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ABSTRACT

A study evaluated a program designed to increase knowledge of vowel sounds and improve phonetic and conventional spelling of children who showed a low level of spelling. Their level was so low that written communication beyond the most rudimentary level was effectively denied them. Subjects, 32 children from 10 participating schools broadly representative of the Standard 4 population in Wellington, New Zealand, were identified through screening test and writing samples. A three-step remedial spelling program was developed. All children selected were given six sessions of 20-30 minutes of individual tutoring over a two- or three-week period. Multiple baseline data, pretests, posttests and a control condition characterize data collection procedures. Measures of spelling achievement were combined to form seven sets of data. Results indicated that (1) participants' knowledge of short vowels and consonants increased significantly; (2) increased knowledge of short vowels did not transfer in a consistently measurable way to spelling in writing; (3) specific knowledge of short vowels and consonants were not related strongly to the other measures; (4) knowledge of short vowels did not predict later performance on the follow-up measures; (5) mean performance on the general spelling test showed some statistically insignificant increases; and (6) correlations between conventional spelling and phonetic spelling increased. (Contains 28 tables of data, writing samples, a description of the spelling program, and a list of measures of specific spelling skills.) (RS)

EVALUATION OF A REMEDIAL SPELLING PROGRAMME FOR THE FAILING STANDARD FOUR SPELLER

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ACKNOWLEDGEMENTS

Craig Jackson's wish to have the Remedial Spelling Programme for Standard Four children evaluated, was the starting point for this study. There was a certain degree of resolution involved in this decision as well, given that an independent review of a programme has the potential to indicate that changes are needed. This has been the case with some of the conclusions of this study.

When questions about educational programmes are at stake it is appropriate that an organization independent of the developers are involved in an evaluation of the programme. With the best will in the world enthusiasts for a particular approach may be unable to take a step back from procedures they trust implicitly. NZCER as an independent research organization is well-placed to undertake programme evaluations as it has the expertise, infrastructure and quality assurance mechanisms to see these projects through to successful completion.

Our sincere thanks are offered to the participating staff of these Wellington schools: Lyall Bay, Miramar North, Miramar Christian, Worser Bay, Karori West, St. Joseph's, Oxford Crescent, Maoribank, Ridgeway and Bellevue. Without their help this project could not have been undertaken. Some of the demands of additional assessment called for by this study were quite taxing.

Our thanks also to Jack Austin, Brian Coffey, Marilyn Sulllivan, Brian Pearl and Michael Sagar of SES for liaison and assistance during the project. Craig's own contribution was of central importance.

We would like to acknowledge too the contribution of Carlene Grigg of NZCER, who undertook much of the data input and was responsible for word processing the final report. The report reflects her skill and commitment to quality.

Finally, interpretation of data is ours alone as are the conclusions we have drawn from this.

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EVALUATION OF A REMEDIAL SPELLING PROGRAMME FOR THE FAILING STANDARD FOUR SPELLER

INTRODUCTION

1. Purpose of Study

The purpose of this study was to evaluate a programme designed to increase knowledge of vowel sounds and thereby improve phonetic and conventional spelling of some Standard 4 children. The programme was developed by Craig Jackson, Senior Psychologist, Wellington Special Education Service.

The children the programme was designed for showed such a low level of spelling that written communication beyond the most rudimentary level was effectively denied them. It had been noted that some `phonetic attempts' to spell were so idiosyncratic, that they failed to communicate clear meaning to most readers. Appendix 1 contains examples of writing from some children who participated in this study.

Mr Jackson's prior experience with severely under-achieving children, and his reading, suggested to him that pronounced confusion about vowels and vowel sounds may be an important precursor of some children's problems with written spelling, so during 1991 he developed the programme which became the focus of this evaluation.

NZCER's Involvement

On a number of occasions during 1991 the first author had been consulted by Craig Jackson on a range of issues to do with evaluating spelling. There was discussion too, on whether the principles for classroom spelling as first set out in Croft (1983), utilized in Croft (1989) and described further in Croft (1991) were equally appropriate for cases of severe under-achievement in written spelling. In Craig Jackson's view, the learners under discussion lacked sufficient basic phonological skills to enable them to benefit from an approach which set spelling within a context of classroom writing. His view was that an alternative approach was required. This should be to teach children short vowel sounds and help them spell in a phonetic way that communicated meaning to the reader.

In view of the lack of New Zealand research, it was decided that an evaluation of the programme would be undertaken in partnership between

NZCER, Wellington Special Education Service (SES) and a selection of schools opting to utilize the programme.

The objectives of the evaluation were agreed to be:

1. To assess the major objectives of the remedial spelling programme (RSP) under discussion.

2. To collect sufficient valid data to enable the programme's major objectives to be assessed in terms of pupils' performance.

3. To indicate the strengths and weaknesses of this programme.

4. To suggest where aspects of the programme might be modified with a view to improving its effectiveness.

5. To report the evaluation in a way that makes the findings accessible to schools and Special Education Service personnel.

The agreed time frame for the evaluation was May to November 1992, with a report in 1993.

The Remedial Spelling Programme (RSP)

The RSP was described by Craig Jackson in notes for tutors as follows:

"There are only three main teaching steps to the programme which is very simple, but effective.

- The first step is to teach sound associations particularly the short regular vowel sounds.

- The second step is to teach the learner to carefully discriminate all the sounds made by a word as it is carefully and slowly enunciated, and then to break a word down into its component syllables. Given mastery of all short regular vowel sounds learners move onto this next step remarkably quickly.

- In the third step the learner is introduced to carefully graded phonetically regular words of one, then two, then three syllables. When the learner can spell phonetically irregular words, irrespective of the number of syllables it contains, they may begin to supply words from their own vocabulary which they require to write stories or any other written assignments, as all words in the English language are either phonemically regular or irregular, and are usually made up of between one, and five syllables."

THE THREE SKILLS PUPILS NEED TO KNOW BEFORE THEY CAN SPELL MORE WORDS IN A PHONETICALLY EFFECTIVE PATTERN ARE THEREFORE:

1 "The learner must know all short regular English vowel sounds; sound-to-vowel and vowel-to-sound.

2 The learner must know how to break any words up into their component syllables and to tackle EVERY syllable in turn phonetically.

3 The learner must remember how to integrate both skills and to apply the strategy independently once adult tutoring and prompting has been withdrawn." From Notes to Tutors.

Objectives of the RSP

The objectives of the RSP were agreed as follows:

1. To improve knowledge of English short vowel sounds.

2. To improve knowledge of English consonant sounds.

3. To decrease the number and proportion of phonetically ineffective misspellings and increase the number and proportion of phonetically effective spellings that do communicate meaning from print.

4. To increase the number and proportion of conventionally spelt words in children's writing, particularly of phonetically regular words which are spelt very much as they sound.

5. To improve performance on standardized tests of written spelling.

6. To increase the effective use of electronic spell-checkers, which assist in the `translation' or phonetic spelling to conventional spelling.

TEACHING STEPS

STAGE ONE

Step 1 TEST the learner's knowledge of known consonants and consonant sounds and unknown consonants and sounds by using a letter identification score sheet. Record the nature of the errors. Repeat for known and unknown consonant blends.

Step 2 TEACH the learner the difference between vowels and consonants if this distinction is unknown.

Step 3 TEACH any unknown consonant sounds, both name-to-sound as well as sound-to-name.

