literacy or numeracy. This involves not just an understanding of the child's abilities at the outset, but an understanding of the conceptual and practical development that is needed to reach the target from that starting-point.

The **timescale** of the targets is envisaged in the Summer Literacy Schools *Working Guidance* as clearly defined within the summer school period. Within this, targets could be for the entire period of the summer school, or for shorter periods within it, for example targets for a single day's work, or for the work for a few days, or a week. Beyond this, it is also possible to envisage progress at summer school as contributing towards the achievement of longer-term targets, into and beyond Year 7.

It is clear from the above discussion that individualised SMART targets for summer school pupils were susceptible to a wide range of variation, affecting one or more of their specificity, measurability, achievability, relevance or timescale. The main dimensions to be considered in the later discussions will be 'specificity – generality' and 'short term – long term'. The findings of the study about the nature of the targets are primarily based on the recording of all the targets applicable to the four focus pupils in each of the summer schools visited.

'Ownership' of the Targets

In target setting for individual pupils, there are at least two participants. On the one hand, the teacher has the diagnostic information and educational knowledge to decide which targets are suitable. On the other, there is the child. It is possible to envisage a situation where targets are set and monitored without the child's knowledge. However, a major part of the purpose of target setting is its value as a motivating factor, and for this, the child's involvement is necessary.

The level of this involvement can, nevertheless, vary. Children could formulate their own targets independently of the teacher. This would give them a high degree of 'ownership' but might not guarantee a suitable level of specificity or achievability. Alternatively, the targets could emerge from a discussion between teacher and pupil. In this discussion, the teacher might have clear existing ideas about the targets, and simply introduce them to the pupil, or might formulate targets after hearing what the child has to say in the course of the conference. There may be no individual discussion, and the targets could be introduced to each child by the teacher as part of a group session. The Summer Literacy Schools *Working Guidance* suggests 'one-to-one sessions with each pupil' and says that 'Pupils and parents should feel a shared ownership of the process'. This document

stresses the value of involving parents in their individual children's targets, and enlisting their help in monitoring the work done and the progress made by a variety of means.

As well as individual targets, there could also be group targets, either for all the children at the summer school, or for a smaller group within it. These are likely to be defined by the teachers in order to make explicit the learning objectives they have for a particular group. Here, too, the targets need to be introduced to the group so that the children share 'ownership'.

One dimension along which targets could vary was, therefore, 'individual – group'. Further, there is a 'teacher – pupil' dimension to be considered in the ownership of the targets. Information on these matters came from interviews with teachers and pupils and, where applicable, from the researchers' observations of target setting conferences.

Teaching to the Targets

The possibility of a variety of targets, at individual or group level, leads to a potentially complex relationship between the targets and the teaching programme. The Summer Literacy Schools *Working Guidance* envisages, in its Section 3.3, that work during the summer school would be planned at whole class level, at group level, and at individual level. This complex planning would then allow the individual work to address the individualised targets, where the planned group and class work would address group targets.

As the visits took place at the beginning and end of summer schools, researchers were unlikely to observe much of the day-to-day teaching. Often, however, written plans were available and these were collected and analysed. Otherwise, information on the relationship between the targets and the teaching plans was gathered by means of the teacher interviews.

Monitoring and Assessing the Targets

The processes for monitoring the achievement of targets are closely related to the timescale agreed when the targets are set. As the preceding sections made clear, targets could vary in their timescales from a single lesson to beyond the end of the summer school. The *Working Guidance* says:

> Good practice includes clear documentation and record keeping for pupils and regular feedback against targets set. Schemes should plan to review individual progress regularly against targets, perhaps daily or weekly, with

new targets being negotiated as necessary. ... Pupils can record and self-assess, and actively engage in discussion about their progress.

Where this was happening, it was not possible for a researcher to be present throughout the summer school to observe the day-to-day monitoring and renegotiating of targets. The final visit, however, aimed to observe the conference, if there was one, at which progress against the targets was summarised for each child. These observations, together with the final teacher and pupil interviews, form the basis for the findings reported here.

5.2 Target Setting in Literacy

5.2.1 Summer Literacy Schools

All the Summer Literacy Schools in the case study subsample engaged in some target-setting activities which were observed or discussed in the course of the research visits. There was, however, considerable variation in approach between summer schools.

Background Information

The background information on which the targets were based varied quite widely from school to school. Only one of the six summer schools in the case study sample proved to have received the Key Stage 2 English test scripts from the children's primary schools. In this school, the test scripts formed part of the individual discussions between teacher and child in which individual targets were set. There was also a report from the primary school which provided background information for the teacher on each child. Case Study 1 illustrates this approach.

Case Study 1

Target setting for Nadia

The teacher had all the Key Stage 2 test papers for Nadia and had also had a conversation with her primary school teacher.

The teacher started the discussion by talking about the idea of setting targets, referring to the books the children had already received to record them. She went on to ask Nadia which areas of her work she thought she would like to improve. Nadia said that she had difficulty pronouncing long words. The teacher suggested that this might be related to choosing books which were a little too hard. The target for reading that was agreed was: 'Choose a book at an appropriate level and learn how to pronounce long words.'

The discussion then turned to writing. From her observation of Nadia's test papers and conversation with the primary teacher, the teacher suggested that an improvement in handwriting and presentation should be a target. Examination of the writing that Nadia

had done that morning in her *Language is Power* summer school book led to the further target of using initial capital letters for proper nouns.

Nadia's teacher pointed out that the targets had been based on information both supplied by the primary school and gained at summer school. In addition, the difficulty with pronouncing long words arose from the child's own comments in the course of the discussion and had not been mentioned as part of the background information.

On the second visit, at the end of the summer school, Nadia explained to the researcher how the teachers had monitored her targets by writing in her target book, sometimes adding new ones. Reading targets were written on her bookmark. She talked enthusiastically about the book she was reading, and said that she had learned the longer words by writing them in her spelling book. She was determined to continue to work on reading long words. Nadia thought the summer school teachers were very good, 'best you could get'. She wished the summer school had been longer, but now felt confident and ready to start at secondary school, even though the summer school was held at a different secondary school from the one she would be attending.

In the other five schools, no test papers were received by the summer schools. In most of these cases, the primary schools had provided a National Curriculum level for each child, from the test or from teacher assessment. There was sometimes additional information on a child identifying, for example, a need for help with spelling. One summer school had received the primary school's assessment of whether each child was 'low', 'middle' or 'high' within the level. At another, various types of records were received from the primary schools, ranging from a summary report to a portfolio of the child's work. Apart from this, there was no evidence that primary schools had provided any of the examples of children's work suggested in the *Working Guidance* - a piece of writing, a record of books read, and so on.

From these six schools, the overall impression was that liaison with primary schools had focused mainly upon selecting which children should attend summer school. For this, some indication of a National Curriculum level was necessary, and this was what had been provided. On the whole, there was little evidence of any close liaison with the primary schools in order to diagnose children's learning needs and set targets for them.

Some summer school teachers actively aimed to use the work from the first day or two to assess their pupils, and this often contributed to the target setting. An example of this is given in Case Study 2.

Case Study 2

Target setting for Steven

In the morning of the first day of summer school, Steven, together with all the other children, wrote a story which was used for assessment purposes. He also completed a 'Pupil self-evaluation sheet', in which he had to agree or disagree with statements such as 'I usually understand what I have read'. Finally, he read two pages aloud to a teacher.

On the basis of this diagnostic information, Steven's targets were set as follows.

Name: S

Writing Targets:

Correct use of full stops.

Correct use of capital letters.

Use of appropriate adjectives.

Use of appropriate adverbs.

Reading Targets:

To read with more understanding.

To breakdown words with confidence.

Because Steven was a focus child for the case study, the teacher conducted the target-setting as an extended interview for the benefit of the researcher, and produced the target sheet afterwards. With most children, however, the target sheet was prepared by the teacher and explained to each child individually in a shorter discussion.

Steven's targets were monitored by means of 'Logs' completed by the summer school teachers.

S

log

29.7.98 - S read 'The Jealous Giant' with some expression. He had a tendency to slip into a monotone. He began to observe more punctuation and self-correct.

30.7.98 - S read the 'Romantic Giant' and finished the whole book. He read well, understanding and enjoying the book. He is beginning to express the words. Sub needs more confidence to 'break down words' and self correct. Still needs to observe punctuation.

30.7.98 - Understood reading matter ~~but~~ could read with a bit more expression. Needs to observe punctuation. Used visual clues but found it hard to break down words. Improving self-correction.

3.08.98 - university student.

4.08.98 - The Spooks Step Out

Difficulty breaking down words, but is making more effort and using more strategies.

6.8.98 - The Ghost of Joseph Grey - Read well. Used context when sentence didn't make sense. Needs to choose hard book?

Steven's teacher explained that the targets were set on the basis of all the diagnostic information described in the first paragraph above. She had hoped also to use the reading test administered as part of the evaluation, but this was of less use as she was unable to score the tests. Targets were formulated using National Curriculum guidance in conjunction with the diagnostic information. At the end of the summer school, overall progress was assessed by means of another writing task, reading aloud and completion of the questionnaire. Steven told the researcher he had enjoyed summer school and his reading had improved.

In another school, the diagnostic information was obtained by administering the Wide Range Achievement Test, which gave a reading age and a spelling age for each child. This test was marked immediately so that the reading and spelling ages could form part of the target setting process.

It is clear from Case Study 2 above that National Curriculum guidance was a point of reference in that school. There was one school, described in Case Study 3 below, which used the National Literacy Strategy objectives in formulating group targets. The lead teacher in this school had not found this particularly helpful, and would, with hindsight, have preferred to rely on her own judgement. In another school, the spelling lists of the National Literacy Strategy were used in planning. These were the only examples of teachers specifically mentioning guidance documents as part of target setting. For the most part, teachers seemed confident in their own professional judgement, though this would, of course, be informed by a knowledge of the National Curriculum.

Several of the summer school teachers, when interviewed, felt that their own diagnostic information, gathered in the course of the summer schools, was more reliable than the variable information provided by the primary schools. Some of them however, also pointed out the substantial time commitment involved in making diagnostic assessments and setting targets during the summer school, and would have preferred some way of doing this before it started.

'Ownership' of the Targets

The visits programme focused mainly upon the targets set for individual children, rather than groups. This was because the initial guidance specified that such targets should be set, acknowledging that schools might also set group and class targets. The initial discussion in this section will therefore consider the ways in which individual targets were set in the case study schools, before going on to discuss group and class targets.

In three of the schools, the targets were agreed in the course of an individual discussion with each child. Case Study 1 above gives an example of this process, and Case Study 4 below another. In all three of these schools, the account of the teacher-child conference makes clear that the children were allowed to take the initiative and suggest which areas of literacy they wished to improve. Typically, the teacher would then suggest a more specific target to meet the child's perceived need. Sometimes, the teacher would make a suggestion for an area of improvement, and all the reports indicate that children were happy to acquiesce in these.

The school described in Case Study 2 pursued a slightly different approach, in that the targets were set by the teachers in the light of the diagnostic information available, and, in most cases, discussed with the children in brief individual interviews, backed up by a printed target sheet such as the one reproduced there. In this case, the children took less initiative in deciding upon their targets, but the evidence suggests that possessing their own, individual target sheet was enough to establish a feeling of ownership.

In the other two schools, the individual targets were decided upon by the children themselves, after teaching and discussion at whole-class level. This approach is illustrated in Case Study 3.

Case Study 3

Target setting for Munaza

The first day at Summer Literacy School started with a whole-class session in which the children were introduced to the teachers and to the things they would be doing at summer school. The teachers introduced the idea of setting targets by discussing the summer school journals, on the first page of which were five whole-class targets:

My Targets are:

- to read aloud at home each evening
- to learn new words and spellings
- to read and write stories, poems and non-fiction
- to talk and listen with confidence
- to use reference sources like dictionary, thesaurus, CD Rom, encyclopaedias etc.

Now add one or two targets for yourself. What do you want to achieve during the Summer School?

- _____
  _____
- _____
  _____

Good Luck!

Munaza wrote two targets for herself: 'I would like to read and write better stories' and 'I want to spell and make my writing neater'.

In addition to this, Munaza's group had two targets set for them and introduced by the teachers in the first group session. These targets were drawn from the National Literacy

Strategy objectives, on the basis of a teacher assessment from the primary school of 'mid Level 3'. They were: 'To understand aspects of narrative structure' and 'To use IT to plan, revise, edit writing to improve accuracy and conciseness'.

At the end of summer school, Munaza told the researcher that she was reading better than before, and pointed to some teacher comments in her reading record as evidence of this. She said that in her writing she still needed to work on paragraphs, commas and punctuation, referring to a piece of writing she had produced. In spelling, Munaza said that she had progressed by learning the list of words given in the *Language is Power* booklet. Munaza said that her target for the rest of the holidays would be 'Get off the telly and do some reading'.

Case Study 3 is an example of a school where targets were set at individual, group and class level. The individual targets were left to the children to formulate; the group targets were intended to be diagnostic, matching the reported ability of the group; and the whole-class targets were general aims for the summer school as a whole. There was a good deal of evidence that other schools also had class or group targets. Some general, overall targets for the summer school as a whole were common. Group targets were most frequently found as part of teaching plans on a day-to-day basis. Typically, the teacher would plan the work for a group session, including in that session explicit targets to be met and discussed.

The Nature of the Targets

There were two examples of summer schools where the targets were clearly expressed in measurable terms. In one of these, the diagnostic information took the form of a reading age and a spelling age. Targets for all children included a two-month increase in these scores by the end of the summer school. In addition, this school specified as a target for all children a score of at least eight out of ten on the daily spelling test. In the other example, targets were expressed in terms of reading fluency and spelling accuracy. This is illustrated as Case Study 4.

Case Study 4

Target setting for Darren

In this summer school, targets were set in the course of an individual interview between teacher and child. Darren's teacher started by asking him what he felt needed improvement, and Darren said his spelling. This corresponded with the assessment from the primary school. In reading, Darren agreed that he needed to read more fluently, and to learn to read without pointing at the words. These targets were transformed into measurable statements by the teacher: 'Read 120 words per minute', 'Read without pointing at the words' and 'Spell with 50 per cent accuracy'. For the spelling target, the computer program *Successmaker* would be used. This program had facilities for children to enter and adjust targets within it.

At the end of the summer school, targets were reviewed, again as part of an individual interview. Darren's reading fluency had far surpassed his target, and he had reached 150 words per minute. In spelling, too, he had done better than his target, achieving 90 per cent accuracy for two consecutive days. Darren and his teacher were both pleased with his progress. In this school, the *Successmaker* program had formed a particularly useful part of target setting, and the teacher reported that children were taking pleasure in setting themselves higher and higher targets using the program.

These were the only clear examples of individual targets that were framed in such measurable terms. There were some examples, however, of class or group targets that were quantifiable, in terms of numbers of books read, or time spent reading at home each night.

There were other reading targets which, although not measurable, were nevertheless quite specific, so that evidence for them could be observed in the course of the summer school. Examples of this were: 'Break down words with confidence', 'Read what is there, rather than adding words', 'Read more smoothly in phrases'. All of these came from the school in Case Study 2, where the teachers used focused diagnostic information to set individual targets which they then discussed with the children.

Where children set their own reading targets, these were often less specific, for example, 'To read more', 'Read as many books as possible', 'Read longer books with longer words'.

The case studies revealed few targets that focused upon compositional aspects of writing, and these tended to be non-specific: 'Find ideas for creative writing', 'Think of ideas and put them into stories', 'Make writing more interesting and use more long words', 'Write longer stories with a beginning, a middle and an end'.

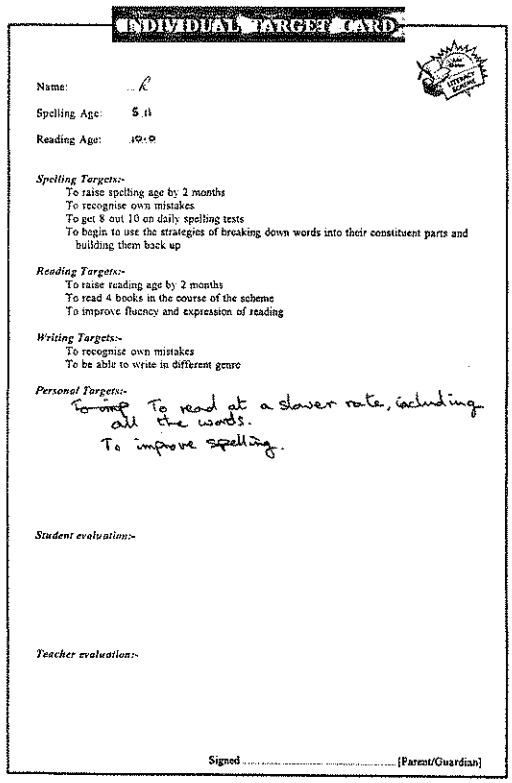
By contrast, spelling targets were a feature of all the schools in the visits sample. These were sometimes framed in specific, measurable terms, such as 'Learn to spell a list of 20 common words' or 'Spell with 50 per cent accuracy'. Even where they were not expressed in such terms, however, spelling targets such as 'Improve spelling' or 'Learn to spell difficult words' were usually taught and monitored in terms of mastering specific lists of words.

Handwriting was a further area which frequently appeared in targets, for example, 'Improve handwriting and presentation'. This was less specific, but examples of handwriting at the beginning and end of the period could be compared to monitor progress. Punctuation targets were less common, but sometimes appeared: 'Use capital letters for proper nouns', 'Correct use of full stops'.

Teaching, Monitoring and Reviewing

The way in which these case studies were conducted has led to a concentration on certain types of target-setting evidence. In particular, no visits were carried out between the beginning and the end of the summer schools, so researchers gained a less clear idea of the ways in which the targets were integrated into day-to-day teaching and monitored in the course of the summer school. Some evidence on these matters emerged from interviews, however, and from the written documentation collected by researchers.

To review targets at the end of the summer school, two of the schools conducted individual interviews. Both of these had also used individual interviews at the initial target setting stage. One is illustrated as Case Study 4 above. Since, in this school, the targets were expressed in terms of reading speed and spelling accuracy measures, the review concentrated on these measured outcomes. At the other school where targets were reviewed individually, the discussion focused upon a printed outcome from the *Successmaker* program, and a general review of targets. Teacher and child both completed an evaluation section at the bottom of the target cards that had been filled in on the first day:



INDIVIDUAL TARGET CARD

Name: ...K

Spelling Age: 8.11

Reading Age: 10:0

Spelling Targets:-
To raise spelling age by 2 months
To recognise own mistakes
To get 8 out 10 on daily spelling tests
To begin to use the strategies of breaking down words into their constituent parts and building them back up

Reading Targets:-
To raise reading age by 2 months
To read 4 books in the course of the scheme
To improve fluency and expression of reading

Writing Targets:-
To recognise own mistakes
To be able to write in different genre

Personal Targets:-
To read at a slower rate, including all the words.
To improve spelling.

Student evaluation:-

Teacher evaluation:-

Signed ..... [Parent/Guardian]

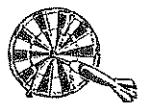
These evaluations were expressed in terms of general improvement, but the children were also due to take a test, together with all the others starting at secondary school, in September which would give a further measurable result.

Thus there was one school where individual interviews had been used to set targets, but were not used to review them. This was the school described in Case Study 1 above. Here, the teacher described at interview how the targets were set to be 'small scale' in nature, and how a process of constant monitoring, reviewing and revision of targets continued throughout the summer school.

At two schools, the targets were reviewed in the course of a class or group discussion. One of these used a form on which children recorded how much progress they thought they had made towards their targets:

Flying Start *Personal Targets*

*How are **YOU** getting on ?*



Look at your own personal targets.
Think carefully about each one.
Select one of these sentences for each target.

* ***I have achieved my target.***
* ***I am making good progress.***
* ***I need more time to practise.***
* ***I would like some help.***

Target 1 .....
Target 2 .....
Target 3 .....
Target 4 .....
Target 5 .....
Target 6 .....

The other school that conducted a review of individual targets in a whole-class setting is the one described in Case Study 3 above.