Step 4 TEST the learner's knowledge of vowel names and sounds.

Step 5 TEACH the unknown vowel sounds, both name-to-sound and sound-to-name.

STAGE TWO

Step 1 BEGIN with a phonemically regular one syllable word, then two to three or more, phonemically regular words.

Step 2 ENUNCIATE the word carefully and slowly into its component syllables so that the learner clearly hears all the sounds made by the word.

Step 3 ASK the learner to carefully and distinctly repeat the word to you just as you have pronounced it. If the learner has not articulated the word clearly, or into all its component syllables, ask the learner to repeat the word until it is clearly articulated, and just as the tutor has spoken it.

Step 4 TEACH the learner to identify the number of syllables in any given word.
ASK the learner to draw the equivalent number of boxes on paper.

Step 5 ASK the learner to spell aloud the first syllable of the word. Point out that every syllable must contain at least one vowel.

Step 6 If the learner spells out the wrong vowel in the first syllable, pronounce the syllable as it sounds with the wrong vowel. Then pronounce the whole word with its *incorrect* first syllable. Again pronounce all syllables in the whole word as that word should sound. Continue to do this until the learner names the correct vowel.

Step 7 Only when the learner has nominated the correct vowel should they write the syllable in the first box. This ensures that the learner writes the correctly spelt syllable down first time around without having to rub or cross out incorrect work. In this way, previous errors are eliminated at the oral level of learning.

Step 8 ENUNCIATE in turn the second and third syllables of the word repeating the same steps as for the first syllable of the word. Once the correct vowel has been nominated the learner writes the syllable in the next box. Finally, the word is written down, without boxes, in the usual way.

STAGE THREE

Step 1 ASK the learner to spell simple, phonetically regular, one syllable words, by listening to how the word sounds.

Step 2 USING the word lists provided progress to phonetically regular two syllable words.

Step 3 MOVE on quickly to three or four syllable, phonetically regular words.

Step 4 INTRODUCE phonetically irregular words of two to five syllables.

Step 5 INSTEAD of supplying words to the learner, ask the learner to spell words of any number of syllables or phonemic complexity, that he or she suggests.

Step 6 ASK the learner to dictate a story to you orally. Write down the story as it is dictated, then read the story back to the pupil who then writes it down. The learner should tackle any word that previously they had not been able to spell correctly or would not have used, by spelling that word phonetically.

Step 7 INTRODUCE the electronic dictionary so the child can correct phonetic to conventional spellings of any word."

The full teaching steps that made up the complete RSP are outlined further as Appendix 2.

1. Selection of Participating Pupils

All Standard 4 children in 10 primary schools broadly representative of the Wellington region were administered the Graded Word Spelling Test (Vernon, 1977) and the Proof Reading Tests of Spelling (Croft et al., 1981) as screening tests. Each child also completed a small sample (10 - 20 lines) of independent writing. To facilitate collection and ensure that children were working within roughly similar dimensions, a topic was specified. Children however, were free to interpret this as they chose.

The following guidelines covered the collection of writing samples:

(i) Children asked to write on the topic 'About Myself'.

(ii) In all cases the writing samples were to be at least 10 lines in length if at all possible. It did not matter if they were considerably longer than this. About 20 lines was considered ideal.

(iii) The writing was not to have been corrected or proof-read by anyone other than the child. Teachers were requested not to assist at all with spelling.

(iv) The work was not to have been rewritten as a 'good copy' but children were free to edit their own draft.

(v) Each child was to have access to spelling references (Spell-Write or My Words, dictionary, personal notebook, class dictionary), but at no time was any other person to supply correct spelling.

(vi) No selection of pupils' work was to be made. Samples of writing were to be submitted for all children in participating classes.

With the exception that there was to be no direct help with spelling, normal classroom procedures for written language lessons were to be

followed. Discussion of the topic was acceptable, but vocabulary lists were not to be developed or written on the blackboard.

The sequence for administration during April 1992 was as follows:

(i) Graded Word Spelling Test
(ii) Proof Reading Tests of Spelling
(iii) Writing Sample

The two tests were administered in one session and the writing sample was obtained the following day. The choice of children for tutoring later in the project was based on the following criteria:

Graded Word Spelling Test

Spelling Age	< 7.5 year
Deviation Quotient	< 80

Proof Reading Tests of Spelling

Percentile Rank for Production	< PR 15
Percentile Rank for Recognition	< PR 20

Written Language Sample

The sample of writing was to demonstrate severe and pronounced difficulties with spelling, to the extent that communication with the reader was almost totally dependent on the skill of the reader to decode the writer's message. Estimates made of the quality of spelling in each sample of writing were later verified by each classroom teacher.

In the event that more than three children within a classroom met all criteria for tutoring, the lowest-achieving children were selected. Children in advance of the criteria outlined above were not included.

The criteria for inclusion indicate that all participating children were showing major achievement difficulties on standardized tests of spelling and in their own writing. By virtue of the nature of children chosen, it was clear from the outset that the RSP would receive a vigorous testing.

Although a purposeful decision was taken not to assess children's reading levels or general mental ability for purposes of deciding who would be tutored and who would not, there was one condition not necessarily reflecting spelling accomplishment. This was a restriction on second language learners who had not been in the New Zealand school system for at least three years.

The RSP had been designed to assist children failing with written English spelling. Our reasoning was that it would be problematic to judge the spelling status of second language learners who had not been given sufficient opportunity to begin mastering English spelling, or had insufficient grounding in English as their second language.

2. Further Assessment of Participating Pupils

The 32 children from the 10 participating schools finally chosen on the basis of the screening procedures were administered further pre-test measures early in May. These tests were designed to focus more closely on the outcomes of the programme. These measures, which are included as Appendix 3, were:

(i) 'Stick' test - a dictated word test covering 44 major phonemic elements of English.

(ii) Knowledge of short and long vowels.

(iii) Knowledge of consonants.

(iv) Test of regular words.

(v) Test of regular nonsense syllables.

These tests were administered to each participant on a pre-test/posttest basis. At the conclusion of the 'treatment' phase, the initial screening tests were to be re-administered, and a second writing sample collected under similar conditions as for the first.

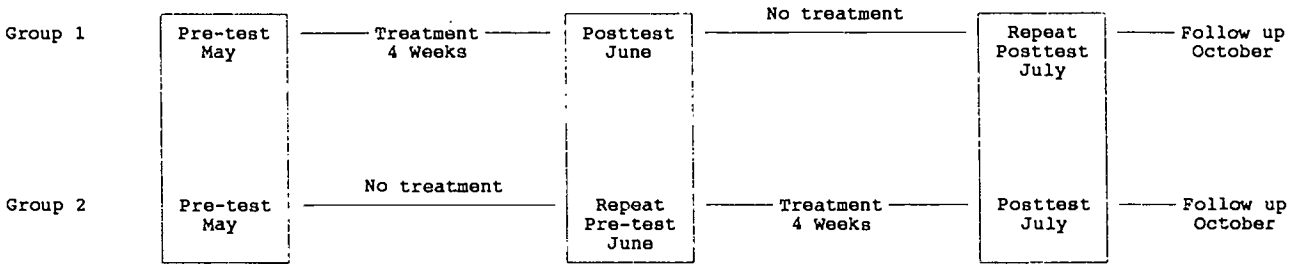
There was provision also to re-administer the pre-tests to one group prior to the treatment phase, so some 'control' group data could be

incorporated.

3. Overall Design

The overall design of the study incorporated multiple baseline data with pre-tests, posttests and a `control' condition. Schools were randomly assigned to one of two groups, and all participating children from that school followed the appropriate sequence as outlined below.

Schematic Representation



The Pre-test measures consisted of the 5 tests of specific spelling skills administered in May, as outlined in Appendix 1, plus scores from the 3 original screening tests. The 3 screening tests were not readministered in May.

The post-test measures were the three screening tests of general spelling competency, plus the five tests of specific spelling skills. The repeat pre-tests and the repeat post-tests were to consist of a re-administration of the 8 measures making up the original pre-tests or post-tests. The repeat pre-test for Group 2 were administered in late May, as indicated in the diagram above, but the repeat post-tests planned for Group 1 in August were not administered. This decision was taken in order to reduce the fairly heavy burden of testing placed on the participating students. As a result of this decision, the `control' condition existed only for Group 2 during May, while Group 1 members were undertaking the programme. Any conclusions about the direct effect of the programme on the skills in question, will be based on the outcomes for the `treatment' and `control' groups during May only.

The follow-up testing in October was designed to measure slightly longer-term outcomes. The timing meant that the groups had at least 3 months between their post-test following 'treatment', and about 6 months from the initial screening tests to the longer-term follow-up in October. The October follow-up involved repeat administration of the standardized tests, plus a third sample of writing. The time lapse to the October testing was not all that substantial, but as most participating children were due to move from primary to intermediate schools in 1993, this was the best interval that could be managed with any certainty. No 'control' condition existed for comparisons between screening tests in April and the follow-up in October.

4. Tutoring

All children selected were given six sessions of between twenty and thirty minutes individual tutoring, over a two or three week period. Depending on an individual's rate of progress tutoring amounted to a maximum of about 180 minutes.

This was a relatively short period of instruction, and even when the time for testing and writing samples is included, no more than six hours was spent with each child. The short period of intervention also contributes to the fairly stringent evaluation the RSP has been given.

Records were maintained by the tutors of the stages each subject had reached by the end of a tutoring session. Pupils' work sheets were also collected and appended to the tutor's records. Three members of the SES and staff from some participating schools gave their services as tutors. Training was by way of a manual for the RSP, observation of an experienced tutor working for one session with a student, and subsequent discussion.

5. Analysis

Group 1 Pre-test to Posttest (May-June) measured effects of programme;
Posttest to Posttest (June-August) second control effects (this component of the design was not continued with);
Follow-up in October, against April testing, indicated longer term effects.

Group 2 Pre-test to Repeat Pre-test (May-June) first control effects; Repeat Pre-test to Posttest (June-August) measured treatment effects of programme; follow-up in October, against April testing, indicated longer term effects.

6. Data From Study

The measures of spelling achievement were combined to form seven sets of data. Each set was analyzed separately and results are reported later. These data sets were:

(i) Measures of general spelling skills
Tables 1-6

(ii) Measures of specific spelling skills
Tables 7-10

(iii) Measures of spelling in writing samples
Tables 11-16

(iv) Measures of conventional and phonetic spelling
Tables 17-20

(v) Spelling mistakes taken from stories before tutoring and administered as dictated test after tutoring

(vi) Output from Franklin Spellmaster
Table 21

(vii) Contribution to spelling performance of knowledge of short vowel sounds
Tables 22-27.

(i) General Spelling Skills

These data come from the Graded Word Spelling Test and the Proof Reading Tests of Spelling as indicated earlier. The Burt Spelling Test was also administered to the 32 participants. This was utilized for measures of phonetic and conventional spelling. Tests were administered and marked as per the instructions in the respective manuals and the raw scores taken as the indication of performance. Typically, means and standard deviations were calculated, and Student `t' values plotted where measures of statistical significance were required. As these were standardised tests, their characteristics in terms of validity and reliability were known.

(ii) Specific Spelling Skills

Four of the five tests of specific skills were constructed for this study by Cedric Croft and Craig Jackson, and purport to be direct measures of some RSP objectives. The fifth, the `Stick' test was taken from Hildreth (1955) p. 277. This test is a measure of the 46 phonetic elements which occur most frequently in common words. Means, standard deviations and `t' values were calculated from raw scores as required. These five tests are in Appendix 3.

(iii) Spelling in Writing Samples

Each participant in the study completed 3 samples of writing on a set topic. These topics were:

(1) About Myself
(2) A Day at School
(3) What I Did at Labour Weekend

Counts were made of the number of words written, the number of words spelt incorrectly for their context, the percentage of mistakes for words written.

In addition, the Franklin Spellmaster was used as another measure of spelling. With the Franklin, each spelling mistake was entered exactly as it was written and a count was made of the number of mistakes that were 'recognised', in the opinion of the story marker, as the actual word the writer intended to use. In other words, the Franklin was functioning as a measure of each writer's phonetic spelling. The percentage of mistakes 'recognised' by the Franklin was calculated also.

One virtue of using the Franklin was that it provided an objective and reliable measure of each writer's attempts at both phonetic and conventional forms of spelling. Several important difficulties arose with the Franklin as a measure of phonetic spelling, and these are covered in the Discussion section later in this report.

iv Conventional and Phonetic Spelling

As an improvement in phonetic approximations of conventional spelling was one of the objectives of the programme, a measure of phonetic spelling on a pre-test post-test basis was taken from responses to the Burt Spelling Test. For this data, the test was first scored according to the test's directions, and the words correct were summed to give a Conventional Score. Words marked wrong were re-assessed by three judges, who tried independently to decide what word the incorrect spelling actually represented. Providing two of the three judges could recognise the correct intended word, it was included in the Phonetic Score. Judges were asked to apply the dual criteria that the attempted spelling mapped the major sounds of the intended word and that the particular spelling form used was clearly interpreted as representing the intended word.

Some difficulties arose with this procedure, not the least being that the judge's decisions were probably aided by the fact that the Burt Spelling Test provided a set list of 90 words, thereby narrowing the possible interpretations of what on the surface, looked like quite bizarre spelling. This point is also taken up in the Discussion.

v Analysis of spelling mistakes taken from stories before tutoring and administered as dictated test after tutoring

For 21 of the 32 participating students, the actual spelling mistakes from the first sample of writing (About Myself) were isolated, and these words were administered to each participant as an individual dictated test, immediately after the programme was completed. In effect, this became part of post-testing procedures.

It was hoped that these data would provide a direct measure of changes to the spelling of words individuals used in their writing. As will be mentioned in the Discussion section, interpretation of this data proved difficult, particularly in terms of how it might be generalized to other writing and spelling tasks. In addition, subsequent analysis showed that some of the words tested had been covered during tutoring.

vi Summary of Output from Franklin Spellmaster

The Franklin Spellmaster (QE103A) was used to provide one measure of spelling within the context of writing, but direct measures were also made of the number of arrays taken to display the correct form of the word intended, and the number of attempted spellings the Franklin could not identify.