The final school of the six is the one that appears in Case Study 2 above. Here, too, there was an emphasis on constant monitoring of targets using the 'Logs' as reproduced in the

case study. In addition, the teachers at this school repeated the three assessments they had made on the first day: a piece of writing, reading aloud, and a pupil self evaluation. When interviewed, the teacher in this school said that the performance of girls on the assessments seemed to have improved, whereas the boys' had not, but she nevertheless believed that all children had made progress.

Whatever the method of reviewing targets, and whatever the nature of the targets themselves, there was plentiful evidence from these visits that the children in the summer schools were aware of the idea of targets, were interested in monitoring their own progress, and were able to point to evidence of their progress in some specific, if not measurable forms. All of the case studies illustrate this. One boy, in the Case Study 3 school, said during the final interview: 'Targets are things that you're aiming for. You know what you're doing so you don't get put off by anything else'.

Discussion

Few clear trends seem to emerge from the very mixed picture reported here. Each one of the six case study schools adopted approaches to target setting and monitoring that were distinct from those of the other five. The report has focused mainly upon individual targets, rather than group or class, and the methodology has led to a concentration on what could be observed at the beginning and end of the summer school rather than from day to day. Nevertheless, there are some broad indications about directions for the future.

One finding that does seem clear is a need for many summer schools to improve the quality of the diagnostic information they receive from primary schools. In most cases, the National Curriculum level, which was needed to determine who was to participate in summer school, was the only information available. This lack of diagnostic data made it impossible to work on defining individual targets before the summer school started. In the one case where liaison seemed to have been better, the Case Study 1 school, the lead teacher was, in fact, a primary teacher. The report on this school makes clear that the teachers went into the individual interviews with a more focused view of each child's attainment and needs. Some schools compensated for the lack of information from primary schools by concentrating on diagnostic assessments in the first day or two of summer school, and this method, too, seemed to lead to a focused approach to the targets. If all summer schools could receive the types of information listed on page 11 of the *Working Guidance,* teachers would have a better information base on which to set diagnostic targets. A further useful development might be for the targets to be set in advance of the summer school, during a visit to the primary school near the end of term. In this way, summer school teachers would have a firmer basis for their planning, and could start their teaching programme immediately.

The targets themselves varied from precisely measurable to extremely general. In many cases, this could be seen to result from the way in which they were set, and the way in which their 'ownership' was shared between teacher and child. Where the teacher had access to diagnostic information and the targets were set in a two-way discussion during an individual interview, they were more likely to be well matched and precise. Where the child was left to formulate his or her own targets, these tended to be good reflections of the areas where improvement was needed, but were always expressed in general terms such as 'Improve ...'. Nevertheless, there were indications that even where targets were framed in general terms, the children had been taught to recognise what counted as evidence towards their achievement. There were plentiful examples of recording sheets, log books, target sheets and other records, sometimes taken home to share with parents, where children were made aware of what had been achieved. This awareness was perhaps more important than the targets themselves.

A further observation refers back to the initial discussion, where the potential tension between precision and triviality was explained. Many of the targets recorded in this study addressed the more easily definable areas of literacy such as correct spelling and punctuation, neat handwriting or speed of reading, rather than weightier areas such as the quality of children's comprehension or their understanding of the features of different text types. This may have resulted from a perceived need for precision in target setting, or from a feeling for what could realistically be done in the course of two or three weeks. Nevertheless, it is important to bear in mind that the transition from Level 3 to Level 4 of the National Curriculum is assessed almost entirely in terms of a more sophisticated understanding of reading and the ability to organise writing and use an appropriate style, rather than a straightforward improvement in spelling, handwriting or reading speed. It may be that the summer schools' teaching programmes addressed these broad areas of literacy, and that this was not reflected in children's targets. Some more focused discussion about the relationship that individual and class targets should have to the range of aims of the summer schools is desirable in order better to prepare summer school providers in the future.

5.2.2 The Special Educational Needs Pilot

Four summer schools were visited in the course of the summer school programme to analyse the way in which their targets were set and monitored. The schools were selected to represent a wide geographical spread and a range of catchment areas. There were two special schools and two mainstream schools with special educational needs children. One of the schools visited was a 13 – 18 school, so they took pupils in Year 8 from local middle schools into their summer school. The remaining summer schools were all Year 6

pupils. Each of the summer schools was visited twice, once towards the beginning and once towards the end of the summer school period. In the majority of cases individual interviews were held with four children, selected by the teachers to represent a wide range of ability within the summer school. Interviews were also held with the teacher or co-odinator of the summer school. Where possible other information was collected in the form of documentation.

Background Information

At each summer school, teachers were asked what background information had been collected prior to the children's arrival or how they made an assessment of the children on which to base their target setting. Two of the schools had all the assessment details fully available. One of these schools was a special school (described in Case Study 1) and the other was an extension programme school with special educational needs children (described in Case Study 4). Most of the children at the special school in Case Study 1 were existing pupils and therefore assessment details were fully available. The targets that were agreed and reviewed with the children in July, for the autumn term, and were therefore available and used as a basis for summer school targets. The materials used for the target setting at this summer school, were a pupil progress booklet "The Catch Up Project" which contained record sheets on individual aims, high frequency words, letter sounds, lower and upper case names, letter formation and spelling. Materials also included a social signs checklist and reading/spelling word list both of which were also used as tools for target setting. Pupils also kept a pupil journal which adults could write in. Case Study 1 presents the targets set for child M.

Case Study 1: Special School

Target setting for Paul

Paul is a boy with moderate learning difficulties (MLD) including emotional and behavioural difficulties. The following targets were taken from those set for the autumn term. The summer school targets were listed under the school's target headings.

Reading	To be able to read – *he, that, be, with, they*
Social signs	To recognise signs for - *danger, poison and do not touch*
Spelling	To be able to spell – *with, have, said, get, what*
Phonics	To know the sounds – *e, c, i, b, u, n, x pl, fr, dr, pr, tr, dr*
Other	To be able to write – *b, d, e, f, q, u, z A, D, E, G, Y, Z*

These targets were shown to Paul at the beginning of summer school. These targets had already been reviewed with Paul in July for the autumn term. Paul thought the targets were "alright and easy." Paul was asked by the teacher at the start of summer school to select one of the above targets in particular to focus upon. Paul chose the handwriting target. In addition to these very specific targets, the teacher also set some general behavioural targets. At the end of summer school, Paul could still remember his targets. He had achieved most of his targets, but still had difficulty with two of them.

In this school there was evidence of daily reviews during which the teacher had adjusted targets in some cases for some children. Target setting in this school was eased by the continuity of the available test and assessment evidence. The organisation of the school was already highly-focused on testing and specific, small, achievable targets were familiar and on-going.

The school in Case Study 4, which had children with special educational needs in a mainstream school, had feeder schools send information containing previous assessments and examples of their work and details about the children's particular needs, abilities and weaknesses. Even though the school had obtained these assessment details, the headteacher said that at the start of the summer school it takes time to pass information on to staff and as a result this had not been done. As a result, it was difficult for staff to set targets.

The other two schools (in Case Studies 2 and 3) had to make their own initial assessments, as there was no background information provided. These two schools were a special school and a mainstream school with an extension programme. At the special school in Case Study 2, an individual pupil reading assessment was conducted with each child on a one to one basis on the first day. This took a few minutes with each child, until they reached the point where they could no longer carry on in the booklet. The assessment was developed by a team of head teachers, teachers and educational psychologists. An achievement sheet was also completed for each child on the first day. Some of the information from the assessment was transferred onto this achievement sheet also. The assessment booklet and achievement sheet were intended to be used as tools for setting targets throughout the summer school. Pupils also kept their own home record booklet, which included a diary with daily, weekly and overall targets. Case Study 2 shows the assessment details and process carried out for child A.

Case Study 2: Special School

Target setting for Aaron

Aaron was a boy at the lower end of the range of ability in this summer school of 20 children. He was a very shy boy who lacked confidence. Aaron was assessed on the first day of summer school using the "Individual Pupil Reading Assessment" booklet. This booklet has a number of activities and objectives which can be ticked off and used as a

formative planning tool for target setting. The assessment also contains four reading tests at the end of the booklet.

An achievement sheet was filled in for Aaron at the start and end of summer school. The results from the tests in the assessment booklet were also filled in on this achievement sheet.

Achievement Sheet

	Start	End
Write name	✓	
Write address		✓
Write days of the week	✓	
Alphabet sequencing – verbal		✓
Letter sounds – vowels	✓a	
Letter sounds – consonants	12/21	
Test 1	7/12	12/12
Test 2	-	4/12

Test 1 involves reading the following words:

a and he I in is it of that the to was

Based on the assessments, Aaron was set the following targets in his diary.

- Overall — To learn the sounds: i d o u v e w j y q z r
- Week 1 — To read one book and learn sounds: i d o u
- Daily (examples) — Read and practice sounds
  Read the book 'Park Street'
  Read 'Where is my hat?'
  Complete the 'sounds' sheet
  Complete the 'food technology' sheet
  Read 'My Day'
  Read and practice: wet, set, pet, ben, hen, den
  Read 'Look around'
  Practice: sat, cat, hat, rat, bat, mat
  Copy sentences
  Read book
  Learn address and post code
  Practice: bit, hit, sit, dig, big, pig
  Learn date of birth

Copy sentences into book (from the 'Iron Man')
Many of Aaron's targets were based on reading and practising sounds and words (CVC). Aaron read nine books, by the end of summer school. At the end of summer school Aaron was pleased that he had read some books. He had met some of his targets. In some cases the targets could have been more specific. Aaron's folder showed evidence of improvements, such as handwriting.

The extension programme school, in Case Study 3, conducted the Schonell Silent Reading Test and a spelling test on all pupils on Day 1. Information from primary schools in the past had been irregular and erratic and so the school had decided to run its own assessments. The information was marked immediately and could form part of the target setting process. The results from these tests were used to form four special needs ability groups. The four identified children were selected from these results as children significantly below their chronological age in both reading and spelling (18 months or more below their chronological age). Three assessment sheets were also completed. No preparation in terms of target setting had taken place. Staff were simply asked to aim delivery at small achievable steps. The teacher thought that it was difficult to set targets from Day 1 when staff do not know the pupils. This teacher suggested that perhaps the way forward was for teachers from primary schools to set targets individually with pupils.

The assessment criteria provided by the NFER were not used in target setting or as background information, although they were generally completed by schools.

Teaching Programme

As well as referring to information about children's individual attainments, summer school teachers were also asked what structured teaching and learning objectives they had used, such as the framework for teaching from the National Literacy Strategy.

All four schools made reference to the National Literacy Strategy. They all had a literacy hour each day and used the 'big book' approach. Two of the schools referred to their work being based upon the word / sentence / text levels and the use of the set vocabulary list from the Literacy Strategy being very useful. One of these schools also reported having a phonics emphasis based on the National Literacy Project.

On of the co-ordinators of the extension programme school in Case study 3 said:

> *"Now when September comes I feel we already have the literacy hour up and running. I have used the big book approach and believe it has been a wonderful resource. The very structured approach it provides our activities with has worked extremely well and literacy provision has been very high and very concentrated.*

Because of summer school we have the literacy hour up and running ahead of schedule and already financed with staff already user friendly".

This same school also used the 'Jackson Pack' to help in work relating to reading development and for setting targets.

The school in Case Study 1 had ten-minute reading sessions with each child twice each week. Three of the schools also had information books, which contained collective and subject learning targets. For example, the school in Case Study 3 had set the following collective targets, for all pupils:

Overall targets

- To improve and enrich literacy skills and experiences
- To improve and enrich vocabulary and oracy skills
- To be involved in a wide variety of learning experiences
- To improve children's ability to access information
- To help children set personal learning targets
- To raise children's personal expectations for their learning
- To improve children's ability to use different forms of writing
- To improve the reading age by 6 months
- To make transition easier from primary school to high school
- To involve parents directly in their children's learning and progress.

Subject Learning targets

Direct teaching

- To share text work
- To learn to contribute in a group situation
- To reinforce and apply word skills in shared reading
- To learn to use phonological, contextual, grammatical and graphic knowledge to work out, predict and check the meanings of unfamiliar words and to make sense of what they read
- To learn to read and spell high frequency words
- To learn to read and spell some of the medium frequency words
- To use awareness of grammar to decipher new and / or unfamiliar words
- To become more practised in writing sentences
- To improve handwriting and presentation skills

Guided reading

- To improve reading by up to 3 months
- To enjoy reading

- To learn to read up to 3 new words per day
- To be able to discuss and show comprehension of what has been read and predict what will happen next
- To talk about the book and what has happened in it
- To talk about the characters in the book
- To produce a visual display of what they have read
- To read aloud with increased confidence
- To understand what has been read

In the special school in Case Study 1 there were individual learning programmes (ILPs) available for each child also which could be used for target setting, although in practice they were not used due to time limitations.

The structure of the summer schools varied between the schools. Two of the schools had a lot of visits and outside visitors built into their programmes. Such activities included: a library visit, a forest trail, camping, a visit to a farm, a visit from the police and so on. Cooking, shopping, word games and computers were also scheduled to improve literacy and make learning fun.

The school in Case Study 4 in particular expressed their philosophy of summer school being about creating positive attitudes, rather than setting structured targets:

> *"Rigid arrangements aren't always the most effective – motivating children is in my opinion quite an 'organic' thing".*

This same school had looked at the National Literacy Strategy and although it prompted thought, the teachers were more concerned with creating positive attitudes than setting targets.

The Targets: Timescale

The two schools in Case Studies 1 and 3 set individual daily targets, the school in Case Study 4 set daily and weekly targets and the other school in Case Study 2 set targets at a daily, weekly and overall level. The two schools that set daily targets used a diary and at one of the schools individuals selected their own targets day-by-day from a list. The school in Case Study 4, setting weekly targets set the same overall targets for everyone each week and awarded certificates at the end of each week. For example, the certificate after week one included the following targets being met:

- Diary Entry each day
- Reading at least one book
- Completing Reading Test

- Work on Crime Investigation
- Planning Lunch on one day
- Preparing Lunch on one day
- Taking part in sport / games activities each day
- Ghost Walk and Chips (evening walk, listening to stories)
- Successmaker
- Headhunters

Here are some examples of the targets set for individuals in the school (in Case Study 2) which set targets at individual, weekly and overall levels:

Overall

- Improve writing
- To learn the sounds – I d o u v e w j y q z r
- To read one book a week
- To be better at computers

Weekly

- To do handwriting at home
- To read one book and learn sounds - d o u
- To learn sounds d y q z
- To learn – that the of it

In the second week very few targets were set and in the third week no targets were set.

Daily

- Handwriting
- Reading
- Read 'where is my hat?'
- Sound (on the sheet)
- Learn address and phone number
- Copy sentences (shown)
- Practise writing 's'
- Finish food technology sheets

The Targets: Specificity

The specificity or generality of targets varied. These issues have already been apparent in other sections although we have not yet addressed them exclusively. The more specific a target is, the easier it is also to monitor and measure that target.

All the summer schools had a general target to improve the attitude of the children towards school and learning. A couple of the schools also had a very general target to improve attendance. The co-ordinator at the school in Case Study 3 reported:

> *"Our approach to limiting absenteeism has been very pro-active and I think has also worked. We have run a mini-bus throughout the 3 weeks to run and pick up at regular venues all who have difficult journeys. Additionally one member of staff has had the daily responsibility of phoning homes of non-attendees within 30 minutes of school starting to ask where the child is!"*

The same teacher goes on to say:

> *"One of our pupils was a boy on suspension from their Primary school for assault on a teacher. He had problem behaviour. He has been a regular attendee at the summer school".*

Three of the schools (in Case Studies 1, 2 and 4) seemed to set at least some specific targets. For example, at one of the special schools (in Case Study 1) a target was set relating to spelling and reading a set of words:

The pupil must spell / read each word correctly at least 3 times over 3 days.

This target is very specific and also easy to measure.

Many targets were set in the pupils' diaries. Examples of Aaron's targets appeared in Case Study 2 and some were specific. Examples of targets are given below from the extension programme school in Case Study 3:

Specific

- Understand and learn how to spell 5 new words
- Use full stops and capital letters in a sentence
- Find all the nouns in a piece of writing
- Look up a new word in the dictionary
- Write all the capital letters
- Write all the letters of the alphabet in order

General

- Read a new book

- Read a newspaper
- To improve my handwriting
- Use an encyclopaedia
- Make up a poem about my favourite things

The targets listed under the overall, weekly and daily targets also show a range of the specific to the general.

Ownership of the Targets

The level of ownership of targets varied across the schools. In some instances targets were set and monitored without the child's knowledge, as in Case Study 3 below for Sarah.

Case Study 3: Mainstream School with Extension Programme

Target setting for Sarah

A collective approach was taken in this school. These targets were set for all the children at the start of summer school.

- To read aloud to the teacher from the 3 word sheets (based on 3-letter word building). Errors would be placed on the word list to be learned at home.
- Day by day build up of specified vocabulary list prepared by the Literacy Strategy.
- Additional targets to be set from the Jackson Test work.

Sarah was asked about her targets at the start of summer school. She was completely unaware of what her targets were. (The other three children were also unaware of the targets they had been set).

At the end of summer school, there was no evidence of any significant amount of progress. Teachers were unaware of the level that children had started or finished at. Targets were vague and unspecific.

Sarah had enjoyed the summer school very much and said that she enjoyed reading more now and taking books home. She also said that she really enjoyed the "Rap" style reading. The teacher was unaware of how much Sarah had enjoyed this activity and indeed summer school.

In this instance, there was a complete lack of awareness of targets by the child and the teacher. No conference had taken place or provision for ownership of targets. Despite the lack of individual target setting, Sarah had a very positive attitude. Monitoring and assessment had not been achieved. However, Sarah had achieved five stickers as rewards.

However, at the school in Case Study 1, children actually selected one of the agreed targets (set for the autumn term) as a particular focus for the 2 weeks. Some of the targets identified for the autumn term were specified by the teacher as targets for summer school.

Similarly, at another school individuals selected targets from a list of given targets (Case Study 3). However, in practice this process only lasted the first week: the targets set were too easy and repetitive.

At the school in Case Study 4, each member of staff had a target setting proforma to complete in consultation with each child. However, in practice there were no conferences between the teacher and child, due to time constraints.

In the remaining special school, in Case Study 2, there was evidence of teacher and child interaction in target setting. Teachers and children set targets overall and for each week and the teacher assessed each day-to-day target before setting the target for the next day. In some cases it was expected that targets would become more complex and specific. However, in practice the targets were often unrelated and discrete. This was an ongoing process and there was no official time allocated.

Teaching to the Targets

Targets were set at various levels – at individual, group or class level. All the schools had intentions of setting targets at individual and group or overall level.

At one of the special schools, in Case Study 2, targets were set individually in their own individual home project record booklet. Targets were set for each individual daily, weekly and overall. The emphasis was on the individual. The overall target was simply to create a positive attitude towards school and learning.

At the other special school (in Case Study 1) emphasis was again at the individual level. Individuals worked on the "Successmaker" computer and had an individual reading session twice a week. Each pupil had a reading word booklet, social signs booklet, spelling booklet and phonics booklet, which show progression for each pupil. Each pupil had an Individual Learning Plan (ILP) including the reading words, spellings, social signs and phonics that he or she needed to learn. The target agreed with the pupil and the parent was also included. There were also 'Grouplets' where work was conducted on a group basis relating to reading words, social signs, spelling and phonics input.

At one of the extension programme schools in Case Study 4, the target setting was more collective. Overall targets were set:

"The summer school should give each of them a positive feel and familiarisation with the school.

It should provide pupils with the beginnings of a relationship with members of staff that can be developed and built upon– especially if based on confidence and trust.

Pupils should leave the summer school feeling much less anxious about their forthcoming arrival – having met fellow students and made friendship links outside of their feeder school friends.

To generate positive attitudes that extend into the right attitude to school generally and leaving specifically as an exciting thing to do – a fun thing to be doing".

The same teacher thought that it was possible to teach towards targets:

"Academically, the weeks will have a focus on the targets of reading a book for each week and in producing pieces of writing on each of our themes. The group leaders will work more closely with each student, and individually the tasks will be adapted to suit abilities and appropriate support given".