Data used to assess the effectiveness of the Franklin were generated from the 116 mistakes made by the 21 participating students in their first sample of writing, and subsequently retested after tutoring. The spelling mistakes as written by these 21 participants which could not be recognised by the Franklin, are listed. Problems with the Franklin itself, and with the interpretation of data coming from this source, are covered in the Discussion.

vii The Contribution to Spelling of Knowledge of Short Vowel Sounds

One important question to arise was how important is knowledge of short vowels to spelling anyway? As mastery of short vowel sounds and names provided an important focus of the RSP, data on performance on

the Vowels test were correlated with specific spelling measures, as well as the three standardized tests incorporated in the study. In addition, multiple regression analyses were undertaken between pre-test and post-test performance on the Vowels test, in relation to performance on the October follow-up tests. Knowledge of short vowel sounds was also correlated with measures of phonetic spelling. Relationships between knowledge of vowel sounds and other measures is covered in the Discussion section.

RESULTS

Results from this investigation are presented in seven sections as indicated on p. 12.

1. Measures of General Spelling Skills

Table 1

Pre-Tests Prior to Tutoring for Total Group, Group 1 and Group 2

Tests		Total Group N=32	Group 1 N=16	Group 2 N=16	Significance (Two Tail)
Graded Test	M	19.62	17.50	21.75	t=⁺1.54 p=0.20
	SD	7.74	8.93	5.88	
PRETOS					
Production	M	12.13	10.25	14.00	t=⁺1.25 p=0.50
	SD	8.28	8.71	7.63	
Recognition	M	18.69	13.50	19.87	t=⁺1.93 p=0.10
	SD	9.46	9.58	8.46	
Burt Spelling	M	20.87	19.62	22.12	t=⁺0.84 p=0.50
	SD	8.08	9.05	7.05	

Table 1 reports mean scores on three tests of general spelling competence for the Total Group, Group 1 and Group 2, prior to tutoring. These data are about achievement before tutoring.

Group 2 has slightly higher mean scores on each test than have Group 1. Standard deviations for Group 1 are greater than for Group 2, indicating more variation in scores of children comprising Group 1. No differences have reached statistical significance indicating that the groups have achieved comparable results on these measures prior to tutoring. Assigning schools instead of individuals to either Group 1 or Group 2 appears not to have created experimental bias.

Table 2

Pre-Tests Prior to Tutoring and Post Tests After Tutoring for Group 1

Tests		Pre-Test	Post Test	Difference	Significance
Graded Test	M	17.50	18.94	+ 1.44	t=+1.44 p=0.10
	SD	8.93	7.67		
PRETOS					
Production	M	10.25	6.73	- 3.52	t=-1.33 p=0.10
	SD	8.71	4.85		
Recognition	M	13.50	10.87	- 2.63	t=-0.89 p=0.25
	SD	9.58	5.69		
Burt Spelling	M	19.62	20.44	+ 0.82	t=+0.24 p>0.40
	SD	9.05	9.61		

Table 2 shows mean scores on the measures of general spelling competence for pre-tests prior to tutoring and post-tests after tutoring, for Group 1. This is the first measure of the effectiveness of the RSP as measured in terms of the participants' performance.

The Graded Test and the Burt Test means increase slightly from pre-test to post-test. The two mean scores from the PRETOS have declined. In all instances except one the standard deviations have declined indicating less variation in scores following tutoring. Together with the slightly increased means this probably indicates some improvement by those at the bottom of the distribution. No differences in means are statistically significant, suggesting no growth beyond chance levels in the skills tested following tutoring.

Table 3

Pre-Tests Prior to Tutoring and Repeat Pre-Tests Prior to Tutoring for Group 2

Tests		Pre-Tests	Repeat Pre-Tests	Difference	Significance
Graded Test	M	21.75	22.44	+ 0.69	t=+0.31 p=0.40
	SD	5.88	6.48		
PRETOS					
Production	M	14.00	13.13	- 0.87	t=-0.36 p=0.40
	SD	7.63	5.57		
Recognition	M	19.87	17.50	- 2.37	t=-0.88 p=0.25
	SD	8.46	6.08		
Burt Spelling	M	22.12	21.23	- 0.89	t=+0.22 p>0.40
	SD	7.05	7.81		

Table 3 presents mean scores on the three measures of general spelling competence for pre-tests prior to tutoring and the repeat pre-tests prior to tutoring, for Group 2. This data represents the 'control' condition.

The repeat pre-test means fluctuate a little for all three tests but without being consistently up or down. There is some fluctuation also in standard deviations, but nothing is consistent. No differences between pre-test means and post-test means are statistically significant, indicating no change beyond chance fluctuation.

Table 4

Pre-Tests Prior to Tutoring and Post Tests After Tutoring for Group 2

Tests		Pre-Tests	Post Tests	Difference	Significance
Graded Test	M	21.75	23.00	+ 1.25	t=+0.53 p=0.40
	SD	5.88	7.00		
PRETOS					
Production	M	14.00	13.25	- 0.75	t=-0.25 p>0.40
	SD	7.63	8.47		
Recognition	M	19.87	15.44	- 4.43	t=-1.41 p=0.10
	SD	8.46	8.79		
Burt Spelling	M	22.12	24.31	+ 2.19	t=+0.72 p=0.25
	SD	7.05	9.40		

Table 4 contains data parallel to Table 2 but this time for Group 2. This then becomes another measure of the effectiveness of the RSP.

Mean scores have increased from pre-test to post-test for both the Graded test and the Burt test. The PRETOS production and recognition means are lower on the post-tests than for the pre-tests, duplicating the effect for Group 1. Standard deviations have increased between the two testings for all three measures, suggesting increased variation in scores. No differences in means are statistically significant indicating for a second time, no measurable influence of tutoring on results from the three tests used.

Table 5

Pre-Tests Prior to Tutoring and October Follow-Up - Group 1

Tests		Pre-Tests	Follow-Up	Difference	Significance
Graded Test	M	17.50	20.37	+ 2.87	t=+0.87 p=0.25
	SD	8.93	9.12		
PRETOS					
Production	M	10.25	10.63	+ 0.38	t=+0.13 p>0.40
	SD	8.71	7.61		
Recognition	M	13.50	15.31	+ 1.81	t=+0.58 p=0.40
	SD	9.58	7.39		

Table 5 has the means for the Graded Test and the PRETOS for the pre-tests prior to tutoring and the October follow-up for Group 1. The Burt Test was not administered in October.

Means for PRETOS production and recognition and for the Graded Test are greater at the October follow-up than at the pre-test stage. The October means are also greater than are the post-test means from June. However, differences between the pre-test, post-test and October means remain non-significant. The increase between the June post-test and the October test will be commented on later. As has been noted previously, there was variation in the standard deviations but this has not been consistent.

Table 6

Pre-Tests Prior to Tutoring and October Follow-Up - Group 2

Tests		Pre-Tests	Follow-Up	Difference	Significance
Graded Test	M	21.75	24.47	+ 2.72	t=+1.09 p=0.25
SD		5.88	7.49		
PRETOS					
Production	M	14.00	16.47	+ 2.47	t=+0.89 p=0.25
SD		7.63	7.89		
Recognition	M	19.87	20.00	- 0.13	t=+0.05 p>0.40
SD		8.46	7.32		

Table 6 also compares the mean results on the measures of general spelling competence from the pre-tests prior to tutoring to the October follow-up, but this time for Group 2.

Means for the PRETOS and the Graded Test are higher at the October follow-up than at the pre-test stage. Again, the October means are greater than were the post-test means from August, indicating some improvement in performance between the post-test and the follow-up measures. Again, however, no difference reached statistical significance.

Summary of Measures of General Spelling Skills

- No significant improvement after tutoring.
- Little change without tutoring.
- Fluctuations in variability, with ranges tending to narrow.
- Some increases continue after tutoring and during `follow-up' period, but not significant.
- Initial decline in PRETOS scores but increases recorded in `follow-up' period.

2. Measures of Specific Spelling Skills

Table 7

Pre-Tests Prior to Tutoring for Total Group, Group 1 and Group 2

Tests		Total Group N=32	Group 1 N=16	Group 2 N=16	Significance (Two Tail)
Stick	M	11.72	10.88	12.56	t=+1.33 p=0.20
	SD	3.50	3.24	3.65	
Vowels	M	4.50	4.12	4.87	t=+0.97 p=0.50
	SD	2.11	1.93	2.28	
Consonants	M	36.25	36.25	36.25	t=0.0 p>0.80
	SD	5.00	4.25	5.80	
Regular Words	M	8.00	7.37	8.63	t=+1.05 p=0.50
	SD	3.28	3.93	2.45	
Regular Syllables	M	4.97	5.06	4.87	t=-0.17 p>0.80
	SD	3.08	3.40	2.85	

Table 7 presents a comparison of the two groups' means on five pre-test measures of specific spelling skills, prior to tutoring.

Group 2 has slightly higher means than Group 1 on the Stick, Vowel, and Regular Word tests. Both treatment groups have identical means on Consonants. Group 2 generally has a greater standard deviation than Group 1, indicating a wider range of scores for this group. No differences between mean scores are statistically significant, indicating that the two groups were equivalent on these measures prior to tutoring.

Table 8

Pre-Tests Prior to Tutoring and Post Tests After Tutoring for Group 1

Tests		Pre-Tests	Post Tests	Difference	Significance
Stick	M	10.88	12.13	+ 1.25	t=+1.11 p=0.25
	SD	3.24	2.94		
Vowels	M	4.12	9.00	+ 4.88	t=+8.08 p=0.001*
	SD	1.93	1.32		
Consonants	M	36.25	39.94	+ 3.69	t=+3.14 p=0.005*
	SD	4.25	1.61		
Regular Words	M	7.37	8.94	+ 1.57	t=+1.16 p=0.25
	SD	3.93	3.45		
Regular Syllables	M	5.06	6.37	+ 1.31	t=+1.09 p=0.25
	SD	3.40	3.20		

Table 8 compares mean results on the five measures of specific spelling skills before and after tutoring for Group 1.

Mean performance has improved on all post-tests compared with pre-tests. Results are statistically significant for Vowels and Consonants. There is 1 chance in 1000 that Vowels represent a random result and 1 chance in 200 that Consonants represent a chance variation. Standard deviations have decreased for post-tests, indicating a lessening of variability, probably because of generally improving performance from the lower scoring children, and some tendency for better-achieving children to achieve towards the 'ceiling' of these tests.

Table 9

Pre-Tests Prior to Tutoring and Repeat Pre-Test Prior to Tutoring for Group 2

Tests		Pre-Tests	Repeat Pre-Tests	Difference	Significance
Stick	M	12.56	12.81	+ 0.25	t=+0.19 p>0.40
	SD	3.65	3.41		
Vowels	M	4.87	5.75	+ 0.88	t=+1.16 p=0.25
	SD	2.28	1.84		
Consonants	M	36.25	37.00	+ 0.75	t=+0.35 p=0.40
	SD	5.80	5.98		
Regular Words	M	8.63	10.13	+ 1.50	t=+1.28 p=0.25
	SD	2.45	3.84		
Regular Syllables	M	4.87	6.06	+ 1.19	t=+1.09 p=0.25
	SD	2.85	3.13		

Table 9 contains mean scores on the measures of specific spelling skills for the pre-tests prior to tutoring and repeat pre-tests prior to tutoring for Group 2. This is the 'control' condition also.

Mean performance has improved slightly on all the repeat pre-tests, although no increase reached statistical significance. This suggests that learning did not reach more than chance levels during the period between testings and indicates too the nature of the minimal progress shown by this particular group when no special provision is made. There was little consistent variation in standard deviations.

Table 10

Pre-Tests Prior to Tutoring and Post Tests After Tutoring for Group 2

Tests		Pre-Tests	Post Tests	Difference	Significance
Stick	M	12.56	12.31	- 0.25	t=-0.16 p>0.40
	SD	3.65	4.74		
Vowels	M	4.87	9.63	* 4.76	t=7.53 p=0.001*
	SD	2.28	0.89		
Consonants	M	36.25	38.88	* 2.63	t=1.29 p=0.25
	SD	5.80	5.38		
Regular Words	M	8.63	10.00	* 1.37	t=1.16 p=0.25
	SD	2.45	3.85		
Regular Syllables	M	4.87	7.31	* 2.44	t=2.18 p=0.025*
	SD	2.85	3.26		

Table 10 indicates mean results on the measures of specific spelling skills for the pre-tests prior to tutoring and post-tests after tutoring for Group 2. The data reported here parallels data from Table 8 for Group 1.

Means for all post-tests are greater than the pre-tests, except for the Stick test. The mean Vowel and Regular Syllables post-test results are significantly greater than mean pre-test results, indicating improvements beyond chance levels of 1 in 1000 for Vowels and 2.5 in 100 for Regular Syllables. Standard deviations fluctuate from pre-test to post-test, some declines notably for vowels, indicating a probable ceiling effect on that test.

Summary of Measures of Specific Spelling Skills

- All mean scores bar one have increased from pre-test to post-test.

- Vowels and Consonants have shown statistically significant increases for both groups and regular syllables have shown a significant increase for one group.

- No growth beyond chance levels was recorded for Treatment 2 during the 'control' period.

- No consistent variation was evident for standard deviations.

3. Measures of Spelling in Writing Samples

Table 11

Pre-Tests Prior to Tutoring for Total Group
Group 1 and Group 2

Measures		Total Group N=32	Group 1 N=14	Group 2 N=16	Significance (Two Tail)
Words Written	M	96.22	97.07	92.88	
	SD	43.76	59.41	28.51	t=-0.24 p>0.80
No. of Spelling Mistakes	M	9.38	13.07	6.44	
	SD	9.31	12.58	4.32	t=-1.91 p=0.10
Mistakes as Percentage of Words	M	10.18	13.17	8.06	
	SD	6.90	6.69	6.60	t=-2.03 p=0.10
Mistakes 'Recognised' by Franklin	M	6.00	8.35	4.13	
	SD	6.62	9.35	2.31	t=-1.69 p=0.20
Mistakes 'Recognised' by Franklin as Percentage of Mistakes	M	68.25	65.18	71.55	
	SD	23.75	21.16	27.13	t=+0.69 p=0.50

Table 11 presents mean results from writing samples for all groups prior to tutoring.

Group 1 averaged slightly longer stories, with more spelling mistakes, had a greater percentage of mistakes for words written and averaged more mistakes 'recognised' by the Franklin. For Group 2 on average, more mistakes were recognised by the Franklin as a percentage of total mistakes.

As to be expected, Group 1 has generally shown the greater standard deviation, probably as a consequence of the longer writing samples. Differences are not statistically significant, so the two groups may be regarded as equivalent on these measures prior to tutoring.