In practice teaching towards the targets was difficult and collective targets were taken on by the groups:

"We didn't do it here in a worthwhile way but I do think it will have further value and a future place. Effectively this time around we had collective targets that groups took on. We had targets that individuals, all individuals had to achieve. These targets were ones that could be achieved and so were 'real' targets tailored to provide success – every day. In this respect general targets were used – discussed and achieved. Academically more structured and individually tailored targets do certainly have a place, but the more ad hoc, 1:1, off-the cuff teacher/pupil interaction ones were what took place here".

At the other extension programme school, in Case Study 3, there was a collective approach to target setting, with individuals then selecting targets day by day from a list of given targets. This may have been prompted by the nature of the four activities each group undertook in the course of each day. Pupil conferences did not take place. Instead group discussions at the start of each of the four sessions took place that highlighted the nature of the work and the target involved. The co-ordinator reported:

"The set up of small groups is a big improvement over our summer school last year. Much more individual attention has been catered for and I believe with our induction and planning the expectation of pupils has been higher".

Overall targets and learning targets in various activities were used at this school. Examples of these were outlined earlier under the section of Teaching Programme. Reading was taught in a group also. Targets set were group targets. When individual targets arose they were set and given out at the time.

Monitoring and Assessing the Targets

It was not possible for a researcher to be present throughout the summer school to observe the monitoring and renegotiating of targets. The final visits, however, aimed to collect this information by observing the conferences that took place, against which progress on the targets was summarised for each child, along with teacher and pupil interviews.

In this sample, there were no conferences that took place at the end of the summer schools. However, researchers discussed the targets that had been set in terms of the whether they were at an individual, group or class level, and in terms of the SMART characteristics– specific, measurable, achievable, relevant, time-related.

At one of the extension programme schools, in Case Study 3, targets had been intended to be set each day and then monitored and reviewed. In practice targets were a big feature in each of the child's booklets and targets were set each day for the first week. The targets were very simple and unrelated. However, after this first week, there was no evidence of other targets set, discussed, tailored or monitored.

At the other extension programme school, in Case Study 4, targets were monitored and assessed using 'stars' as rewards. The 'stars' could be converted into vouchers:

"Some of the elements are very broad to take individual abilities into account and where support is needed to achieve certain targets we make sure that the support is there so that they make that goal. We have a reward system in addition to certificates and 'stars' are converted into vouchers that are valid at McDonalds – PizzaHut and others. So the children see the 'star' system as real in terms of rewards for their effort. I do truly believe they value their success and rewards".

The Case Study below gives an example of the type of monitoring and assessment that took place for pupil B.

Case Study 4: Mainstream School with Extension Programme

Target setting for Barrie

Barrie was chosen to represent the middle range of the special needs group. Barrie was not actually set any specific target and work was mainly group orientated.

There was no formal monitoring or assessing of the targets. However, the teacher states:

"His confidence in his work has certainly improved and both his reading and writing have noticeably improved. He works well at all times and has an excellent attitude to work and has achieved all we have asked of him. Barrie has become so motivated to write his diary that he starts his 'work' unprompted. He now considers what he writes to be 'of worth' and that is a great step forward and wonderful to think that our summer school has brought that change about. He is now very proficient on all aspects of the computer (word processing, Encarta and the Internet) and he is much more resourceful and independent as a result".

Barrie was one of the summer school success stories. The teacher felt real progress had been made, both with his confidence in what he writes and the quality of it. It is difficult for the teacher to assess a change of attitude to school as she was not familiar with Barrie prior to summer school – but certainly felt his attitude had been very positive to school and the learning process.

At one of the special schools (Case Study 1), targets were looked at with the teacher. There was evidence that daily targets had been set and reviewed during which the teacher had adjusted targets in some cases. Similarly in the other special school (Case Study 2), targets were set each day, but there was not much evidence of tailoring these targets. Targets seemed unrelated each day and there was no indication as to whether the targets had been reached. However, there was an achievement sheet with very specific targets set which was completed before and after the summer school. This could measure the changes more precisely.

However, the attitude of most the schools revolved around changing attitudes rather than trying to achieve specific targets in three weeks:

> *"The first thing to turn around is their own attitude and with small measures of success eventually you can increase their confidence. These small steps are great in terms of motivation and attitudes becoming positive – but they may be too premature to be measured on achievement scales – this is where I look to my work here being the start of a 3 year course".*

Discussion

As with the mainstream schools in section 5.2.1, the target setting and monitoring for children with special educational needs took very different approaches.

The same finding became apparent as with the mainstream schools, in that there is a need to improve the quality of the diagnostic information the schools receive from primary schools.

There is also an issue regarding adequate preparation of target setting. In one of the schools reported in this section, the diagnostic information was available from the primary school, but staff at the summer school did not had the time to use this information. Ideally targets should be set before the start of summer school.

There was a focused approach to target setting in schools where there was a lack of information from the primary schools available and so they carried out their own assessments.

Targets varied from general to specific between schools. When teachers set targets they were more likely to be specific, but there was not much ownership for the child. When children set targets they tended to be very general.

There were many different types of activity sheets and diaries being used by the schools. Some of this material was often shared with parents.

The assessment criteria were not used to set targets and hence the basic concepts of reading, writing and speaking and listening were not always the areas used for target setting.

Teachers were generally more concerned about creating positive attitudes and hence the target setting process was carried out quite informally in most cases. There were only two schools where conferences took place between the children and teachers (on the first visits in schools).

There is a need for more guidance and formal target setting procedures for the future.

5.3 Target Setting in Numeracy

Six Summer Numeracy Schools, selected to represent a wide geographical spread and a range of different catchment areas, were visited in the course of the summer school programme to analyse the way in which targets were set and monitored. Each of these schools was visited twice, once towards the beginning and once towards the end of the

summer school period. On each occasion, individual interviews were held with four children, selected by their teachers to represent a wide a range of ability within the summer school. Interviews were also held with the teacher and/or co-ordinator of the Summer Numeracy School. Where possible, extra information was gained through discussion with other teachers or adult helpers.

5.3.1 Background Information

At each summer school, teachers were asked what background information had been collected prior to the children's arrival. All teachers interviewed referred to the lack of time for effective preparation; many stated that given more time they would have been able to liaise much more effectively with their feeder schools.

> *"Effectively, I had the last two weeks of term to prepare a programme, organise staff, contact the primaries, organise sufficient children as well as do the administration - there just wasn't enough time."*

The six schools managed to obtain the Key Stage 2 mathematics test results, including the results for the mental arithmetic component, for the majority of children. In some cases the overall score, rather than a breakdown into the three component parts, was provided by the feeder primary schools and for some pupils the only information available was the level by teacher assessment. For a few pupils, no information was available. Teachers at two of the summer schools showed detailed awareness of how the children had performed on the Key Stage 2 tests; one of these schools used the results to help inform suitable grouping. Other teachers were hesitant about how useful the Key Stage 2 summative data were.

> *"The written test results are less helpful as the tests cover a wide range of concepts and skills. The mental arithmetic score is more useful in that it tells you if a pupil is good or very weak, but without seeing the individual responses it can't be used to identify an individual's strengths and weaknesses."*

None of the summer schools indicated that they had seen children's individual test papers.

The majority of schools had collected no other information from the feeder primary schools on pupils' attainment in mathematics. In some cases a Year 6 teacher was involved in the running of the Summer Numeracy School, but there was no evidence that information about pupils from the teacher's primary had been shared. In preparation for the transfer in September, one school had already collected information about their pupils' attainment through a series of short tests held in the feeder schools the previous autumn. The results of these tests, broken down into the four skill areas of addition, subtraction,

multiplication and division, were available to the summer school staff but there was no evidence that these tests were then used diagnostically. A few schools had collected, usually informally, behavioural or social information about some of the pupils.

5.3.2 Use of the Taped Mental Arithmetic Test

A requirement on all Summer Numeracy Schools was to administer a taped mental arithmetic test on either the first or second day of the summer school. Teachers were provided with a mark scheme, and were informed that, should they wish, the tests could be marked, in pencil, within the school before posting to NFER for external marking. Most schools visited took advantage of this option, though there was little evidence that the results were used to inform individual target setting. However, most summer schools used the results of the mental arithmetic test to inform their teaching programme:

> *"My marking of the tests showed me weaknesses in fractions and decimals and so I made sure the teaching I undertook gave plenty of practice in these areas. Additionally, I was aware that much mathematical language needs to be understood, so I made sure that the children understood exactly what 'square root', 'product', 'factors', and terms like that meant – giving them familiarity with the language so that their ability to use numbers could come through."*

In another school, the co-ordinator identified weaknesses and circulated a general summary to the teaching staff:

> *"All students will benefit from work on:*
> *– 4, ×25, find 15% of 200 and questions of this ilk.*
> *Most students will benefit from work on:*
> *cubing and squaring, ×3, writing fractions as decimals, ÷6, ÷100, questions as calculations, writing numbers as words and figures, learning their tables, strategies for money calculations."*

Another summer school complemented the taped test with the use of regular mental arithmetic tests, the results of which were also used to inform learning objectives.

5.3.3 Learning Objectives

All six of the Summer Numeracy Schools had prepared a teaching programme, most of which were detailed. One school listed eight topics to be covered, such as 'place value and ordering, multiplying by 10, 100 or 1000', with no further guidance as to suggested teaching activities. Only one school showed detailed cross-references to the Numeracy Framework but most laid out clear learning objectives that matched both the National

Curriculum and the Numeracy Framework. The learning objectives were generally focused at an appropriate level and in turn formed, albeit informally, part of the target setting process, with teachers reviewing progress against the learning objectives.

> *"We planned the first week in depth. Working so closely alongside the children enabled us to identify what the gaps were, so at the end of the first week we could focus the rest of the summer school to really address these needs."*

5.3.4 Target Setting

Two of the summer schools did not address target setting, whether individual or group, at all. Some teachers were apologetic but felt they had received insufficient guidance or support.

> *"Target setting did give me concerns ... I have not organised its inclusion basically because I have had little or no information on it. If target setting is to be done effectively then it needs a much better brief to get it up and running. My overall target was to provide an enjoyable atmosphere, and to present exciting number work that grabs interest - we really succeeded in that though if I were doing it again I'd revise the teaching programme. We erred on the side of variety and 'fun, fun, fun' - next time I'd take a little from the popularity factor and put more into the achievement through emphasis element."*

The remaining four Summer Numeracy Schools approached target setting in varying amount of detail. In discussing each of them in turn, a Case Study will be presented, followed by discussion of the issues arising in each of the schools.

Case Study 1

On day 1 of the summer school time was allocated to target setting. The teacher, unaware until just before the beginning of the lesson of the focus, produced without preparation a list of concepts and some social targets. Pupils chose from this list, writing on page one of their newly assigned 'rough' book. For example: David wrote:

> *"Fractions, decimals, times tables, shape and space, division, measurement, mental arithmetic, getting to know the school, getting to know the teachers."*

The teacher stated that the session had provided both herself and the children with some goals on which to focus.

The topic areas were chosen by the teachers with no input from the children. None of the targets were broken down into individual skills and there was no discussion of what each topic area consisted. Greater specificity could have been achieved by focusing, for example, on recognition of fractions, or equivalence of fractions, or finding a fraction of a given quantity, and so on. The teachers involved in this target setting were unclear as to how the identified areas would be used to inform the teaching programme and, on the second visit, there was no evidence that such interaction occurred. Both staff and pupils appeared to have forgotten the existence of the targets. The co-ordinator of this summer school expressed reservations about individual target setting.

> *"I don't think individual conferencing front and back is a practicable option during the summer school. Time is the issue here - as well as staffing - so a much more efficient route would be group target setting. I am sure there are better ways of setting targets than we have done, but we are at the early development stages. I think we satisfy individual target setting as part of our ongoing work with individuals. Those targets come about alongside the individual teaching programme - you are not always aware of them, they are certainly not always visible on day one."*

At the end of the summer school, the teachers of the four focus children were asked to specify what mathematical improvements these children had made. Although teachers were able to comment on personal and social gains, in no case were they able to specify mathematical gains. For example, one teacher referred to Suki as *"an able and confident child with no particular needs"* and stated that as Suki required little or no extra help with her work, she (the teacher) had rarely had much to do with her.

"Suki added to her new friends and gained in confidence generally ... as she was reasonably proficient already I can't point to any specific mathematical area as an area of progress."

Pupils were mostly hesitant about their progress, though some were able to identify areas of improvement. When reminded that her initial targets had included fractions, Lucy was able to state that she felt much happier, that she understood what fractions were, and could think about them in her head more easily as well as work things out on paper. She was unable to comment on her other targets.

In the remaining three Summer Numeracy Schools, target setting was approached in more detail.

Case Study 2

The school approached group target setting through the focus of lesson objectives. The programme for each day was subdivided into six sessions, each of which had learning objectives. For example:

'Find 50%, to know tables to 10 ×' (day 1, session 3);
'Use the four rules of number to make 24, recognise patterns' (day 1, session 6).

Each pupil was given an individual target sheet with the lesson objectives for that day, and was asked to tick if they thought the objective had been achieved, and/or to make comments as appropriate. Each day there was a 'fact for the day' displayed on the wall; at the end of the day pupils reflected on whether or not they had learnt the fact. This summer school also ran a detailed reward scheme, with each child awarded 1 point per question correctly answered or solved. 5 points were exchanged for a sticker that was then displayed on a large chart showing the progress of each pupil. The colour of the stickers varied from day to day and progress made was reviewed frequently. Certificates were issued throughout the summer school, and there was enthusiastic competition for 'Student of the Day'. The chart was used to inform prize giving at the end of the summer school.

The co-ordinator of this school expressed some reservations about the way in which they had approached target setting, and specified that the children should have been given more time in which to express their views and opinions. There was little or no reflection or discussion about the learning objectives - each pupil ticked as achieved all learning objectives for all sessions. The reward system was felt to work well as a motivating force, but again the co-ordinator indicated that the process needed reviewing as one teacher had been involved almost full time in its administration.

Case Study 3

On the first day of the summer school, posters were displayed around the classroom with 27 different "I will ....." statements. For example:

"I will know my times tables to 10 × 10"

"I will recognise the square numbers to 100 and be able to work out the square roots of these numbers."

"I will be able to use table facts to do simple divisions, e.g. 4 × 8 = 32, 32 ÷ 8 = ?"

These statements, based on the Framework from the National Numeracy Project, were discussed with the pupils, as was the meaning and purpose of target setting. The children were then asked to identify their overall target in attending the summer school. In addition, the school began each day with a brief discussion of that day's learning objectives after which children identified and recorded their individual daily target. The summer school had produced a small booklet for each child, in which children, their parents and teachers could record targets and other information.

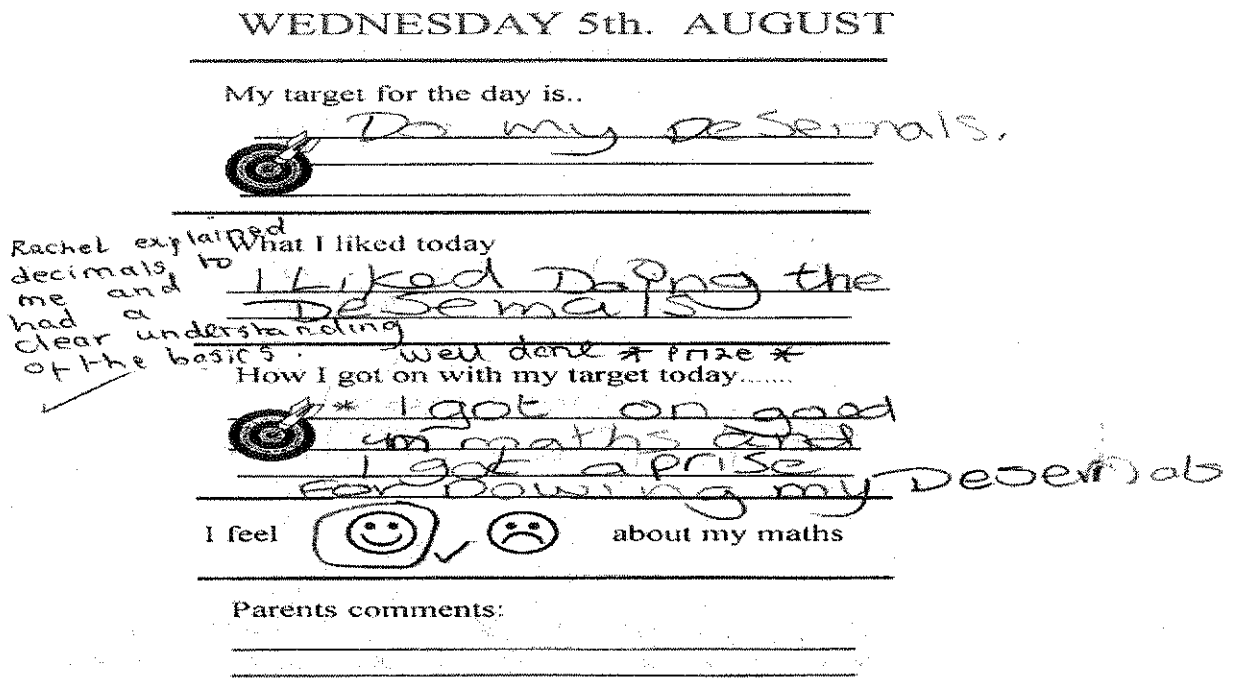
The use of prompt sheets at the beginning of the Summer Numeracy School proved efficient and helpful. There was less evidence in this school of targets which lacked specificity or measurability, such as *"I want to be better at maths."* As in the majority of schools visited, the most common target appeared to focus on knowing times tables. Some pupils added behavioural or social targets such as

"I want to get to know people before I come to this school in September."

A few pupils ignored the prompt sheets, and were adamant about their own needs:

"I want to learn decimals." (Rebecca)

The researcher attempted to probe Rebecca's understanding of what learning decimals might entail, but she was unable to articulate beyond the general. Rebecca was desperate to achieve her target, and approached teachers, helpers and other adults to give her help. Rebecca's diary for the following day reflects her sense of achievement (the learning objectives for the day did not include decimals, but teaching staff responded to her need):



The co-ordinator of the Summer Numeracy School reflected on the process of individual target setting:

> *"We started the summer school trying to identify each child's overall target – their global target - but it was a bit frustrating as most teachers wanted to get straight into the teaching activities they'd planned. Ideally the children would come with their global target, having discussed it with their primary school teacher who really knows them."*

The booklet provided both a focus and a record of progress for both the global target and the daily targets. The majority of pupil and teacher comments within the booklet were brief, and sometimes entries were omitted or incomplete, often through lack of time. There was some evidence that pupils found the process of setting targets helpful.

> *"Sometimes it helped* (setting targets) *as I'd think about it during the day."*

Most parents had recorded comments, especially towards the beginning of the Summer Numeracy School. All comments seen were supportive, for example:

> *"She is eager to learn and seemed to enjoy it* (the day)*."*

"He was very pleased he had a prize for good work and is looking forward to coming again tomorrow."

At the end of the summer school the co-ordinator reflected on the process of daily target setting:

"Again teachers were keen to set up and start the day. For effective discussion I'd really have liked ancillary staff in for target setting. The idea of a target each day was probably over ambitious. The list of targets we'd produced was fine; we considered social skills but felt we'd be better to concentrate on the maths and use behavioural skills only as needed." [After the change of staff at the end of the first week, children's behaviour deteriorated. The target setting on the Tuesday of week 2 focused on behaviour, and was, according to the teacher, extremely effective.] *"If we were doing this again I'd be much clearer in sharing learning objectives and really try to find out more about what they know or don't know. Each day I'd start with a review of the previous day – what did you learn? How do you feel about it? Then I'd try to link in the day's activities to the previous days. We'd also leave longer to review global targets at the end of the summer school. I'm really pleased at the progress the children have made – they've come up and taught me, they are using mathematical language and they're more confident in setting their own targets and deciding for themselves what needs to improve."*

Case Study 4

Target setting for Jamie

This Summer Numeracy School organised the children into 4 groups of 7. Whilst the rest of the group worked on a colouring times table activity, the teacher spoke individually to each child in the group about his or her strengths and weaknesses, and why he or she wanted to attend to the summer school. With a pre-prepared list of short questions on different topics to act as a check-list, the teacher aimed to negotiate needs. Each child was eventually assigned 6 targets, and presented with a typed version to include in their folder. Jamie's list was follows:

By the end of the two weeks I will ....