Table 12

Pre-Tests Prior to Tutoring and Post-Tests After Tutoring for Group 1

Measures		Pre-Test	Post-Test	Difference	Significance
Words Written	M	97.07	95.80	- 1.27	t=-0.06 p>0.40
	SD	59.41	57.83		
No. of Spelling Mistakes	M	13.07	10.00	- 3.07	t=-0.80 p=0.25
	SD	12.58	6.56		
Mistakes as Percentage of Words	M	13.17	11.51	- 1.66	t=-0.58 p=0.40
	SD	6.69	7.96		
Mistakes 'Recognised' by Franklin	M	8.35	5.40	- 2.95	t=-1.09 p=0.25
	SD	9.35	3.83		
Mistakes 'Recognised' by Franklin as Percentage of Mistakes	M	65.18	53.43	- 11.75	t=-1.43 p=0.10
	SD	21.16	21.61		

Table 12 compares mean results from the writing samples for pre-tests prior to tutoring and post-tests after tutoring, for Treatment 1.

On all measures the post-test means are slightly lower than the pre-test means, indicating that participants wrote a little less and also

averaged fewer spelling mistakes. However, fewer mistakes were 'recognised' by the Franklin as either raw numbers or proportions of mistakes. An increase in these values could be taken as evidence of improved phonetic spelling. No differences reached statistical significance, suggesting that variations are most likely chance fluctuations. The decreased standard deviation indicates less variation in post-test performance.

Table 13

Pre-Test Prior to Tutoring and Repeat Pre-Test Prior to Tutoring for Group 2

Measures		Pre-Tests	Repeat Pre-Tests	Difference	Significance
Words Written	M	92.88	117.00	+ 24.12	t=+1.65 p=0.10
	SD	28.51	44.00		
No. of Spelling Mistakes	M	6.44	7.00	+ 0.56	t=+0.34 p=0.40
	SD	4.32	3.49		
Mistakes as Percentage of Words	M	8.06	6.35	- 1.71	t=-0.79 p=0.25
	SD	6.60	2.42		
Mistakes 'Recognised' by Franklin	M	4.13	4.45	+ 0.32	t=+0.30 p=0.40
	SD	2.31	3.01		
Mistakes 'Recognised' by 'Franklin' as Percentage of Mistakes	M	71.55	64.81	- 6.74	t=-0.65 p=0.40
	SD	27.13	23.37		

Table 13 contains mean results from the writing samples for pre-tests and the repeat pre-tests prior to tutoring for Group 2. These represent

the `control' condition for the written language data.

On the repeat pre-test longer stories were written and a corresponding greater number of spelling mistakes made, but a lesser number of mistakes occurred compared with the first pre-test. The substantial increase in standard deviation suggests that the increase in mean length would be accounted for by the performance of some individuals. No differences are statistically significant indicating no `real' changes in these aspects of performance during the `control' period.

Table 14

Pre-Test Prior to Tutoring and Post Test After Tutoring for Group 2

Measures		Pre-Tests	Post-Tests	Difference	Significance
Words Written	M	92.88	132.69	+ 39.81	t=+1.92 p=0.05*
	SD	28.51	74.93		
No. of Spelling Mistakes	M	6.44	11.69	+ 5.25	t=+2.36 p=0.025*
	SD	4.32	7.46		
Mistakes as Percentage of Words	M	8.06	9.99	+ 1.93	t=+0.69 p=0.25
	SD	6.60	8.56		
Mistakes 'Recognised' by Franklin	M	4.13	6.31	+ 2.18	t=+1.71 p=0.05*
	SD	2.31	4.35		
Mistakes 'Recognised' by Franklin as Percentage of Mistakes	M	71.55	51.05	- 20.5	t=-2.24 p=0.025*
	SD	27.13	21.71		

Table 14 contains mean results from the pre-test writing samples prior to tutoring and the post-tests after tutoring, for Group 2. This parallels data for Group 1 from Table 13.

The mean differences except for mistakes as a percentage of words, were significantly different from pre-test to post-test. The mean number of words written, spelling mistakes made and mistakes recognised by the Franklin all increased. Group 2 therefore wrote significantly longer stories at post-test and made a corresponding significant increase in spelling mistakes. The mean percentage of mistakes 'recognised' by the

Franklin decreased significantly, despite the increase in the raw number of mistakes recognised by the Franklin. An increase in the percentage of mistakes `recognised' by the Franklin could have been taken to indicate improved phonetic spelling, but this was not evident.

Table 15

Pre-Test Prior to Tutoring and October Follow-Up for Group 1

Measures		Pre-Tests	October Follow-Up	Difference	Significance
Words Written	M	97.07	82.20	- 14.87	t=-0.83 p=0.25
	SD	59.41	29.01		
No. of Spelling Mistakes	M	13.07	9.47	- 3.60	7=-0.96 p=0.25
	SD	12.58	6.01		
Mistakes as Percentage of Words	M	13.17	11.74	- 1.43	t=-0.55 p=0.40
	SD	6.69	5.94		
Mistakes `Recognised' by Franklin	M	8.35	4.40	- 3.95	t=-1.54 p=0.10
	SD	9.35	2.17		
Mistakes `Recognised' by Franklin as Percentage of Mistakes	M	65.18	54.90	- 10.28	t=-1.07 p=0.25
	SD	21.16	27.85		

Table 15 indicates mean results from the writing samples for the pre-tests with the October follow-up for Group 1.

On all measures from Table 15, the October follow-up means were lower than the pre-test means, though none of the differences are statistically significant. This contrasts with the follow-up data on general spelling skills as presented in Table 5. With the exception of shorter stories being written in June, there is little variation in the data collected at these two times. Unlike results on general spelling skills (Table 5), little growth has been recorded in these skills as measured over four months.

Table 16

Pre-Test Prior to Tutoring and October Follow-Up for Group 2

Measures		October Pre-Tests	Follow-Up	Difference	Significance
Words Written	M	92.88	128.19	+ 35.31	t=+1.77 p=0.05*
	SD	28.51	71.89		
No. of Spelling Mistakes	M	6.44	9.19	+ 2.75	t=+1.74 p=0.05*
	SD	4.32	4.34		
Mistakes as Percentage of Words	M	8.06	10.67	+ 2.61	t=+0.75 p=0.25
	SD	6.60	11.83		
Mistakes `Recognised' by Franklin	M	4.13	5.13	+ 1.00	t=+1.04 p=0.25
	SD	2.31	2.94		
Mistakes `Recognised' by `Franklin as Percentage of Mistakes	M	71.55	61.01	- 10.54	t=-1.11 p=0.25
	SD	27.13	25.01		

Table 16 compares mean results from the writing samples for the pre-tests with the October follow-up for Group 2.

On all measures, except for the mean percent of mistakes recognised by Franklin, the October follow-up means were greater than the pre-test means. Group 2 wrote significantly longer stories and made significantly more mistakes. The differences in means for the other measures are not statistically significant. Compared with the post-tests in August, Group 2 have written more and made more mistakes and had more mistakes `recognised' by the Franklin. These differences are also non-significant.

Summary of Measures of Spelling in Writing Samples

- There were no significant differences between pre-test and post-test measures, or between pre-test and follow-up measures for Group 1.

- There were significant differences between four measures on a pre-test post-test basis and two measures on a pre-test October follow-up basis, for Group 2.