1. *be able to do my times tables up to 10 × 10.*
2. *be able to check that my answers look **about** right.*
3. *be able to understand and use the appropriate maths words.*
4. *know all of the number bonds to 10, 20 and 50.*
5. *be able to divide a 2 digit number by a 1 digit number.*
6. *subtract two digit numbers in my head.*

This summer school had established in detail the teaching programme for the first week only, in order to respond more flexibly to children's needs. At the end of each day, staff met to discuss the next day's activities in the light of that day's progress. At the end of the summer school, teachers discussed with each child individually the progress that had been made towards identified targets. For each target, children were asked to indicate, on a scale of 1 to 10, how well they felt they had progressed. Teachers then discussed each target with the child and gave their perspective on how well they thought the target had been achieved. Where opinions differed, further discussion ensued. Finally, teachers discussed strategies with pupils as to how they could continue to make progress, and how to ensure that knowledge gained during the summer school was retained.

The co-ordinator of this Summer Numeracy School was pleased with the initial target setting session but confirmed observations that insufficient time had been allocated.

> *"It was a good way to set targets but there just wasn't enough time. The information from the pupils started the identification of their most pressing needs, and then we looked at the strengths and weaknesses from the mental arithmetic test to back it up. We'll review targets at the end of the first week. Talking to the pupils and watching the ongoing activities should help us determine whether we need to review the targets that have been set."*

The co-ordinator stated that a minimum of 5 minutes per pupil needed to be allocated if individual target setting was to be effective. A further factor was a high ratio of teachers to pupils.

"It is much more important to have as many teachers as possible than to have books. When you have only 7 or 8 children in your group, you can address the teaching programme to their individual needs. You really get to know them so well that you don't need formal assessment of progress made - you can decide through discussion and observation whether they've achieved their target and if not how best to help them."

Detailed knowledge and understanding of each child's progress were shown at the target review. Children were confident in reviewing their own strengths and weaknesses, and able to indicate where they felt they still needed further help. Jamie (see above) graded his progress as follows (each grade is out of 10, and the order corresponds to the order of the targets as shown within the case study.):

"8, 5, 10, 6, 9, 3"
(Against the last target, Jamie wrote *"I still find that a bit hard."*)

In discussion with Jamie, the teacher was positive and supportive about his progress. By referring back to activities covered during the summer school, she ensured Jamie was clear about the meaning of his targets. Each target was discussed and a final check confirmed progress. Sometimes the teacher suggested strategies to ensure continued progress, for example:

"Perhaps you could make your own set of looping cards to practise being quick at number bonds and to get better at subtraction."

At other times the pupils were encouraged to think of their own strategies. For example, Jamie stated that he was going to make a poster, showing the meaning of mathematical words, to go over his bed, and that he was going to ask his Dad to practise times tables with him.

Teachers were positive and enthusiastic about progress. For example:

"Well done Mark. You've lost your fear of numbers, you're so much more confident and more able to deal with numbers of any size. You are quicker, you know much more mathematical vocabulary, for example you know what multiples and factors mean and how to find them. (Strategies for finding factors were discussed briefly.) *You're also much better with your number bonds. I've really enjoyed teaching you."*

The co-ordinator felt the target review session had worked well, and was an appropriate end to the formal part of the Summer Numeracy School (the afternoon session was prize

giving and sports). Her only reservation was the amount of time that the detailed discussions took, and, as for the initial target setting, she wished she had allocated longer.

5.3.5 Discussion

Children varied in their reasons for attending summer school. Many responded in non-specific terms such as *"I wanted to get better at maths."* Lack of confidence was a common theme:

> *"I need to improve my maths. I wasn't doing very well. I need to get faster as everyone is ahead of me in the book. I worry about maths sometimes – that I won't do it good. In a fortnight's time I'd like to say there's nothing I can't do and be more confident."*

Some were looking forward to the social side, some were cajoled by parents, and some were swayed by the persuasiveness of their primary teachers. One girl said her teacher had encouraged her, then continued:

> *"I wanted to come anyway, first to give my mum a break and second to avoid constant arguments with my brothers."*

Some children were nervous about what summer school would entail, but in all the Summer Numeracy Schools visited, children were extremely enthusiastic about their experiences.

> *"It's been brilliant."*

> *"It's not at all what I thought it was going to be. It's not working from books or things like that and it's been fun."*

Pupils were generally optimistic for the future.

> *"I'm so glad ... it's really worked out ... I've improved enough in my maths that if I took my SATS again, I'd hope for a Level 5. It's been an excellent summer school."*

Pupils' apprehension about starting at secondary school had largely disappeared and most pupils commented on the opportunity to make new friends before the start of term.

Even in schools where target setting was not carried out, some pupils were able to reflect on their time at summer school and articulate their progress.

"The most important thing was to learn my tables. We worked on them every few days and I now know my 6s, 11, and 12s. I also wanted to improve at division and I think I'm better at it. I am better now. I realise that division is just times tables in reverse. So I can work out division by using my tables – I didn't understand that before. I have learned what I wanted to learn and I've enjoyed it."

However, not all pupils at schools which did not set targets were as positive.

"I wanted to get better at long division but we haven't done any so I haven't. I also wanted to improve at mental arithmetic and we have done regular practice at it – so maybe I have done better at it – but I don't know for sure."

In most of the schools, evidence suggested parents had been involved and were aware of their child's progress. One school actively involved parents throughout the duration of the summer school, and most schools invited the parents in for a plenary session.

"We are absolutely delighted with the progress he has made ... we can't find enough praise for the teachers."

One pupil said:

"Even my mum has said how much quicker I am at the shops. I can work things out in my head and she has noticed. She's also noticed 'cos she helped me out with the homework and she says I've improved."

Teachers too found the summer schools rewarding, though several co-ordinators mentioned the lack of time for effective planning and preparation. One of the primary teachers involved enjoyed the summer school so much that she came in for unpaid sessions. Some teachers felt the experience of teaching at the Summer Numeracy Schools would have a knock-on effect into their 'ordinary' teaching.

"I've seen the motivational force of immediate feedback at work this summer. That's one area I intend to incorporate as much as possible in my teaching from now on."

"This has been the most brilliant inset. At my school (primary) *we stick to a scheme because that's safe. Here there's been more ideas, more variety, and I can use the resources. Working with maths specialists has been excellent."*

All teachers started the summer schools with an identified aim of making mathematics enjoyable and accessible. All teachers were positive about the children's improved attitudes towards mathematics.

"The attitude of children towards maths has been very pleasing. Underlying all our work has been encouragement, praise, reassurance to let them have a go - to release them from their inhibitions or insecurities about maybe getting it wrong. I believe we've made great inroads into the build up of self-esteem and confidence - I suspect there will now be far fewer questions left blank on the mental test."

Teachers at most summer schools were pleased with their programme of work, though all indicated areas for improvement. Several stated they had tried to cover too much ground in the time available.

"I would aim to cover activities in greater depth and would not try to do so many varied activities. There were too many skills we only touched upon."

Many teachers identified the need to share good practice. In some schools activities were varied; in one school one of the most rewarding sessions was thought to be the visit of a teacher of the deaf, who taught the children the signs for numbers and then played 'Bingo' in sign.

Few Summer Numeracy Schools were confident in how to set effective targets. Two of the schools made no attempt to set targets. The four other schools did so in very different ways. Most teachers commented on the lack of guidance, and stated that training in this area would be seen as a priority if target setting is to be seen as a mechanism for informing teaching objectives and assessing progress. Little information about prior performance was available to the schools, and where such information was available there was rarely evidence that the information was used for diagnostic purposes. Where targets were set their measurability and specificity varied, with only a few schools negotiating with pupils and reviewing the targets on a regular basis.

Most Summer Numeracy Schools achieved significant improvement in scores of enjoyment of mathematics and perception of mathematics as relevant. However, only two of the six schools showed a significant increase in scores of mathematics confidence. Both of these schools (Case Study 3 and CaseStudy 4) incorporated target setting as part of their learning objectives and actively involved pupils in the process. It may be that this focus encouraged pupils to reflect on their progress which in turn enhanced their confidence.

5.4 Conclusions

In all three types of summer school, target setting activities have been described as extremely varied in nature. This is perhaps unsurprising, as all the teachers involved were tackling a new challenge for the first time. This chapter will conclude by drawing out

some general recommendations for the development of target setting activities in the future, in both literacy and numeracy.

- **Liaison with primary schools should include detailed information on each child's performance.**

There were only a few examples in the case studies of schools where the information provided by the primary school was full enough to underpin focused target setting. On the whole, the emphasis seemed to have been on selecting suitable pupils, rather than thinking ahead and identifying targets for them.

- **Consideration should be given to a system where targets are set in the summer term, in the primary school.**

There was one example of a case study school where this took place, a special school where the summer school pupils were pupils at the same school. They already had targets for the autumn as part of their progression within school, and these formed a basis for selection of summer school targets. Setting targets in advance of the summer school would aid planning and allow the summer school teaching programme to start on the first day in a focused way.

- **Targets for summer school should be diagnostic, based for each child on background knowledge of his or her existing attainment.**

There were some examples of target setting where this was the case, and the resulting targets were clearly focused and useful.

- **Motivational targets are important, but should be complemented by curriculum targets.**

General motivational targets featured in many summer schools, and there is a good deal of evidence that they were achieved. However, summer schools were set up to improve children's attainment and well matched curriculum targets are also an essential element.

- **Targets for summer school should be relevant, specific and achievable within the time period.**

It is this area where perhaps most thought and guidance are needed, in the context of the overall purpose of the summer school programme. Children are selected for summer school on the basis that they have not yet achieved Level 4 of the National Curriculum. However, it is clear from both the 1997 evaluation and this one that the move from Level 3 to Level 4, in both English and mathematics, involves the development of a greater

depth of understanding across a wide range of the curriculum. For most children, this cannot be achieved within two or three weeks. The case studies have provided many examples of targets set in a narrower area, notably learning spellings in English and times tables in mathematics. Although these are achievable and useful in themselves, they nevertheless represent very limited areas of the National Curriculum. There is a need for a mix of such specific but narrow targets with some - perhaps just one or two - that are more demanding and that represent a substantial area of English or mathematics development.

6 Conclusions

There are some positive conclusions from this year's evaluation of summer schools, for all three programmes: Summer Literacy Schools, the Special Educational Needs Pilot and Summer Numeracy Schools. The evaluation methodology, in contrast to the 1997 study, was sharply focused upon the two or three weeks of the summer schools, rather than taking a longer-term view as in 1997.

Over the period of the summer schools, there were, as in 1997, significant improvements in children's attitudes to their learning. Most children gained in confidence in their literacy and mathematics abilities and in their enjoyment of each subject. In literacy, children were reading more frequently by the end of the summer school and in numeracy, were less likely to perceive mathematics as irrelevant to their daily lives. The analysis of test scores showed improvements in numeracy and for children with special educational needs, and in literacy similar levels of attainment at beginning and end of the summer school.

Target setting was, on the whole, still under development, with few schools demonstrating a well planned and carefully focused system. The most successful summer schools set targets on the basis of good diagnostic information from the primary schools, shared the targets with children and parents, and provided high-profile systems for monitoring their achievement.

Both in the testing programme and the target setting study, questions emerged about what kinds of attainments - broad or narrow, simple or complex - are best aimed for in an intensive but short-term programme such as this. Now that the organisation of summer schools is well established, and their value in improving attainment and motivation in the short term has been confirmed, the next step should be to consider in greater depth their relationship to the National Curriculum and their detailed curriculum aims as children move on from Key Stage 2 to Key Stage 3.

Appendix A1

Sample Breakdowns by Background Variables

Table A1.1: Background Variables for Summer Literacy School Pupils

	Number of pupils	Percentage of total
Sex		
Male	645	54.5
Female	539	45.5
Total	1184	100.0
Stage of special educational needs		
No SEN	359	30.3
Stage 1	124	10.5
Stage 2	122	10.3
Stage 3	46	3.9
Stage 4	3	0.3
Stage 5	12	1.0
Statement	9	0.8
Missing	509	43.0
Total	1184	100.0
Free school meals		
Yes	204	17.2
No	396	33.4
Don't know	270	22.8
Missing	314	26.5
Total	1184	100.0
Ethnicity		
White	839	70.9
Black Caribbean	35	3.0
Black African	26	2.2
Black Other'	8	0.7
Indian	17	1.4
Pakistani	53	4.5
Bangladeshi	4	0.3
Chinese	2	0.2
Other	15	1.3
Missing	185	15.6
Total	1184	100.0
Stage of learning English		
Becoming familiar	4	0.3
Becoming confident	84	7.1
Very fluent	40	3.4
English first language	856	72.3
Missing	200	16.9
Total	1184	100.0

	Number of pupils	Percentage of total
Overall KS2 English assessment level		
Level 1	2	0.2
Level 2	47	4.0
Level 3	263	22.2
Level 4	47	4.0
Missing	825	69.7
Total	1184	100.0
Total number of hours attended at summer school		
Up to 45 hours	82	6.9
45 to 50 hours	780	65.9
Over 50 hours	121	10.2
Missing	201	17.0
	1184	100.0
Age at the start of the Summer School		
under 10:9	5	0.4
10:9 - 11:0	205	17.3
11:1 - 11:4	378	31.9
Over 11:5	596	50.3
Total	1184	100.0

Table A1.2: Background Variables for Special Educational Needs Pilot

	Number of pupils	Percentage of total
Total sample	300	100
Sex		
Boys	200	67
Girls	99	33
Age		
8	2	1
9	7	2
10	20	7
11	99	34
12	90	31
13	54	18
14	16	5
15	3	1
16	4	1
Ethnicity		
White	244	92
Black	6	2
Asian	13	5
Other	1	0
Stage of special educational needs		
No SEN	34	15
Stage 1	3	1
Stage 2	27	12
Stage 3	12	5
Stage 4	2	1
Stage 5	30	13
Statement	123	53
KS2 teacher assessment		
Level 1	20	29
Level 2	22	32
Level 3	17	25
Level 4	1	2
Working towards Level 1	8	12

Table A1.2: Background Variables for Special Educational Needs Pilot (Continued)

KS2 test results		Number of pupils	Percentage of total
Level 1		15	39
Level 2		21	54
Level 3		3	8
Free school meals			
Yes		128	50
No		46	18
Don't know		82	32
Hours of attendance at summer school			
0 – 10		8	3
11 – 20		18	6
21 – 30		11	4
31 – 40		30	10
41 – 50		231	77
Type of SEN *			
0	Other	12	6
1	Physical	24	12
2	Visual	6	3
3	Deaf	2	1
4	Learning difficulty MLD	121	58
5	Learning difficulty SLD	28	14
6	Learning difficulty PMLD	2	1
7	Behavioural/emotional	57	27
8	Specific learning difficulty	12	6
9	Challenging behaviour	10	5

* *Percentage of cases*

Table A1.3: Background Variables for Summer Numeracy School Pupils

	Number of pupils	Percentage of total
Sex		
Male	529	46.7
Female	596	52.7
Missing	7	0.6
Total	1132	100.0
Stage of special educational needs		
No SEN	533	47.1
Stage 1	79	7.0
Stage 2	91	8.0
Stage 3	47	4.2
Stage 4	2	0.2
Stage 5t	13	1.1
Statement	21	1.9
Missing	346	30.6
Total	1132	100.0
Free school meals		
Yes	303	26.8
No	515	45.5
Don't know	112	9.9
Missing	202	17.8
Total	1132	100.0
Ethnicity		
White	810	71.6
Black Caribbean	22	1.9
Black African	33	2.9
Black Other'	33	2.9
Indian	55	4.9
Pakistani	67	5.9
Bangladeshi	6	0.5
Chinese	5	0.4
Other	17	1.5
Missing	84	7.4
Total	1132	100.0
Stage of learning English		
New to English	2	0.2
Becoming familiar	8	0.7
Becoming confident	49	4.3
Very fluent	87	7.7
English first language	847	74.8
Missing	139	12.3
Total	1132	100.0

	Number of pupils	Percentage of total
Overall KS2 mathematics assessment level		
Level 1	3	0
Level 2	63	6
Level 3	409	36
Level 4	104	9
Missing	553	49
Total	1132	100
Total number of hours attended at summer school		
Up to 45 hours	136	12.0
45 to 50 hours	773	68.4
Over 50 hours	222	19.6
Missing	1	0.1
Total	1132	100.0
Age at the start of the Summer School		
under 10:9	4	0
10:9 - 11:0	425	38
11:1 - 11:4	352	31
Over 11:5	325	29
Missing	26	2
Total	1132	100

Appendix A2

Literacy and Numeracy Test Data

Table A2.1: Initial age standardised scores for GRT versions A and B (Summer Literacy Schools)

Score	frequency	per cent	cumulative per cent
69	33	21.7	21.7
70	5	3.3	25.0
71	2	1.3	26.3
72	4	2.6	28.9
74	3	2.0	30.9
75	7	4.6	35.5
76	4	2.6	38.2
77	4	2.6	40.8
78	2	1.3	42.1
79	4	2.6	44.7
80	5	3.3	48.0
81	2	1.3	49.3
82	2	1.3	50.7
83	5	3.3	53.9
84	1	0.7	54.6
85	6	3.9	58.6
86	3	2.0	60.5
87	1	0.7	61.2
88	3	2.0	63.2
89	5	3.3	66.4
90	4	2.6	69.1
91	1	0.7	69.7
92	4	2.6	72.4
93	2	1.3	73.7
94	5	3.3	77.0
95	5	3.3	80.3
96	2	1.3	81.6
97	4	2.6	84.2
98	4	2.6	86.8
99	2	1.3	88.2
100	3	2.0	90.1
101	1	0.7	90.8
102	3	2.0	92.8
103	3	2.0	94.7
104	1	0.7	95.4
105	1	0.7	96.1
106	2	1.3	97.4
107	1	0.7	98.0
110	2	1.3	99.3
115	1	0.7	100.0

Table A2.2: Initial age standardised scores for GRT versions X and Y (Summer Literacy Schools)

score	frequency	per cent	cumulative per cent
69	19	1.8	1.8
70	8	0.8	2.6
71	1	0.1	2.7
72	10	1.0	3.7
73	11	1.1	4.7
74	5	0.5	5.2
75	11	1.1	6.3
76	17	1.6	7.9
77	33	3.2	11.1
78	14	1.4	12.5
79	33	3.2	15.7
80	17	1.6	17.3
81	38	3.7	21.0
82	33	3.2	24.2
83	52	5.0	29.3
84	30	2.9	32.2
85	45	4.4	36.5
86	60	5.8	42.3
87	26	2.5	44.9
88	35	3.4	48.3
89	61	5.9	54.2
90	11	1.1	55.2
91	57	5.5	60.8
92	28	2.7	63.5
93	36	3.5	67.0
94	39	3.8	70.7
95	31	3	73.7
96	33	3.2	76.9
97	52	5.0	82.0
98	7	0.7	82.7
99	31	3.0	85.7
100	10	1.0	86.6
101	22	2.1	88.8
102	19	1.8	90.6
103	14	1.4	92.0
104	17	1.6	93.6
105	14	1.4	95.0
106	7	0.7	95.6
107	8	0.8	96.4
108	5	0.5	96.9
109	6	0.6	97.5
110	4	0.4	97.9
111	4	0.4	98.3

112	2	0.2	98.4
113	4	0.4	98.8
114	6	0.6	99.4
115	1	0.1	99.5
116	1	0.1	99.6
117	1	0.1	99.7
118	1	0.1	99.8
120	2	0.2	100

Table A2.3: Final age standardised scores for GRT versions A and B (Summer Literacy Schools)

score	frequency	per cent	cumulative per cent
69	32	21.1	21.1
71	1	0.7	21.7
72	1	0.7	22.4
73	2	1.3	23.7
75	3	2.0	25.7
76	8	5.3	30.9
77	8	5.3	36.2
78	1	0.7	36.8
79	4	2.6	39.5
80	5	3.3	42.8
81	3	2.0	44.7
82	6	3.9	48.7
83	2	1.3	50.0
84	6	3.9	53.9
85	4	2.6	56.6
86	2	1.3	57.9
87	1	0.7	58.6
88	1	0.7	59.2
89	1	0.7	59.9
90	3	2.0	61.8
91	2	1.3	63.2
92	3	2.0	65.1
93	3	2.0	67.1
94	6	3.9	71.1
95	2	1.3	72.4
96	2	1.3	73.7
97	5	3.3	77.0
98	4	2.6	79.6
99	6	3.9	83.6
100	6	3.9	87.5
101	4	2.6	90.1
102	3	2.0	92.1
103	2	1.3	93.4
105	6	3.9	97.4
106	1	0.7	98.0
109	1	0.7	98.7
112	2	1.3	100