- For Group 2, the number of words written and the number of spelling mistakes made were among the significant changes in performance.

- For both groups a smaller percentage of mistakes were `recognised' by the Franklin for post-tests as compared to pre-tests, for all conditions reported in Tables 12-16. There is no support for improvement in the incidence of phonetic spellings during writing from these data.

- The follow-up data on writing samples do not indicate the improvement evident from follow-up data on general spelling skills, as shown in Table 5.

4. Measures of Conventional and Phonetic Spelling

Table 17

Burt Spelling Test: Pre-Tests Prior to Tutoring Marked for Conventional, Phonetic and Total Scores - all Groups

Burt Test		Total Group	Group 1	Group 2	Significance
Conventional Score	M	20.87	19.62	22.12	t=+0.84 p=0.50
	SD	8.08	9.05	7.05	
Phonetic Score	M	17.56	18.06	17.06	t=-0.35 p=0.40
	SD	7.65	7.31	8.19	
Total Score	M	38.44	37.69	39.19	t=+0.32 p=0.40
	SD	12.61	11.63	13.87	

Table 17 reports further data prior to tutoring. The means and standard deviations on the Burt Spelling Test, for conventional spelling, phonetic spelling, and total score. This is the sum of the preceding measures. The criteria and procedures used for deriving these scores were covered earlier under methodology and design.

Group 2 has slightly higher mean scores for Conventional and Total Score, and Group 1 has averaged more `identifiable' phonetic spellings. However, no differences were significant so the groups may be judged as being equivalent at the outset. The unusually large standard deviations for the Total Score indicate a wide range of achievement, resulting from some very high phonetic scores prior to tutoring. On these measures too, there were no significant differences between either group.

Table 18

Burt Spelling Test: Pre-Test Prior to Tutoring Marked for Conventional, Phonetic and Total Scores and Post-Test After Tutoring - Group 1

Burt Test		Pre-Test	Post-Test	Difference	Significance
Conventional Score	M	19.62	20.44	+ 0.82	t=+0.24 p=<0.40
	SD	9.05	9.61		
Phonetic Score	M	18.06	20.75	+ 2.69	t=+0.75 p=0.25
	SD	7.31	11.75		
Total Score	M	37.69	41.19	+ 3.50	t=+0.67 p=0.40
	SD	11.63	16.62		

Table 18 presents data that enable the impact of tutoring on three scores from the Burt Spelling Test to be assessed for the children in Group 1. There was a minimal average increase from pre-test to post-test on the conventional spelling score. Larger increases were recorded for the other two scores. A mean increase of 2.69 more words spelt phonetically is positive in terms of other increases recorded from pre-test to post-test, but still falls short of being significant at the minimally acceptable 5% level. Again, there is a substantial standard deviation for the total score, and this is a function of a small number of children showing substantial increases in their phonetic scores.

Table 19

Burt Spelling Test: Pre-Tests Prior to Tutoring Marked for Conventional, Phonetic and Total Scores and Repeat Pre-Tests Prior to Tutoring - Group 2

Burt Test		Pre-Test	Repeat Pre-Test	Difference	Significance
Conventional Score	M	22.12	21.23	- 0.89	t=-0.31 p=0.40
	SD	7.05	7.81		
Phonetic Score	M	17.06	20.77	+ 3.71	t=+0.97 p=0.25
	SD	8.19	11.56		
Total Score	M	39.19	42.00	+ 2.81	t=+0.45 p=0.40
	SD	13.87	18.32		

Table 19 has pre-test and repeat pre-test data for three Burt scores. As noted in earlier tables, this is the 'control' condition, and is applicable to Group 2 only.

There is non-significant variation between the tests administered on separate occasions. The increase of 3.71 for the phonetic score is worth noting, as this has occurred prior to tutoring. This increase is greater than the corresponding increase for Group 1 after tutoring. The standard deviation of 18.32 for the total score indicates a wide spread of results on this particular measure also.

No differences were statistically significant.

Table 20

Burt Spelling Test: Pre-Test Prior to Tutoring Marked for Conventional, Phonetic, Score and Total Scores and Post-Test After Tutoring - Group 2

Burt Test		Pre-Test	Post-Test	Difference	Significance
Conventional Score	M	22.12	24.31	+ 2.19	t=+0.72 p=0.25
	SD	7.05	9.40		
Phonetic Score	M	17.06	21.31	+ 4.25	t=+1.30 p=0.25
	SD	7.05	9.40		
Total Score	M	39.19	45.63	+ 6.44	t=+1.10 p=0.25
	SD	13.87	18.05		

Table 20 contains data for Group 2, parallel to data for Group 1 in Table 18.

The difference of 4.25 between pre-test and post-test for Group 2 is more than the corresponding difference for Group 1 and more than the difference noted for Group 2 under the 'control' condition. This superiority which comes from noticeably better post-test performance, was evident also in data presented earlier in this section. Although the difference in mean raw scores is evident, the corresponding 't' values do not reach the .05 level of significance, so the increases remain within the area of chance fluctuation, albeit, in a positive direction. Once again there is clear evidence from the standard deviation of 18.05, of substantial variation.

Inspection of raw scores for the phonetic measure indicated that 23 increased on average by 6.9, with 8 scores improving by 8 or better. Another 8 students showed scores declining by an average of 5.12.

For the conventional score, 20 increased on average by 3.8, with 3 improving by 8 or better. Another 10 students had scores that declined on average by 2.9.

Summary of Conventional and Phonetic Spelling

- Little group difference has been recorded after tutoring for scores on conventional spelling.

- More difference has been recorded in scores for phonetic spelling, but despite the raw score increases of 2.69 and 4.25, these were not statistically significant.

- A noticeable increase of 3.71 occurred for phonetic spelling under the `control' condition but this also was non-significant.

- The positive increases in total score reflect the greater impact of phonetic scores rather than smaller increases in conventional scores.

- Eight individuals showed a marked increase of 8 or better, in their phonetic scores from the Burt Spelling Test. Three of the 8 also improved their conventional score by 8 or better.

5. Spelling Mistakes Taken from Stories Before Tutoring and Administered as Dictated Test after Tutoring

All the spelling errors in the pre-test writing samples of 21 participating subjects were identified, and each subject's errors were presented as a brief individual dictated test after tutoring had been completed. The spelling of each word the student intended was recorded before tutoring and after tutoring. These are recorded below.

Each word was classified after Gentry (1982), to indicate the likely stage in a developmental sequence of spelling represented by each attempt. Gentry's five stages are categorized as follows:

(a) **Pre-communicative** - the earliest level of spelling development; a variety of symbols are used to represent words.

(b) **Semi-phonetic** - some knowledge of letter-sound correspondence; alphabetic principles becoming evident.

(c) **Phonetic** - a full mapping of letter-sound correspondence; all surface features represented but letter choices may not conform to conventional English spelling.

(d) **Transitional** - conventional alternatives for representing sounds evident; moves from greater reliance on sound to more reliance on visual and morphological factors for determining spelling.

(e) **Correct** - easily identified but may exist at different levels; a firm grasp of the basis of English orthography evident.

Individual's responses are coded according to Gentry's file stages. Results from this analysis of the full 116 words are summarized on pp. 46.