Table A2.4: Final age standardised scores for GRT versions X and Y (Summer Literacy Schools)

Score	Frequency	Per Cent	Cumulative Per Cent
69	14	1.4	1.4
70	1	0.1	1.5
71	8	0.8	2.2
72	6	0.6	2.8
73	10	1.0	3.8
74	7	0.7	4.5
75	15	1.5	5.9
76	18	1.7	7.7
77	41	4.0	11.6
78	20	1.9	13.6
79	37	3.6	17.2
80	25	2.4	19.6
81	35	3.4	23.0
82	33	3.2	26.2
83	48	4.7	30.8
84	30	2.9	33.7
85	48	4.7	38.4
86	51	4.9	43.3
87	25	2.4	45.7
88	44	4.3	50.0
89	48	4.7	54.7
90	18	1.7	56.4
91	39	3.8	60.2
92	29	2.8	63.0
93	38	3.7	66.7
94	42	4.1	70.7
95	22	2.1	72.9
96	34	3.3	76.2
97	36	3.5	79.7
98	12	1.2	80.8
99	38	3.7	84.5
100	6	0.6	85.1
101	27	2.6	87.7
102	12	1.2	88.9
103	17	1.6	90.5
104	12	1.2	91.7
105	11	1.1	92.7
106	17	1.6	94.4
107	5	0.5	94.9
108	5	0.5	95.3
109	7	0.7	96
110	4	0.4	96.4
111	8	0.8	97.2

112	9	0.9	98.1
113	5	0.5	98.5
114	4	0.4	98.9
115	1	0.1	99.0
116	4	0.4	99.4
117	4	0.4	99.8
118	1	0.1	99.9
119	1	0.1	100

Table A2.5: Mean age standardised scores and standard deviations for initial and final assessments by GRT type (Summer Literacy Schools)

	GRT version	Initial test	Final test
Mean age standardised score	A/B	83.4	85.1
	X/Y	89.3	89.5
Standard deviation	A/B	12.3	12.5
	X/Y	9.6	10.1

Table A2.6: Mean age standardised scores and standard deviations for initial and final assessments by GRT type for boys (Summer Literacy Schools)

	GRT version	Initial test	Final test
Mean age standardised score	A/B	81.8	82.1
	X/Y	90.3	90.7
Standard deviation	A/B	12.5	11.8
	X/Y	9.8	10.5

Table A2.7: Mean age standardised scores and standard deviations for initial and final assessments by GRT type for girls (Summer Literacy Schools)

	GRT version	Initial test	Final test
Mean age standardised score	A/B	86.1	88.6
	X/Y	88.2	88.0
Standard deviation	A/B	11.5	12.4
	X/Y	9.4	9.3

Table A2.8: Mean difference in age standardised scores between initial and final assessments by GRT type (Summer Literacy Schools)

Difference in GRT scores between initial and final assessments	GRT version	Mean difference	Standard deviation
	A/B	1.7	8.6
	X/Y	0.1	8.1

Table A2.9: Mean differences in age standardised scores between initial and final assessments by sex and GRT type (Summer Literacy Schools)

	GRT version	Mean difference in age standardised score	SD
Boys			
	A/B	1.0	8.7
	X/Y	0.4	8.0
Girls	A/B	2.4	8.6
	X/Y	-0.2	8.2

EVALUATION OF SUMMER LITERACY SCHOOL PROGRAMME 1998
CHILDREN WITH SPECIAL NEEDS

TARGET SETTING IN SPECIAL SCHOOLS
LANGUAGE & LITERACY - leading to READING

EARLY DEVELOPMENT

P1 Pupils are beginning to show sensory awareness in relation to a range of people, objects and materials in everyday contexts. They show reflex responses to sensory stimuli, e.g. startle response.

P2 Pupils perform some actions using trial and error and show reactive responses to familiar people and objects, such as reaching and holding objects, smiling and turning to familiar voices. They make sounds or gestures to express simple needs, wants or feelings in response to their immediate environment, e.g. protesting or requesting, using facial expression to enhance meaning.

P3 Pupils show anticipation in response to familiar people, routines, activities and actions and respond appropriately to them. They explore or manipulate objects or toys. They are able to communicate simple choices, likes and dislikes. They can babble, using different tones and sounds and use some vocalisations and/or gestures to communicate.

EARLY LANG & LIT

P4 Pupils show some awareness that particular stories are linked with particular books, pictures, signs or symbols of sequencing (e.g. the sequence of symbols, pictures, print, pages in a book). They show some control over the marks or symbols that they make in their preferred mode of communication (e.g. generating a symbol from selection on a computer, painting/drawing/making a mark on paper) and are beginning to show an awareness that marks or symbols convey meaning. They select a few words, signs or symbols with which they are particularly familiar.

P5 Pupils can select and recognise print, signs or symbols (written or computer-generated) associated with their own name and familiar spoken words, actions or objects. They derive some meaning from text/symbols/signs presented in a way familiar to them. They show curiosity about content at a simple level - e.g., they may ask basic two word questions. They distinguish between print and pictures in their own work and produce some meaningful print, signs or symbols associated with their own name or familiar spoken words, actions or objects.

P6 Pupils anticipate words, phrases, signs and symbols and recognise when a significant word or symbol or sign is omitted. They show an interest in stories and can link a narrative sequence with the pages of a particular book or a display on a computer screen. They can recognise some familiar letters by shape and/or sound.

P7 Pupils show an interest in the activity of reading, in their preferred mode of communication. They are aware of the conventions of presentation in their preferred mode of communication (e.g. left to right orientation, top to bottom, page following page). They distinguish between print and pictures in texts. They predict words, signs, symbols and phrases in a narrative sequence. They usually recognise most letters of the alphabet by shape and/or sound.

P8 Pupils enjoy books and handle them carefully, understanding how they are organised. They know that words, signs, symbols and pictures carry meaning and that, in English, print is read from left to right and from top to bottom. They begin to associate sounds with patterns in rhymes, with syllables, and with words, signs, symbols and letters. They recognise their own names and some familiar words, signs or symbols. They recognise letters of the alphabet by shape and/or sound.

R

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G

1C Pupils can recognise familiar words, signs or symbols in simple texts. They can establish meaning when reading aloud simple sentences, sometimes with prompting. They express their response to familiar texts by identifying aspects which they like and dislike.

1B Pupils can read a range of familiar words, signs or symbols and show understanding when reading simple texts aloud. They are beginning to use different strategies (e.g. phonics, word shapes, analogies) when reading unfamiliar words, signs or symbols, sometimes independently. They respond to events and ideas in poems, stories and non-fiction.

1A Pupils read familiar texts with meaning. They use at least one strategy independently, and other strategies occasionally, or with prompting, to read unfamiliar words, signs or symbols and establish meaning. They comment on events or ideas in stories, poems and non-fiction.

2C Pupils read a simple unfamiliar text independently and usually use appropriate strategies so that the reading is accurate. They read from word to word, sign to sign, symbol to symbol and may pause to ask for confirmation of meaning. They show understanding of texts, recounting the main events or facts with support and commenting on obvious features of the text, e.g. good/bad characters.

2B Pupils' reading of simple unfamiliar texts is almost entirely accurate and well paced, taking some account of punctuation. When reading unfamiliar words or symbols they use a range of cues and strategies (e.g. phonic or graphic cues) to establish meaning. They show understanding of texts by commenting on features such as plot, setting, characters and how information is presented.

R E A D I N G	**2A** Pupils read simple unfamiliar texts accurately. Their independent reading shows they can read ahead and make use of expression and intonation to enhance meaning. In responding to stories, they identify and comment on the main characters and how they relate to one another. They express opinions about events and actions and comment on some of the ways in which the text is written or presented. **3** Pupils read a range of texts fluently and accurately. They read independently, using strategies appropriately to establish meaning. In responding to fiction and non-fiction they show understanding of the main points and express preferences. They use their knowledge of the alphabet to locate books and find information.

TARGET SETTING IN SPECIAL SCHOOLS

LANGUAGE & LITERACY - leading to WRITING

EARLY DEVELOPMENT

P1 Pupils are beginning to show sensory awareness in relation to a range of people, objects and materials in everyday contexts. They show reflex responses to sensory stimuli, e.g. startle response.

P2 Pupils perform some actions using trial and error and show reactive responses to familiar people and objects, such as reaching and holding objects, smiling and turning to familiar voices. They make sounds or gestures to express simple needs, wants or feelings in response to their immediate environment, e.g. protesting or requesting, using facial expression to enhance meaning.

P3 Pupils show anticipation in response to familiar people, routines, activities and actions and respond appropriately to them. They explore or manipulate objects or toys. They are able to communicate simple choices, likes and dislikes. They can babble, using different tones and sounds and use some vocalisations and/or gestures to communicate.

EARLY LANG & LIT

P4 Pupils show some awareness that particular stories are linked with particular books, pictures, signs or symbols of sequencing (e.g. the sequence of symbols, pictures, print, pages in a book). They show some control over the marks or symbols that they make in their preferred mode of communication (e.g. generating a symbol from a selection on a computer, painting/drawing/making a mark on paper) and are beginning to show an awareness that marks or symbols convey meaning. They select a few words, signs or symbols with which they are particularly familiar.

P5 Pupils can select and recognise print, signs or symbols (written or computer-generated) associated with their own name and familiar spoken words, actions or objects. They derive some meaning from text/symbols/signs presented in a way familiar to them. They show curiosity about content at a simple level - e.g., they may ask basic two word questions. They distinguish between print and pictures in their own work and produce some meaningful print, signs or symbols associated with their own name or familiar spoken words, actions or objects.

W

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P6 Pupils differentiate between letters or symbols. They attempt to communicate meaning by producing words or symbols. They produce some recognisable letters or symbols and show some skills necessary for this, e.g. writing or generating on the computer the first letter of their name.

P7 Pupils produce words and/or letters, keyboard strokes, switches or symbols relating to familiar objects and their own name and have a small repertoire of these words or symbols which they produce as required. They show an awareness of the way in which symbols and words can be sequenced.

P8 In their writing pupils use pictures, symbols, familiar words and letters, to communicate meaning, showing awareness of the different purposes of writing. They write their names with appropriate use of upper and lower case letters or appropriate symbols.

1C Pupils produce recognisable letters and words or symbols to convey meaning. Some commonly used letters are correctly formed but may be inconsistent in their letter shape and orientation. Some of their writing may still need to be mediated to be understood.

1B Pupils structure some phrases and simple statements using recognisable words to communicate ideas. Their writing can generally be understood without mediation. They begin to show an understanding of how full stops are used. Most letters are usually clearly shaped and correctly orientated.

1A Pupils use phrases and simple statements to convey ideas, making some choices of appropriate vocabulary. Letters are clearly shaped and correctly orientated. Pupils make some use of full stops and capital letters.

2C Pupils' writing communicates meaning beyond a simple statement. It shows some characteristics of narrative or non-narrative writing but the form may not be sustained. Individual ideas are developed in short sections. The vocabulary is appropriate to the subject matter, with some words used effectively. Overall, the writing draws more on the characteristics of spoken language than on those of written language. There is some evidence of punctuation conventions being used to demarcate units of meaning. Some common words are spelt correctly and alternatives show a reliance on phonic strategies with some recall of visual patterns. Handwriting is legible despite inconsistencies in orientation, size and use of upper and lower case letters.

2B The writing communicates meaning using a narrative or non-narrative form with some consistency. Sufficient detail is given to engage the reader, and variation is evident in both sentence structure and word choices, which are sometimes ambitious. The organisation reflects the purpose of the writing, with some sentences extended and linked through connectives other than 'and'. There is evidence of some sentence punctuation. In spelling, phonetically plausible attempts reflect growing knowledge of whole word structure, together with an awareness of visual patterns and recall of letter strings.

WRITING

Handwriting is clear, with ascenders and descenders distinguished, and generally upper and lower case letters are not mixed within the word.

2A The writing communicates meaning in a way which is lively and generally holds the reader's interest. Some characteristic features of a chosen form of narrative or non-narrative writing are beginning to be developed. Links between ideas or events are mainly clear and the use of some descriptive phrases adds detail or emphasis. Growing understanding of the use of punctuation is shown in the use of capital letters and full stops to mark correctly structured sentences. Spelling of many monosyllabic words is accurate, with phonetically plausible attempts at longer, polysyllabic words. Handwriting shows accurate and consistent letter formation.

3 Pupils' writing is often organised, imaginative and clear. The main features of different forms of writing are used appropriately and are beginning to be adapted to different readers. Sequences of sentences extend ideas logically and words are chosen for variety and interest. The basic grammatical structure of sentences is usually accurate, including that of common, polysyllabic words. Punctuation to mark sentences - full stops, capital letters and question marks - is used accurately. Handwriting is joined and legible.

LANGUAGE & LITERACY - leading to SPEAKING & LISTENING

EARLY DEVELOPMENT

P1 Pupils are beginning to show sensory awareness in relation to a range of people, objects and materials in everyday contexts. They show reflex responses to sensory stimuli, e.g. startle response.

P2 Pupils perform some actions using trial and error and show reactive responses to familiar people and objects, such as reaching and holding objects, smiling and turning to familiar voices. They make sounds or gestures to express simple needs, wants or feelings in response to their immediate environment, e.g. protesting or requesting, using facial expression to enhance meaning.

P3 Pupils show anticipation in response to familiar people, routines, activities and actions and respond appropriately to them. They explore or manipulate objects or toys. They are able to communicate simple choices, likes and dislikes. They can babble, using different tones and sounds and use some vocalisations and/or gestures to communicate.

SPEAKING AND LISTENING

P4 Pupils communicate by making representational sounds (e.g. 'brmm brmm') including when playing with objects and responding to songs, rhymes and music. They use a range of single words, gestures, signs or symbols for familiar objects and actions. They repeat, copy or imitate words or phrases.

They are able to follow simple one-step instructions and show an understanding of names of familiar objects.

P5 Pupils are able to combine at least two ideas or concepts (e.g. 'more drink'). They can combine two to three words, signs or symbols together to communicate meaning to a range of listeners.

They are beginning to be able to listen and respond to others, responding to simple questions about familiar events or experiences and are able to follow a range of one step messages or instructions.

P6 Pupils use clear words, gestures and/or signs to enhance and clarify communication. They use facial expression and intonation to enhance meanings. They use phrases

They listen and are able to respond to two step messages or instructions. They respond appropriately to others in a small group.

	to communicate simple ideas, events or stories to others. They ask simple questions to obtain information.	
SPEAKING AND LISTENING	**P7** Pupils use phrases and statements to communicate ideas, and to recount events or experiences, sometimes adding new information beyond what is asked. They contribute appropriately one-to-one and in small group situations, including role play.	They listen to and follow stories, messages and instructions. They listen and respond in one-to-one and small group situations, with a minimum of adult support.
	P8 In small and large groups, pupils communicate about their ideas and experiences. They use a growing vocabulary to convey meaning to the listener. They make up their own stories and take part in role play with confidence.	In small and large groups, children listen attentively. They listen and respond to stories, songs, nursery rhymes and poems.

1C Pupils communicate about matters of interest in familiar settings. They understand and respond appropriately to straightforward comments or instructions directed at them. They convey meanings, including some relevant details to a range of others.

1B Pupils communicate clearly about matters of interest to individuals and groups. They follow what others say and respond appropriately to straightforward comments directed at them. They convey meaning, making what they communicate relevant and interesting to the listener.

1A Pupils communicate clearly about matters of interest, taking turns in a range of situations and groups. They follow what others say and usually respond appropriately. They convey meaning, sustaining their contribution and the listeners' interest.

2C Pupils communicate with peers and adults in a range of situations about topics of interest to them. They are aware of the need for different responses depending on the people or situation. They explain their ideas and respond directly to what others have said.

2B Pupils communicate ideas or experiences with increasing detail in a range of situations. They show some adaptation of their responses to suit the needs of the person they are communicating with, choosing appropriate vocabulary. They make a range of contributions in groups.

SPEAKING & LISTENING	**2A** Pupils are confident in communicating their ideas using a growing vocabulary, and responding appropriately to others in a range of situations, particularly where the topics interest them. They show an awareness of the needs of the listener and adapt their communication accordingly, e.g., in formal and informal situations. **3** Pupils talk and listen confidently in different contexts, exploring and communicating ideas. In discussion they show understanding of the main points. Through relevant comments and questions, they show they have listened carefully. They begin to adapt what they say to the needs of the listener, varying the use of vocabulary and the level of detail. They are beginning to be aware of standard English and when it is used.

Table A2.9: Special Educational Needs Pilot
Score distribution for assessment criteria (initial)

	Reading			Writing			Speaking and Listening		
Value	Frequ	Per Cent	Cumul Per Cent	Frequ	Per Cent	Cumul Per Cent	Frequ	Per Cent	Cumul Per Cent
P1	0	0	0	0	0	0	0	0	0
P2	0	0	0	0	0	0	0	0	0
P3	0	0	0	0	0	0	0	0	0
P4	2	1.9	1.9	1	0.9	0.9	1	1.0	1.0
P5	1	0.9	2.8	0	0	0.9	1	1.0	1.9
P6	0	0	2.8	4	3.7	4.7	0	0	1.9
P7	1	0.9	3.7	7	6.5	11.2	6	5.7	7.6
P8	14	13.1	16.8	14	13.1	24.3	1	1.0	8.6
1C	27	25.2	42.1	26	24.3	48.6	37	35.2	43.8
1B	9	8.4	50.5	15	14.0	62.6	14	13.3	57.1
1A	23	21.5	72.0	14	13.1	75.7	12	11.4	68.6
2C	19	17.8	89.7	18	16.8	92.5	15	14.3	82.9
2B	6	5.6	95.3	4	3.7	96.3	6	5.7	88.6
2A	4	3.7	99.1	3	2.8	99.1	9	8.6	97.1
3	1	0.9	100.0	1	0.9	100.0	3	2.9	100.0

n = 107

Table A2.10: Special Educational Needs Pilot
Score distribution for assessment criteria (final)

	Reading			Writing			Speaking and Listening		
Value	Frequ	Per Cent	Cumul Per Cent	Frequ	Per Cent	Cumul Per Cent	Frequ	Per Cent	Cumul Per Cent
P1	0	0	0	0	0	0	0	0	0
P2	0	0	0	0	0	0	0	0	0
P3	0	0	0	0	0	0	0	0	0
P4	0	0	0	0	0	0	0	0	0
P5	2	1.9	1.9	1	0.9	0.9	0	0	0
P6	0	0	1.9	2	1.9	2.8	1	1.0	1.0
P7	1	0.9	2.8	6	5.6	8.4	2	1.9	2.9
P8	10	9.3	12.1	10	9.3	17.8	2	1.9	4.8
1C	17	15.9	28.0	21	19.6	37.4	14	13.3	18.1
1B	17	15.9	43.9	20	18.7	56.1	28	26.7	44.8
1A	19	17.8	61.7	12	11.2	67.3	9	8.6	53.3
2C	13	12.1	73.8	16	15.0	82.2	12	11.4	64.8
2B	13	12.1	86.0	11	10.3	92.5	16	15.2	80.0
2A	11	10.3	96.3	7	6.5	99.1	10	9.5	89.5
3	4	3.7	100.0	1	0.9	100.0	11	10.5	100.0

n = 107

Table A2.11: Initial GRT distribution of standardised scores (Special Educational Needs Pilot)

Score	Frequency	Per Cent	Cumulative Per Cent
69	67	42.4	42.4
71	2	1.3	43.7
72	1	0.6	44.3
73	1	0.6	44.9
75	3	1.9	46.8
76	4	2.5	49.4
77	3	1.9	51.3
78	2	1.3	52.5
80	1	0.6	53.2
81	1	0.6	53.8
82	2	1.3	55.1
83	2	1.3	56.3
84	4	2.5	58.9
85	1	0.6	59.5
87	3	1.9	61.4
88	5	3.2	64.6
89	1	0.6	65.2
90	1	0.6	65.8
91	3	1.9	67.7
92	5	3.2	70.9
93	4	2.5	73.4
94	1	0.6	74.1
95	5	3.2	77.2
96	1	0.6	77.8
97	2	1.3	79.1
98	3	1.9	81.0
99	4	2.5	83.5
100	4	2.5	86.1
101	1	0.6	86.7
102	1	0.6	87.3
103	2	1.3	88.6
104	2	1.3	89.9
105	2	1.3	91.1
106	6	3.8	94.9
109	4	2.5	97.5
110	2	1.3	98.7
111	1	0.6	99.4
115	1	0.6	100

NOTE: All pupils whose ages were above the range of the standardised tables were included as 12.11.

N = 158

Table A2.12: Final GRT distribution of standardised scores (Special Educational Needs Pilot)

Score	Frequency	Per Cent	Cumulative Per Cent
69	62	39.2	39.2
71	2	1.3	40.5
72	2	1.3	41.8
73	3	1.9	43.7
74	2	1.3	44.9
75	5	3.2	48.1
76	1	0.6	48.7
77	1	0.6	49.4
78	2	1.3	50.6
79	2	1.3	51.9
80	3	1.9	53.8
82	5	3.2	57.0
83	2	1.3	58.2
84	3	1.9	60.1
85	6	3.8	63.9
87	2	1.3	65.2
88	2	1.3	66.5
89	3	1.9	68.4
90	1	0.6	69.0
91	4	2.5	71.5
92	6	3.8	75.3
93	2	1.3	76.6
94	4	2.5	79.1
95	4	2.5	81.6
96	4	2.5	84.2
97	1	0.6	84.8
98	2	1.3	86.1
99	2	1.3	87.3
100	1	0.6	88.0
101	6	3.8	91.8
102	2	1.3	93.0
103	3	1.9	94.9
104	1	0.6	95.6
106	2	1.3	96.8
110	3	1.9	98.7
113	1	0.6	99.4
116	1	0.6	100

NOTE: All pupils whose ages were above the range of the standardised tables were included as 12.11.

N = 158

Table A2.13: Distribution of total scores for initial mental arithmetic test (Summer Numeracy Schools)

Score	Frequency	Per Cent	Cumulative Per Cent
0	5	0.4	0.4
1	2	0.2	0.6
2	7	0.6	1.2
3	10	0.9	2.1
4	11	1.0	3.1
5	29	2.6	5.6
6	46	4.1	9.7
7	52	4.6	14.3
8	45	4.0	18.3
9	62	5.5	23.7
10	98	8.6	32.4
11	63	5.6	37.9
12	87	7.7	45.6
13	73	6.4	52.0
14	84	7.4	59.4
15	81	7.1	66.6
16	68	6.0	72.6
17	64	5.6	78.2
18	49	4.3	82.5
19	51	4.5	87.0
20	41	3.6	90.7
21	34	3.0	93.7
22	20	1.8	95.4
23	18	1.6	97.0
24	16	1.4	98.4
25	3	0.3	98.7
26	7	0.6	99.3
27	4	0.4	99.6
28	1	0.1	99.7
29	2	0.2	99.9
30	1	0.1	100.0

Table A2.14: Distribution of total scores for final mental arithmetic test (Summer Numeracy Schools)

Score	Frequency	Per Cent	Cumulative Per Cent
0	2	0.2	0.2
3	3	0.3	0.4
4	6	0.5	1.0
5	11	1.0	1.9
6	16	1.4	3.4
7	12	1.1	4.4
8	33	2.9	7.3
9	37	3.3	10.6
10	41	3.6	14.2
11	48	4.2	18.4
12	47	4.1	22.6
13	60	5.3	27.9
14	53	4.7	32.5
15	54	4.8	37.3
16	80	7.1	44.4
17	79	7.0	51.3
18	61	5.4	56.7
19	79	7.0	63.7
20	53	4.7	68.3
21	65	5.7	74.1
22	65	5.7	79.8
23	52	4.6	84.4
24	44	3.9	88.3
25	40	3.5	91.8
26	31	2.7	94.5
27	24	2.1	96.6
28	15	1.3	98.0
29	16	1.4	99.4
30	7	0.6	100.0

Mental Test used for both the Initial Test and the Final test

The text of the mental test follows.

Now we are ready to start the test. You will have 10 seconds to work out each answer and write it down.

Questions

1. *Twelve take away ten.*
2. *Add eight to seven.*
3. *A box holds ten biscuits. How many biscuits do seven boxes hold?*
4. *Tina has thirty-six pence. Rob gives her ten pence. How much does she have now?*
5. *What is one half of twenty-eight?*
6. *What is the total of twenty-one and nineteen?*
7. *Write in figures the number one thousand and seventy-two.*
8. *What is the total of eight, three, seven and two.*
9. *Sixty-six minus eight.*
10. *Eight times six.*
11. *What is the sum of fifty-eight and nine?*
12. *What number added to forty-four gives sixty-nine?*
13. *Subtract twenty-five from ninety-five.*
14. *Seven multiplied by nine.*
15. *I subtract eight from a number and get twenty-seven. What is the number?*
16. *A piece of string measures eighty-four centimetres. It is cut into four equal lengths. What is the length of each piece?*
17. *Divide forty-nine by seven.*
18. *Write two numbers which have a difference of twelve.*
19. *Write three thousand four hundred and ninety eight to the nearest thousand.*
20. *A T-shirt costs three pounds and ninety-five pence. How much do two T-shirts cost?*
21. *What is twenty-five less than eighty-nine?*
22. *What is four thousand divided by one hundred?*
23. *What is the square root of eighty-one?*
24. *Share ninety-two equally among four.*
25. *What is the remainder when seventy-seven is divided by six?*
26. *Write three quarters as a decimal.*
27. *Multiply forty-eight by three.*
28. *What is eighteen multiplied by twenty-five?*
29. *What is fifteen percent of two hundred?*
30. *What is two cubed?*

Put your pens down. The test is finished.

Table A2.15: Percentage of pupils answering each question correctly

Question Number	Initial test (per cent)	Final test (per cent)
1	96.6	97.4
2	93.3	97.4
3	94.8	95.9
4	95.9	97.4
5	75.9	84.0
6	78.1	85.1
7	75.8	87.1
8	79.9	89.6
9	54.9	69.1
10	46.3	62.8
11	63.7	81.4
12	40.7	53.4
13	40.9	55.6
14	41.5	63.1
15	50.9	60.3
16	42.3	55.6
17	38.2	60.6
18	25.4	43.2
19	29.7	43.9
20	40.4	52.7
21	31.4	45.8
22	16.8	35.9
23	21.0	50.4
24	11.9	25.0
25	13.6	27.4
26	9.0	28.7
27	10.8	22.8
28	1.4	9.7
29	2.8	13.5
30	10.2	31.8

Appendix A3

Technical Appendix on Multilevel Analysis for Summer Schools

LITERACY

Technical Appendix on Multilevel Analysis

Introduction

One of the tools used in the analysis of the 1998 Summer Literacy Schools Project was multilevel modelling, a development of multiple regression analysis in which the fact that data is clustered at different levels of aggregation can be accounted for. This technique is regarded as the 'state of the art' for analysing data of this type.

Data was collected at the start and end of each summer school period. There was no control group. For the multilevel model, the following levels were defined:

- **School:** Pupils attending a given summer school were assumed to have some characteristics in common, not otherwise accounted for.
- **Pupil:** Test scores or other measures for a given pupil were assumed to have a degree of similarity, related to the individual's personal characteristics, such as Reading ability.
- **Time point:** Measurements were made at two time points, 'before' and 'after' the summer school. It is assumed that differences between time points unrelated to other factors correspond to 'noise' in the measurements.

In this technical appendix we shall describe the outcome measures used, the background variables considered, the structures of the models fitted, and the results obtained. A summary of the main findings of the multilevel analysis is also included.

Outcome Measures

The following outcome measures were used in this analysis:

1. Standardised score on the GRT test (different forms of the test were given at the start and end of the period);
2. Reading enjoyment score, based on selected items on the Reading attitude questionnaire;
3. Reading confidence score, also based on Reading attitude items;

4. Reading frequency score, also based on Reading attitude items.

Background variables

Table 1 contains a list of all the variables used in multilevel modelling, including their internal names (used to identify them on later tables), ranges and descriptions. The background variables may be classified as follows:

- **Pupil background variables**, relating to overall scores at both time points;
- **Progress interaction terms,** relating to changes in scores from Time 1 to Time 2.

Types of Models Fitted

For each outcome measure, two different multilevel models were fitted:

1. The 'base case', with no background variables except the changes from Time 1 to Time 2.
2. A model including background variables and interaction terms

Results of Multilevel Analysis

The results of the models run for each of the four outcome measures are given in Tables 2 to 5. In each table, the random variances at each level of the model are given for the 'base case' model and for the one with background variables. Reductions in these random variances show the extent to which the background variables 'explain' the differences between schools, pupils or time points. Each table also shows the coefficient of each background variable, with their standard errors and a 95% confidence interval. An asterisk shows whether or not a coefficient is statistically significant.

In order to show the relative sizes of the relationships between the background variables and the outcome measures, 'effect sizes' have been computed for each. These involve scaling the model coefficients by the standard deviations of the two variables to get a dimensionless quantity (expressed as a percentage) which can be regarded as a measure of the correlation between them when other background variables are taken into account. Plots of these 'effect sizes' are given as Figures 1 to 4 for each outcome measure.

Summary of Results

Looking at the basic factors relating to time points, we find:

- Reading scores rose, but not by a significant amount, overall from Time 1 to Time 2.
- Reading enjoyment, confidence and frequency scores rose significantly from Time 1 to Time 2.

Looking at pupil background factors and their relationships with outcome measures *overall* (i.e. at both time points), we find:

- Girls in this sample tended to have lower GRT test scores than boys overall.
- Pupils with higher scores on the KS2 reading test tended to have higher GRT test scores.
- Pupils with SEN tended to have lower test scores than those without SEN, as did older pupils.
- Pupils who did forms X and Y tended to have higher standardised scores than those who did forms A and B.
- Reading enjoyment was higher for girls and for pupils eligible for free school meals, but lower for SEN pupils.
- Reading confidence was higher for black pupils and those with higher KS2 reading scores, but lower for SEN pupils.
- Pupils with SEN tended to have lower Reading confidence and higher Reading irrelevance scores.
- Reading frequency tended to be higher for girls and Asian pupils, and lower for SEN pupils.

Now looking at background variables associated with progress from Time 1 to Time 2, we find:

- Pupils with SEN and those with higher initial test scores made less progress in test scores than others.
- There were no background factors which were significantly related to changes in attitude scores.

Table 1: Definitions of variables for multilevel modelling

Name	Range		Description
	Min.	Max.	
SCH	101	158	School identifier
PUPIL	1	48	Pupil identifier
TIME	1	2	Time point (before/after)
CONS	1	1	Constant term
SEX	1	2	Sex (1 = male, 2 = female)
BLACK	0	1	1 = black ethnic background
ASIAN	0	1	1 = Asian ethnic background
OTHER	0	1	1 = other non-white ethnic background
FSM	0	2	Free school meals (0 = no, 1 = unknown, 2 = yes)
ENGCOMP	2	5	Stage of English fluency
SEN	0	6	Special Education needs stage
AGE	127	166	Age in completed months
KS2R	1	45	KS2 Reading test score
SEXINT	-0.3	0.3	Interaction: Progress v. sex (girls)
FSMINT	-0.6	0.6	Interaction: Progress v. free school meals
SENINT	-2.7	2.7	Interaction: Progress v. SEN stage
EF3INT	-0.5	0.5	Interaction: Progress v. English fluency level 3
EF4INT	-0.5	0.5	Interaction: Progress v. English fluency level 4
OSCORINT	-20	20	Interaction: Progress v. original score
HRSINT	-14	14	Interaction: Progress v. hrs in summer school
SCORE	69	115	GRT Standardised Score
XY	0	1	Completed forms X & Y
XYINT	-0.4	0.4	Interaction: Progress v. completing forms X & Y
ENJOY	-6	6	Attitude score: Reading enjoyment
CONF	-4	4	Attitude score: Reading confidence
FREQ	0	3	Attitude score: Reading frequency

Table 2: Results of Multilevel Analysis of GRT Reading Test Score (SCORE)

				95% Confidence interval	
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**
Base case					
School variance	16.180	3.866	*	8.603	23.757
Pupil variance	57.580	3.201	*	51.306	63.854
Time variance	33.610	1.381	*	30.903	36.317
Final model					
School variance	21.450	4.709	*	12.220	30.680
Pupil variance	40.640	2.388	*	35.960	45.320
Time variance	28.780	1.183	*	26.461	31.099
Fixed coefficients					
CONS	118.200	8.320	*	101.893	134.507
TIME	0.328	0.221		-0.104	0.761
SEX	-2.535	0.465	*	-3.447	-1.623
BLACK	0.643	1.229		-1.766	3.052
ASIAN	1.517	1.592		-1.603	4.637
OTHER	-1.117	2.028		-5.092	2.858
FSM	-0.203	0.350		-0.890	0.483
ENGCOMP	1.450	0.710	*	0.059	2.841
SEN	-2.117	0.246	*	-2.600	-1.634
AGE	-0.353	0.055	*	-0.460	-0.246
KS2R	0.575	0.065	*	0.446	0.703
XY	6.706	0.887	*	4.968	8.444
SEXINT	-0.834	0.449		-1.715	0.047
FSMINT	-0.082	0.321		-0.711	0.548
SENINT	-0.666	0.225	*	-1.106	-0.225
EF3INT	0.459	0.898		-1.301	2.218
EF4INT	1.080	1.235		-1.341	3.501
OSCORINT	-0.316	0.023	*	-0.362	-0.270
HRSINT	0.012	0.048		-0.081	0.105
XYINT	-0.134	0.705		-1.516	1.247

Table 3: Results of Multilevel Analysis of Reading Enjoyment Score (ENJOY)

				95% Confidence interval	
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**
Base case					
School variance	0.696	0.198	*	0.307	1.085
Pupil variance	5.187	0.282	*	4.634	5.740
Time variance	2.642	0.110	*	2.427	2.857
Final model					
School variance	0.407	0.136	*	0.140	0.674
Pupil variance	4.866	0.264	*	4.348	5.384
Time variance	2.462	0.103	*	2.261	2.663
Fixed coefficients					
CONS	-0.265	2.588		-5.337	4.808
TIME	0.588	0.065	*	0.460	0.716
SEX	1.084	0.154	*	0.783	1.385
BLACK	0.371	0.382		-0.378	1.119
ASIAN	0.639	0.493		-0.327	1.605
OTHER	0.677	0.644		-0.585	1.938
FSM	0.278	0.115	*	0.053	0.502
ENGCOMP	-0.203	0.234		-0.660	0.255
SEN	-0.288	0.074	*	-0.432	-0.143
AGE	0.004	0.017		-0.028	0.037
KS2R	0.029	0.021		-0.012	0.071
SEXINT	-0.182	0.133		-0.443	0.078
FSMINT	0.053	0.095		-0.133	0.240
SENINT	0.021	0.060		-0.097	0.139
EF3INT	0.024	0.283		-0.530	0.578
EF4INT	0.056	0.374		-0.677	0.788
OSCORINT	0.009	0.011		-0.013	0.031
HRSINT	-0.006	0.017		-0.039	0.028

Table 4: Results of Multilevel Analysis of Reading Confidence Score (CONF)

				95% Confidence interval	
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**
Base case					
School variance	0.190	0.063	*	0.066	0.314
Pupil variance	2.081	0.124	*	1.837	2.325
Time variance	1.499	0.062	*	1.377	1.621
Final model					
School variance	0.123	0.049	*	0.027	0.218
Pupil variance	2.007	0.119	*	1.773	2.241
Time variance	1.422	0.059	*	1.306	1.538
Fixed coefficients					
CONS	-2.413	1.686		-5.718	0.892
TIME	0.372	0.050	*	0.274	0.469
SEX	-0.063	0.102		-0.263	0.137
BLACK	0.693	0.249	*	0.204	1.182
ASIAN	0.514	0.322		-0.116	1.144
OTHER	0.494	0.427		-0.344	1.331
FSM	0.040	0.076		-0.109	0.188
ENGCOMP	0.135	0.154		-0.167	0.438
SEN	-0.266	0.049	*	-0.361	-0.170
AGE	0.014	0.011		-0.007	0.035
KS2R	0.044	0.014	*	0.017	0.072
SEXINT	0.033	0.101		-0.165	0.231
FSMINT	-0.042	0.072		-0.184	0.100
SENINT	0.027	0.046		-0.063	0.116
EF3INT	-0.397	0.215		-0.818	0.024
EF4INT	-0.074	0.284		-0.630	0.483
OSCORINT	0.010	0.008		-0.007	0.026
HRSINT	-0.009	0.013		-0.034	0.017

Table 5: Results of Multilevel Analysis of Reading Frequency Score (FREQ)

				95% Confidence interval	
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**
Base case					
School variance	0.041	0.012	*	0.018	0.064
Pupil variance	0.296	0.018	*	0.261	0.332
Time variance	0.221	0.009	*	0.203	0.239
Final model					
School variance	0.027	0.009	*	0.009	0.044
Pupil variance	0.287	0.017	*	0.253	0.320
Time variance	0.204	0.009	*	0.188	0.221
Fixed Coefficients					
CONS	1.557	0.655	*	0.273	2.841
TIME	0.180	0.019	*	0.143	0.217
SEX	0.227	0.039	*	0.151	0.303
BLACK	0.100	0.097		-0.089	0.289
ASIAN	0.306	0.125	*	0.062	0.550
OTHER	-0.064	0.163		-0.383	0.255
FSM	0.049	0.029		-0.008	0.105
ENGCOMP	-0.016	0.059		-0.132	0.100
SEN	-0.049	0.019	*	-0.086	-0.013
AGE	-0.004	0.004		-0.012	0.005
KS2R	0.008	0.005		-0.003	0.019
SEXINT	-0.004	0.038		-0.079	0.071
FSMINT	-0.013	0.027		-0.066	0.041
SENINT	-0.004	0.017		-0.038	0.030
EF3INT	0.048	0.081		-0.112	0.207
EF4INT	-0.025	0.108		-0.236	0.186
OSCORINT	-0.002	0.003		-0.008	0.005
HRSINT	0.009	0.005		-0.001	0.018

Figure 1: Effect Sizes for Background Variables Relative to GRT Reading Test Score (SCORE)

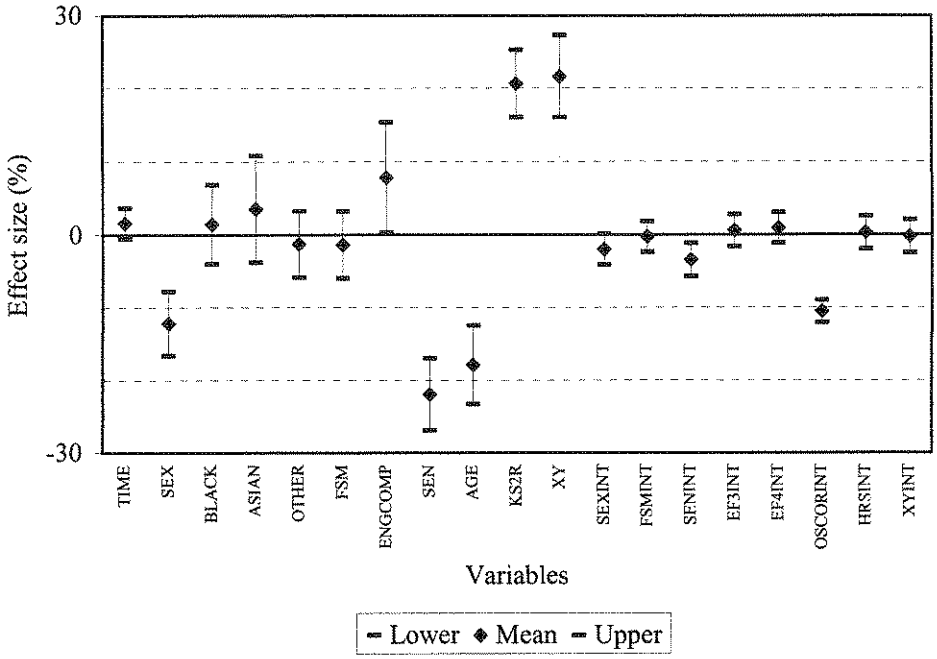


Figure 2: Effect Sizes for Background Variables Relative to Reading Enjoyment Score (ENJOY)

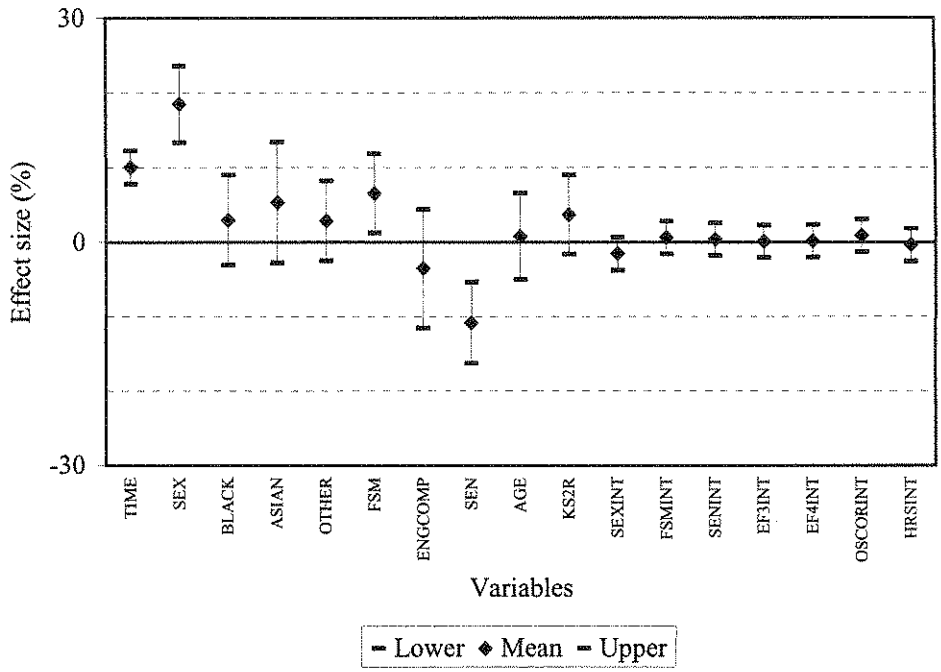


Figure 3: Effect Sizes for Background Variables Relative to Reading Confidence Score (CONF)

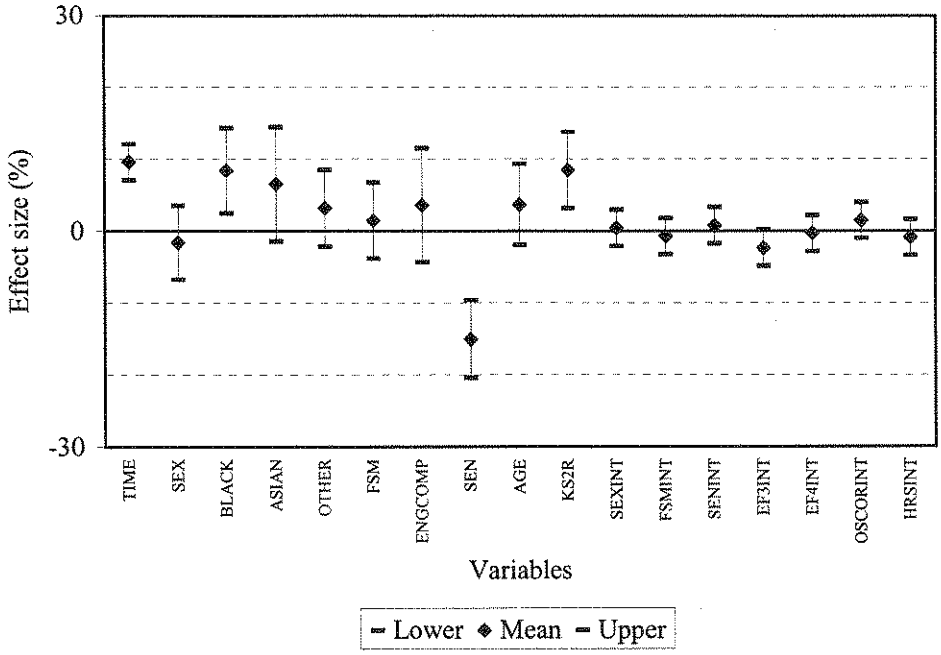
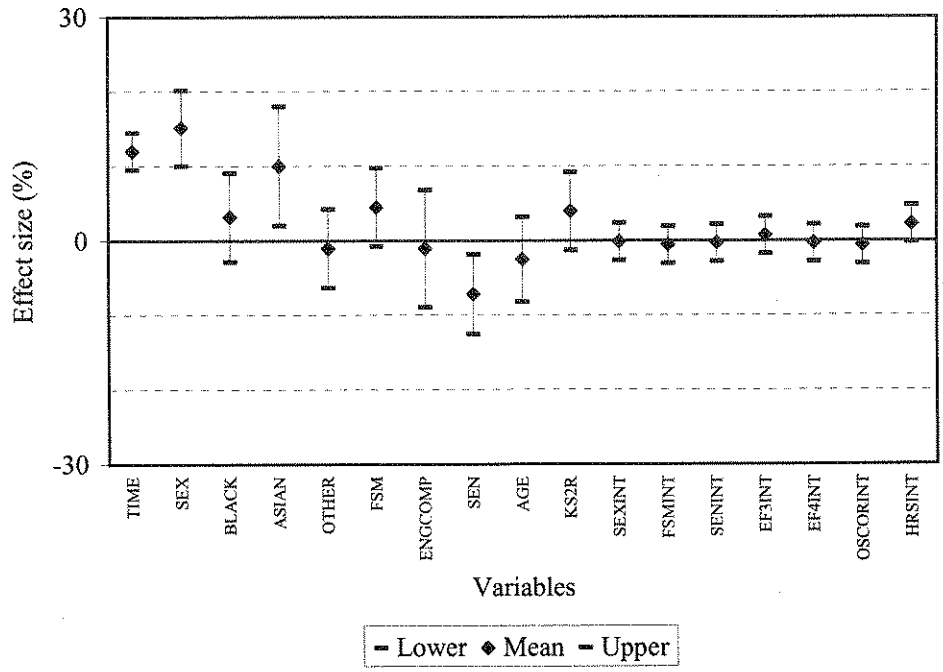


Figure 4: Effect Sizes for Background Variables Relative to Reading Frequency Score (FREQ)



NUMERACY

Technical Appendix on Multilevel Analysis

Introduction

One of the tools used in the analysis of the 1998 Summer Numeracy Schools Project was multilevel modelling, a development of multiple regression analysis in which the fact that data is clustered at different levels of aggregation can be accounted for. This technique is regarded as the 'state of the art' for analysing data of this type.

Data was collected at the start and end of each summer school period. There was no control group. For the multilevel model, the following levels were defined:

- **School:** Pupils attending a given summer school were assumed to have some characteristics in common, not otherwise accounted for.
- **Pupil:** Test scores or other measures for a given pupil were assumed to have a degree of similarity, related to the individual's personal characteristics, such as Mathematics ability.
- **Time point:** Measurements were made at two time points, 'at the beginning' and 'at the end' of the summer school. It is assumed that differences between time points unrelated to other factors correspond to 'noise' in the measurements.

In this technical appendix we shall describe the outcome measures used, the background variables considered, the structures of the models fitted, and the results obtained. A summary of the main findings of the multilevel analysis is also included.

Outcome Measures

The following outcome measures were used in this analysis:

1. Total score on the mental arithmetic test (the same test was given at the start and end of the period);
2. Mathematics enjoyment score, based on selected items on the Mathematics attitude questionnaire;
3. Mathematics confidence score, also based on Mathematics attitude items;
4. Mathematics irrelevance score, also based on Mathematics attitude items.

Background variables

Table 1 contains a list of all the variables used in multilevel modelling, including their internal names (used to identify them on later tables), ranges and descriptions. The background variables may be classified as follows:

- **Pupil background variables**, relating to overall scores at both time points;
- **Progress interaction terms,** relating to changes in scores from Time 1 to Time 2.

Types of Models Fitted

For each outcome measure, two different multilevel models were fitted:

1. The 'base case', with no background variables except the changes from Time 1 to Time 2.
2. A model including background variables and interaction terms.

Results of Multilevel Analysis

The results of the models run for each of the four outcome measures are given in Tables 2 to 5. In each table, the random variances at each level of the model are given for the 'base case' model and for the one with background variables. Reductions in these random variances show the extent to which the background variables 'explain' the differences between schools, pupils or time points. Each table also shows the coefficient of each background variable, with their standard errors and a 95% confidence interval. An asterisk shows whether or not a coefficient is statistically significant.

In order to show the relative sizes of the relationships between the background variables and the outcome measures, 'effect sizes' have been computed for each. These involve scaling the model coefficients by the standard deviations of the two variables to get a dimensionless quantity (expressed as a percentage) which can be regarded as a measure of the correlation between them when other background variables are taken into account. Plots of these 'effect sizes' are given as Figures 1 to 4 for each outcome measure.

Summary of Results

Looking at the basic factors relating to time points, we find:

- Scores in mental arithmetic rose significantly overall from Time 1 to Time 2.

- Mathematics enjoyment and confidence scores rose significantly from Time 1 to Time 2, while scores on Mathematics irrelevance fell significantly over the same period.

Looking at pupil background factors and their relationships with outcome measures *overall* (i.e. at both time points), we find:

- Asian pupils and those with higher scores on the KS2 mental arithmetic test tended to have higher test scores.
- Pupils with SEN tended to have lower test scores than those without SEN.
- Boys tend to have higher Mathematics confidence than girls.
- Mathematics enjoyment and confidence were higher for pupils with higher KS2 mental arithmetic scores, while such pupils tended to have lower Mathematics irrelevance scores.
- Pupils with SEN tended to have lower Mathematics confidence and higher Mathematics irrelevance scores.
- Asian pupils tended to have higher Mathematics confidence scores than white pupils.

Now looking at background variables associated with progress from Time 1 to Time 2, we find:

- Pupils with SEN and those with higher initial test scores made less progress in test scores than others.
- Pupils with more hours of teaching in the summer school tended to make more progress in test scores.
- Pupils with more hours of teaching in the summer school tended to make greater increases in Mathematics enjoyment.

Table 1: Definitions of variables for multilevel modelling

Name	Range		Description
	Min.	Max.	
SCH	1	50	School identifier
PUPIL	1	55	Pupil identifier
TIME	1	2	Time point (before/after)
CONS	1	1	Constant term
SEX	0	2	Sex (1 = male, 2 = female)
BLACK	0	1	1 = black ethnic background
ASIAN	0	1	1 = Asian ethnic background
OTHER	0	1	1 = other non-white ethnic background
FSM	0	2	Free school meals (0 = no, 1 = unknown, 2 = yes)
ENGCOMP	1	5	Stage of English fluency
SEN	0	6	Special Education needs stage
AGE	106	152	Age in completed months
KS2M	0	20	KS2 Mental test score
SEXINT	-0.3	0.3	Interaction: Progress v. sex (girls)
FSMINT	-0.6	0.6	Interaction: Progress v. free school meals
SENINT	-2.7	2.7	Interaction: Progress v. SEN stage
EF3INT	-0.5	0.5	Interaction: Progress v. English fluency level 3
EF4INT	-0.5	0.5	Interaction: Progress v. English fluency level 4
OSCORINT	-8.3	8.3	Interaction: Progress v. original score
HRSINT	-20	20	Interaction: Progress v. hrs in summer school
SCORE	0	30	Mental test score
ENJOY	-8	8	Attitude score: maths enjoyment
CONF	-5	5	Attitude score: maths confidence
IRREL	-3	3	Attitude score: maths irrelevance

Table 2: Results of Multilevel Analysis of Raw Mental Arithmetic Test Score (SCORE)

				95% Confidence interval	
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**
Base case					
School variance	3.636	0.943	*	1.787	5.485
Pupil variance	16.360	1.062	*	14.278	18.442
Time variance	14.580	0.613	*	13.379	15.781
Final model					
School variance	2.907	0.754	*	1.430	4.384
Pupil variance	15.570	0.818	*	13.967	17.173
Time variance	6.384	0.268	*	5.858	6.910
Fixed coefficients					
CONS	3.751	5.082		-6.210	13.712
TIME	3.909	0.106	*	3.701	4.117
SEX	-0.170	0.274		-0.708	0.367
BLACK	-0.002	0.603		-1.183	1.178
ASIAN	1.236	0.626	*	0.009	2.463
OTHER	0.694	0.978		-1.222	2.610
FSM	-0.220	0.168		-0.550	0.110
ENGCOMP	0.210	0.332		-0.440	0.860
SEN	-1.232	0.116	*	-1.459	-1.005
AGE	0.005	0.036		-0.064	0.075
KS2M	0.609	0.055	*	0.502	0.716
SENINT	-0.420	0.093	*	-0.603	-0.238
EF3INT	0.862	0.480		-0.079	1.803
OSCORINT	-0.169	0.021	*	-0.211	-0.127
HRSINT	0.075	0.012	*	0.051	0.099

Table 3: Results of Multilevel Analysis of Mathematics Enjoyment Score (ENJOY)

				95% Confidence interval	
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**
Base case					
School variance	0.993	0.348	*	0.311	1.675
Pupil variance	11.390	0.733	*	9.954	12.826
Time variance	9.775	0.413	*	8.966	10.584
Final model					
School variance	1.013	0.350	*	0.327	1.699
Pupil variance	12.180	0.715	*	10.779	13.581
Time variance	7.842	0.331	*	7.193	8.491
Fixed coefficients					
CONS	5.358	4.696		-3.846	14.562
TIME	1.869	0.118	*	1.637	2.101
SEX	-0.266	0.253		-0.762	0.229
BLACK	0.134	0.537		-0.918	1.186
ASIAN	0.583	0.559		-0.512	1.679
OTHER	-0.133	0.897		-1.891	1.625
FSM	0.044	0.154		-0.258	0.345
ENGCOMP	-0.170	0.303		-0.763	0.423
SEN	0.018	0.106		-0.189	0.226
AGE	-0.039	0.033		-0.103	0.026
KS2M	0.123	0.050	*	0.025	0.221
SEXINT	0.476	0.241	*	0.003	0.948
FSMINT	-0.264	0.144		-0.545	0.018
SENINT	0.053	0.105		-0.153	0.258
EF3INT	-0.848	0.534		-1.894	0.199
EF4INT	0.171	0.448		-0.708	1.049
OSCORINT	-0.051	0.024	*	-0.098	-0.004
HRSINT	0.052	0.014	*	0.025	0.079

Table 4: Results of Multilevel Analysis of Mathematics Confidence Score (CONF)

				95% Confidence interval	
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**
Base case					
School variance	0.308	0.109	*	0.094	0.522
Pupil variance	3.802	0.232	*	3.347	4.257
Time variance	2.783	0.118	*	2.553	3.013
Final model					
School variance	0.266	0.098	*	0.073	0.459
Pupil variance	3.769	0.220	*	3.338	4.200
Time variance	2.371	0.100	*	2.175	2.567
Fixed coefficients					
CONS	-0.985	2.601		-6.083	4.113
TIME	0.893	0.065	*	0.765	1.020
SEX	-0.493	0.140	*	-0.768	-0.219
BLACK	0.557	0.295		-0.020	1.135
ASIAN	0.822	0.307	*	0.220	1.425
OTHER	0.326	0.497		-0.647	1.300
FSM	0.090	0.085		-0.077	0.256
ENGCOMP	0.154	0.167		-0.174	0.481
SEN	-0.160	0.058	*	-0.274	-0.045
AGE	-0.007	0.018		-0.042	0.029
KS2M	0.133	0.028	*	0.079	0.187
SEXINT	-0.004	0.133		-0.264	0.256
FSMINT	-0.121	0.079		-0.276	0.034
SENINT	0.004	0.058		-0.109	0.117
EF3INT	-0.215	0.294		-0.791	0.360
EF4INT	-0.008	0.247		-0.491	0.475
OSCORINT	-0.024	0.013		-0.050	0.001
HRSINT	0.006	0.008		-0.009	0.021

Table 5: Results of Multilevel Analysis of Mathematics Irrelevance Score (IRREL)

				95% Confidence interval	
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**
Base case					
School variance	0.059	0.028	*	0.005	0.113
Pupil variance	1.261	0.078	*	1.109	1.413
Time variance	0.952	0.040	*	0.873	1.031
Final model					
School variance	0.037	0.022		-0.006	0.080
Pupil variance	1.198	0.072	*	1.057	1.339
Time variance	0.826	0.035	*	0.758	0.894
Fixed Coefficients					
CONS	3.510	1.473	*	0.623	6.397
TIME	-0.477	0.038	*	-0.552	-0.402
SEX	-0.060	0.079		-0.215	0.095
BLACK	-0.199	0.160		-0.512	0.114
ASIAN	0.274	0.168		-0.056	0.604
OTHER	-0.179	0.281		-0.729	0.371
FSM	0.089	0.048		-0.004	0.182
ENGCOMP	-0.386	0.094	*	-0.569	-0.202
SEN	0.142	0.033	*	0.078	0.206
AGE	-0.013	0.010		-0.033	0.008
KS2M	-0.053	0.015	*	-0.083	-0.022
SEXINT	-0.150	0.078		-0.303	0.003
FSMINT	-0.008	0.047		-0.099	0.084
SENINT	0.035	0.034		-0.032	0.101
EF3INT	0.130	0.173		-0.210	0.470
EF4INT	0.006	0.146		-0.280	0.291
OSCORINT	0.022	0.008	*	0.007	0.038
HRSINT	0.007	0.004		-0.002	0.016

Figure 1: Effect Sizes for Background Variables Relative to Mental Arithmetic Test Score (SCORE)

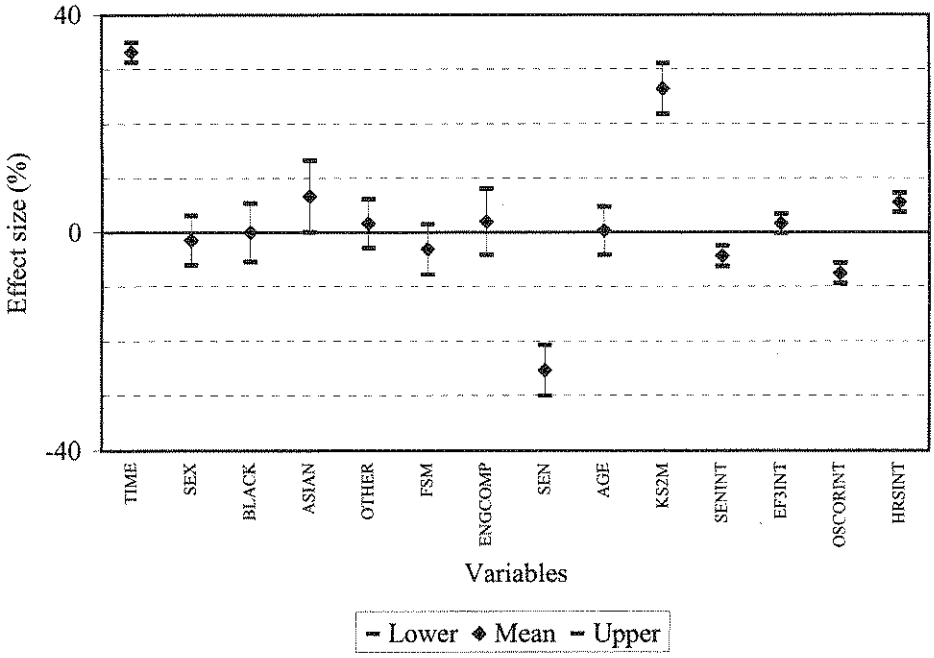


Figure 2: Effect Sizes for Background Variables Relative to Mathematics Enjoyment Score (ENJOY)

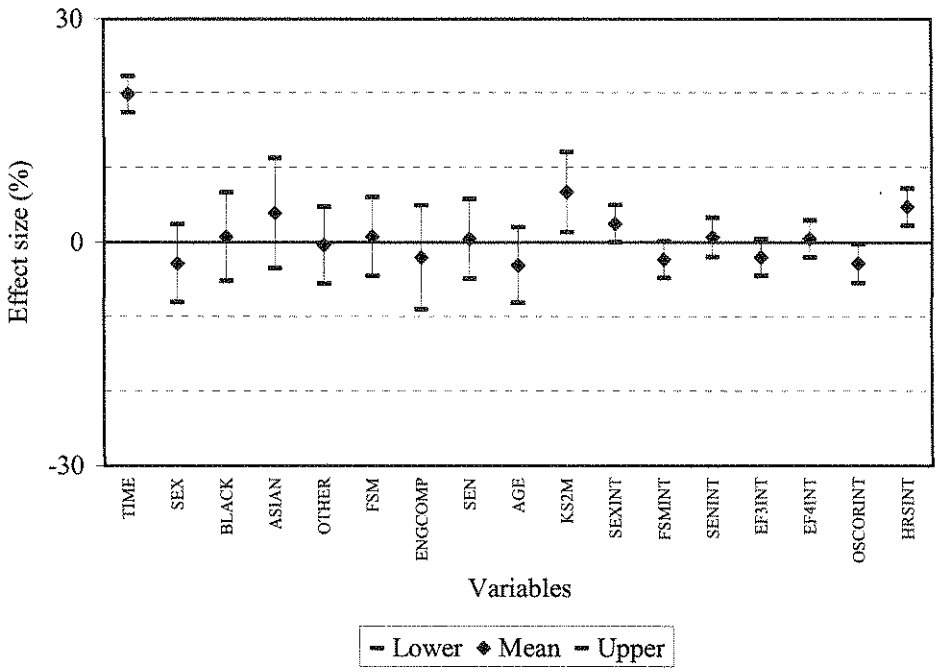


Figure 3: Effect Sizes for Background Variables Relative to Mathematics Confidence Score (CONF)

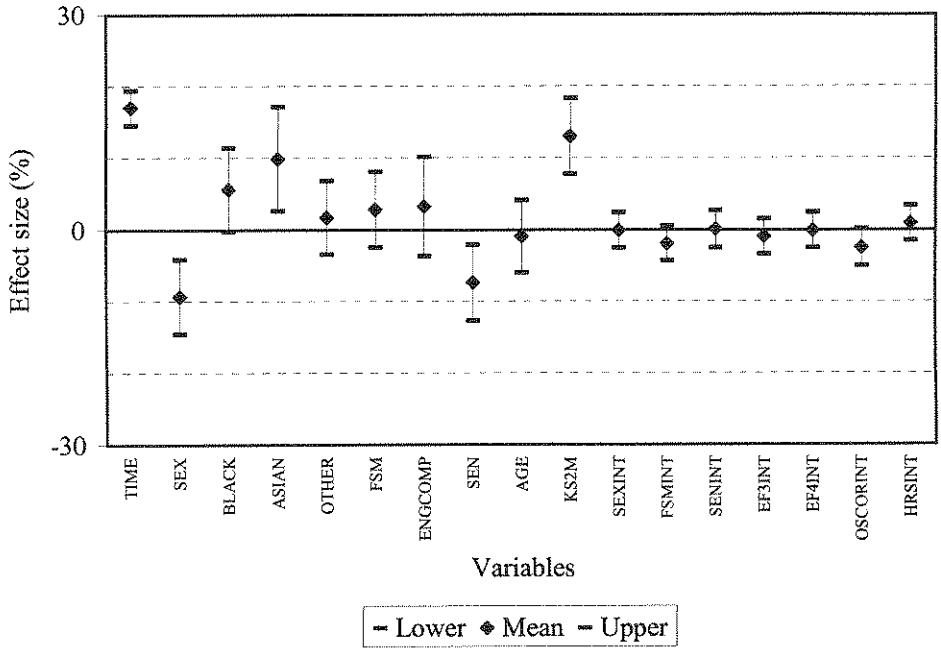
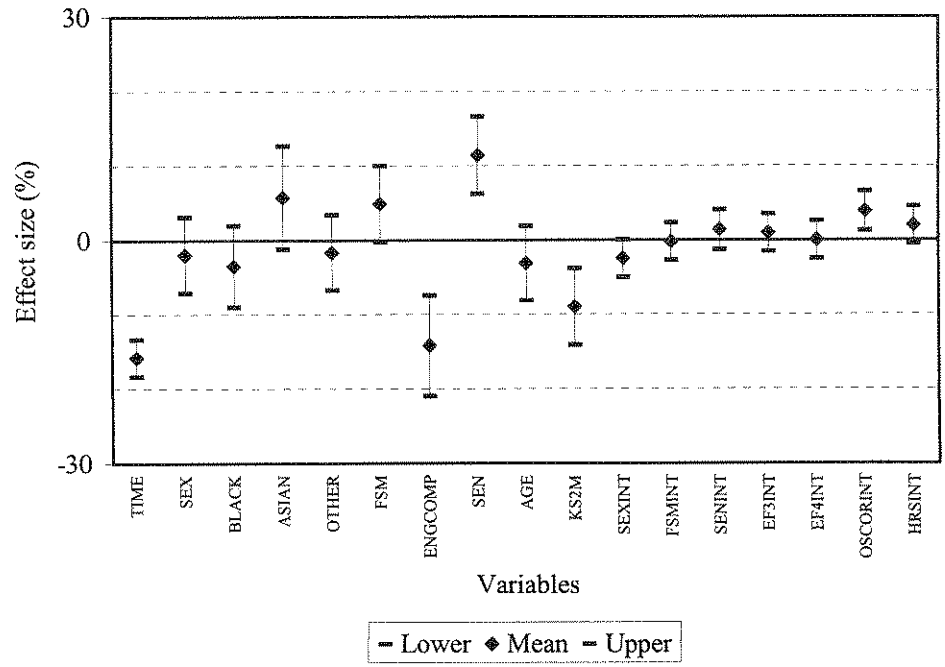


Figure 4: Effect Sizes for Background Variables Relative to Mathematics Irrelevance Score (IRREL)



Appendix A4

Questionnaire Responses

1-5 DPI
6-9 ID

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Summer Literacy Schools Reading Survey

Name: _____

In this booklet, there are some questions to find out what you think about reading. You should answer truthfully, saying what you think about each question. There are no right or wrong answers.

For most of the questions, you answer by ticking a box. Here are some examples.

For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.

Initial Assessment

This copy of the questionnaire is marked up with the percentage responses of 1155 pupils.
Percentages may not sum to 100 due to rounding.

These questions are about reading

For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.

		yes	not sure	no
1.	I like reading stories.	14	21	65
2.	I think reading is hard.	48	36	16
3.	I like reading silently by myself.	13	13	75
4.	I like watching television better than reading books.	20	27	53
5.	When I read a book, I usually finish it.	37	21	42
6.	I think that books are boring.	65	22	13
7.	Nobody in my family reads at home.	57	19	24
8.	I can usually find a book I want to read.	14	15	72
9.	I think I am a good reader.	19	47	34
10.	I only read at school.	75	8	17
11.	If I get stuck on a word I can usually work it out.	9	22	70
12.	We have got lots of books at home.	17	11	72
13.	I like going to the library.	22	23	55

14. How often do you read at home?

please tick one box

every day	most days	not often	never
5	35	48	12
1	2	3	4

15. Which of these do you read at home?
You can tick more than one box.

story books 76	comics 47	magazines 70
newspapers 34	information books 39	poems 39

1-5 DPI
6-9 ID

nfer

Summer Literacy Schools Reading Survey

Name: _____

In this booklet, there are some questions to find out what you think about reading. You should answer truthfully, saying what you think about each question. There are no right or wrong answers.

For most of the questions, you answer by ticking a box. Here are some examples.

For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.

Final Assessment

This copy of the questionnaire is marked up with the percentage responses of 1155 pupils.
Percentages may not sum to 100 due to rounding.

These questions are about reading

For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.

		yes	not sure	no
1.	I like reading stories.	10	19	72
2.	I think reading is hard.	51	37	12
3.	I like reading silently by myself.	14	14	72
4.	I like watching television better than reading books.	24	35	42
5.	When I read a book, I usually finish it.	31	23	46
6.	I think that books are boring.	71	20	9
7.	Nobody in my family reads at home.	60	19	22
8.	I can usually find a book I want to read.	12	15	73
9.	I think I am a good reader.	15	42	44
10.	I only read at school.	81	9	10
11.	If I get stuck on a word I can usually work it out.	5	22	73
12.	We have got lots of books at home.	13	10	77
13.	I like going to the library.	18	23	59

14. How often do you read at home?

please tick one box

every day	most days	not often	never
3	27	51	18
1	2	3	4

15. Which of these do you read at home?
You can tick more than one box.

story books 81	comics 51	magazines 77
newspapers 42	information books 48	poems 47

1-5 DPI
6-9 ID

nfer

Special Education Needs Pilot

Summer Literacy Schools Reading Survey

Name: _____

In this booklet, there are some questions to find out what you think about reading. You should answer truthfully, saying what you think about each question. There are no right or wrong answers.

For most of the questions, you answer by ticking a box. Here are some examples.

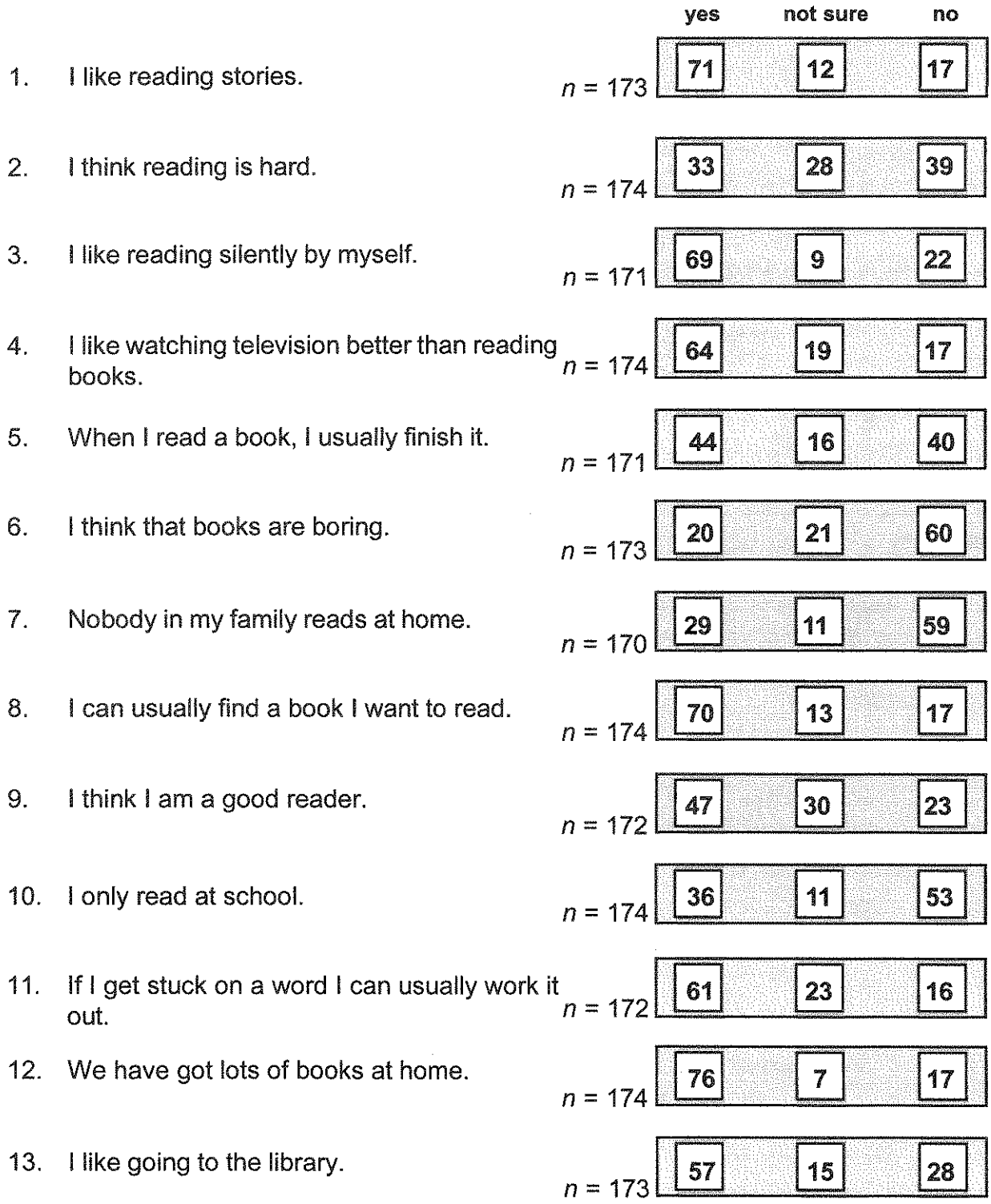
For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.

Initial Questionnaire

This copy of the questionnaire is marked up with the percentage responses of 175 children.
Percentages may not sum to 100 due to rounding.

These questions are about reading

For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.



14. How often do you read at home?

please tick one box

every day	most days	not often	never
19	35	34	9
1	2	3	4
n = 170	19	36	35	9

15. Which of these do you read at home?
You can tick more than one box.

story books	26 129	comics	19 92	magazines	20 97
newspapers	9 46	information books	13 64	poems	12 61

Percentage of responses
n = 175

1-5 DPI
6-9 ID

nfer

Special Educational Needs Pilot

Summer Literacy Schools Reading Survey

Name: _____

In this booklet, there are some questions to find out what you think about reading. You should answer truthfully, saying what you think about each question. There are no right or wrong answers.

For most of the questions, you answer by ticking a box. Here are some examples.

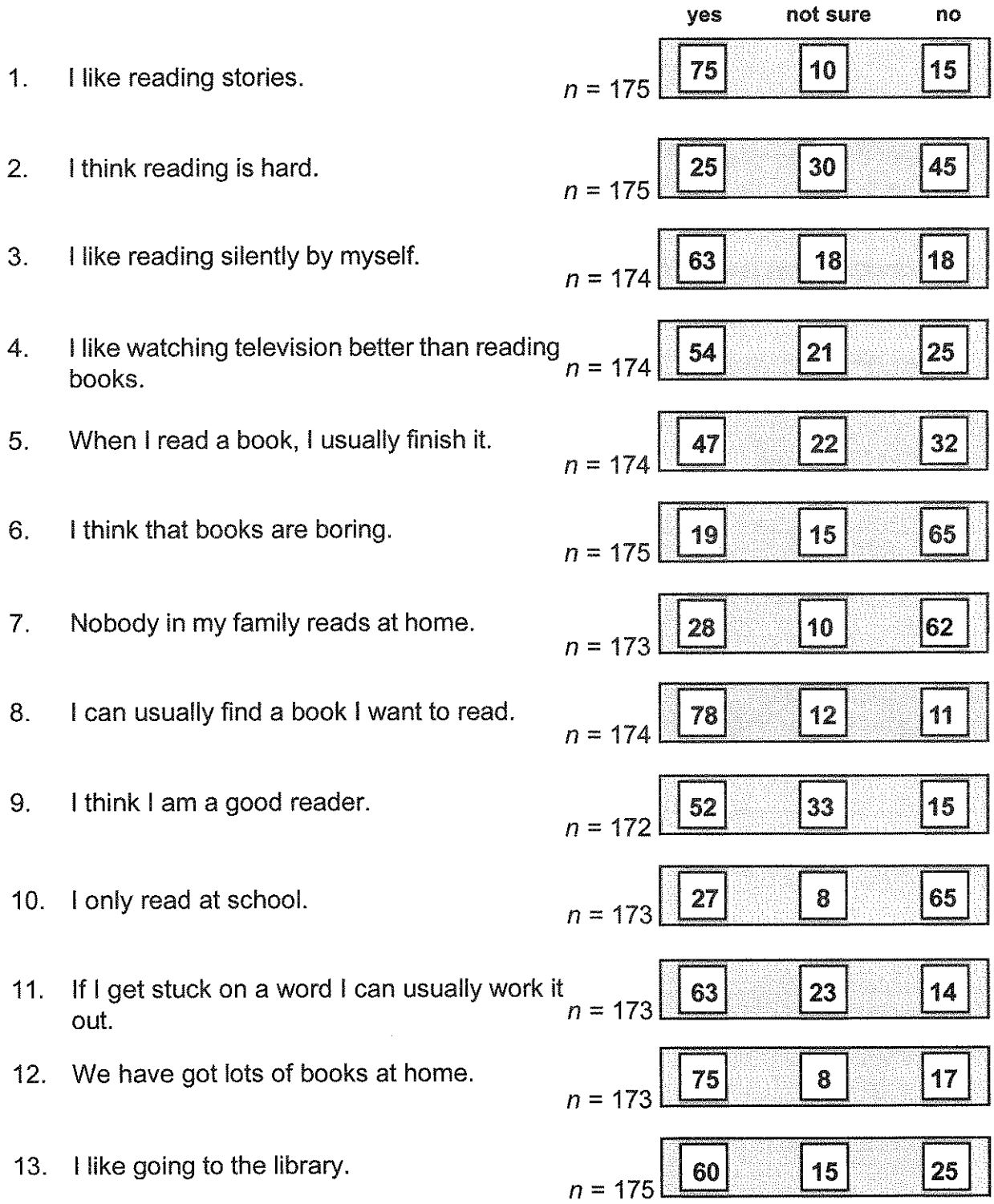
For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.

Final Questionnaire

This copy of the questionnaire is marked up with the percentage responses of 175 children.
Percentages may not sum to 100 due to rounding.

These questions are about reading

For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.



14. How often do you read at home?

please tick one box

every day	most days	not often	never
22	44	25	7
1	2	3	4
n = 171	22	45	26	8

15. Which of these do you read at home?
You can tick more than one box.

story books	25 141	comics	17 96	magazines	21 117
newspapers	11 62	information books	12 66	poems	12 69

Percentage of responses
n = 175

nfer

Summer Numeracy Schools

Name: _____ **Date:** _____

Name of Summer School: _____

Here are some questions to find out what you think about maths.
You should answer truthfully, saying what you think about each question.
There are no right or wrong answers.

Here are some examples.

For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.

		yes	not sure	no
A.	I like swimming.	☐	☐	☐
B.	I think computers are boring.	☐	☐	☐

For each of these questions, tick **yes** if you agree, tick **no** if you disagree, and tick **not sure** if you are not sure.

		yes	not sure	no
1.	I like maths.	51 74	31 18	18 9
2.	I think maths is hard.	26 17	54 48	20 35
3.	It's important to learn maths so that I can get a good job.	92 90	7 8	2 2

Please turn over

		yes	not sure	no
4.	People in my family think maths is hard.	10 9	46 44	44 47
5.	Maths is usually easy for me.	35 43	35 33	30 24
6.	I feel worried when I'm in maths lessons.	33 24	18 19	49 57
7.	I need to do well in maths to please my family.	56 47	19 17	25 35
8.	I think maths is only useful in maths lessons.	18 12	13 8	68 79
9.	I learn things in maths and then I forget them.	41 33	24 26	34 40
10.	I think maths is boring.	15 9	24 15	60 75
11.	I think only clever people can do maths.	11 6	11 8	78 85
12.	I use maths to help me in lots of ways outside school.	74 85	17 9	9 5
13.	I really enjoy maths.	49 63	30 24	21 12
14.	I like most other subjects better than maths.	55 46	21 27	23 27
15.	Someone at home can help me if I get stuck in maths.	90 91	6 5	4 4
16.	I think I am good at maths.	31 46	48 41	21 14

nfer

evaluation of the 1998 summer schools programme
full report

This is the full technical report of the evaluation of the 1998 summer schools programme, conducted by the National Foundation for Educational Research (NFER), under contract to the Department for Education and Employment (DfEE).

In 1998, there were over 500 Summer Literacy Schools, and smaller pilot programmes for Summer Numeracy Schools and for pupils with special educational needs. The report presents an analysis of test results from samples totalling about 2,500 children participating in the three programmes. It also examines the children's attitudes to their studies in literacy or numeracy at the beginning and end of the summer school period. There is an in-depth descriptive analysis of the process of setting and monitoring targets for the summer school pupils.

This report brings up to date the evaluation evidence on the summer schools programme in its second year of operation.

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