Pupil	Word intended in story	Spelling in story before tutoring	Spelling of intended word after tutoring
1	chocolate	chokailat (b)	chockalate (c)
	fish	fuche (a)	fish (e)
	fudge	fude (a)	fudge (e)
2	reading	reding (b)	reding (b)
	brother	bother (b)	bother (b)
	her	hir (b)	hir (b)
	years	yeas (c)	years (e)
	square	qusar (a)	squalk (b)
	friends	frends (c)	frends (c)
3	birthmark	berthmake (b)	berthmack (b)
	years	yerys (b)	yeus (b)
	dent	dlunt (a)	dent (e)
	crash	cash (b)	crash (e)
	family	flimy (a)	flimys (a)
	hobbies	hobes (b)	hobbes (d)
4	collecting	colecteing (b)	colecting (c)
	called	cald (b)	called (e)
	patrol	pitrol (b)	petrol (d)
	nil	nile (b)	nil (e)
	success	suckses (c)	suckses (c)
	rate	raight (b)	rate (e)
5	born	bore (b)	born (e)
	Wellington	Wellinton (b)	Wellinton (b)
	hair	hear (d)	hiry (b)
	brown	brow (b)	brown (e)
	running	runing (d)	raning (c)
	friend	feng (a)	frens (b)

Pupil	Word intended in story	Spelling in story before tutoring	Spelling of intended word after tutoring
6	standard	standids (c)	standed (c)
	done	dune (d)	done (e)
	that	thet (c)	that (e)
	easy	esey (c)	esy (b)
	Rongotai	rongtly (a)	rongoti (b)
	become	becam (b)	become (e)
	mechanic	micanik (b)	mikanek (b)
	police	polise (c)	poles (b)
7	year	yeres (b)	year (e)
	months	momse (a)	moths (b)
	live	leve (b)	live (e)
	Melrose	Meros (a)	Melrose (e)
	favourite	faret (b)	favorite (d)
	eyes	esys (b)	eyes (e)
	brown	bron (b)	brown (e)
8	mighty	mity (c)	mihty (c)
	dead	ded (c)	ded (c)
	over	orere (a)	overe (d)
	than	then (b)	than (e)
	attacking	ataking (c)	atacking (d)
	tried	thred (a)	trid (b)
	decided	desied (b)	desid (a)
	sword	sowed (b)	sowed (b)
9	sports	sparts (b)	sprots (b)
	very	vers (a)	very (e)
	fantasy	phantasy (d)	fatase (c)

Pupil	Word intended in story	Spelling in story before tutoring	Spelling of intended word after tutoring
10	riding	rieding (c)	riending (b)
	hair	heir (c)	her (b)
	such	saech (a)	sach (b)
	own	nae (a)	on (b)
	working	woking (b)	working (e)
11	thought	thout (b)	thort (b)
	tired	tiard (b)	tieard (b)
	soccer	scocer (b)	soccer (e)
	because	becose (c)	becouse (d)
	after	arfetr (b)	arfter (c)
	goal	gool (b)	gool (b)
12	usually	ushly (b)	ussally (c)
	writing	wighting (b)	writing (e)
	activities	activeates (c)	activaties (c)
	minute	minunt (b)	mininute (b)
13	tournament	tortirment (a)	torterment (a)
	coaching	couching (b)	couching (b)
	goals	gouls (c)	goals (e)
	whistle	wisle (b)	whissle (c)
	every	evry (c)	every (e)
	had	hat (d)	had (e)
14	turf	tearf (b)	terf (c)
	which	wich (b)	wicth (a)
	lucky	luckey (d)	lucky (e)
	sessions	seshons (c)	seshons (c)
	practice	practic (b)	practis (c)
	shooting	shotting (b)	shotting (b)

Pupil	Word intended in story	Spelling in story before tutoring	Spelling of intended word after tutoring
15	bottom	botton (b)	bottem (c)
	normally	normallr (b)	nomerly (c)
	draw	dror (c)	draw(ing) (e)
	between	betwin (b)	between (e)
	team	teme (b)	team (e)
	other	aire (a)	other (e)
16	morning	maning (b)	morning (e)
	help	hlep (b)	help (e)
	tidy	tade (b)	tide (d)
	park	pak (b)	park (e)
	shop	sopt (a)	shop (e)
	jog	joig (b)	jog (e)
	walk	wakll (b)	wallk (c)
	family	falmy (b)	family (e)
17	cricket	chricket (c)	cricket (e)
	lots	hips (a)	lots (e)
	maths	mats (b)	mats (b)
	hall	hal (b)	hall (e)
	order	oder (b)	order (e)
18	Wednesday	Wendnesday (b)	Wendesday (c)
	kyaking?	kakaeing (b)	kaitaking (b)
	Olympics	Olimpics (c)	Olylimpic (c)
19	chat	chache (a)	chat (e)
	music	muice (a)	misce (a)
	choose	churse (a)	chuse (b)
	empty	emtey (b)	emptea (c)
	lunches	lunchs (c)	lunchs (c)

Pupil	Word intended in story	Spelling in story before tutoring	Spelling of intended word after tutoring
20	woolley	wolly (c)	wolly (c)
	physical education	p e *	fizicial egucation (b)
	biscuit	biskit (c)	biscskits (c)
21	learnt	leand (b)	alant (a)
	maori	morai (b)	maori (e)
	gives	gaves (b)	gives (e)
	another	anthere (b)	anthor (b)
	our	are (a)	oar (b)
	Miramar	Mirumar (b)	Miramar (e)

* A common abbreviation. Not classifiable by Gentry's stages.

Summary of Results

Total Number of Subjects - 21
Total Number of Words Listed - 116

		Pre-tutoring	Post-tutoring
(a)	Pre-communicative	22	6
(b)	Semi-phonetic	66	32
(c)	Phonetic	21	26
(d)	Transitional	6	7
(e)	Correct	-	45
		115*	116

* p.e. p. 45 not included.

When results pre-tutoring are compared with results post-tutoring, it is clear that there has been a shift in the number of words classified at each level. There has been a reduction in the number of words classified as 'pre-communicative' and 'semi-phonetic' and an increase in the number of words placed in the three higher categories. Most dramatic has been the shift in the number of words spelt correctly after tutoring. A test of significance by chi square indicated that $\chi^2 = 87.37$ which was significant at the 1 chance in 1000 level.

Although this was regarded as a direct measure of progress towards more effective phonetic and conventional spelling, subsequent analysis revealed that 13 of the original mistakes were covered in tutoring. This and other factors to do with the actual testing and the generalizability of the results are covered in the Discussion.

6. Output From Franklin Spell-Master

To gain an assessment of the effectiveness of the Franklin Spellmaster (QE103A) in helping to correct phonetic to regular spellings, each of 116 mis-spellings were entered from stories of the 21 children. On post-testing 45 of 116 words were spelt correctly, leaving 71 to be entered. This gave the following results.

Table 21

Mistakes from Stories Entered into Franklin Spellmaster N = 116

	Before Tutoring N = 116	After Tutoring N = 71
Words corrected from first display	36 (31.03%)	25 (35.21%)
Words corrected from second display	9 (7.75%)	5 (7.04%)
Words corrected from third or subsequent displays	17 (14.65%)	11 (15.49%)
Number of words where Franklin of no assistance	54 (46.55%)	30 (42.25%)

Table 21 was compiled by Craig Jackson

From the sum of the first three categories it will be seen that before tutoring, the Spellmaster provided the correct spelling for 62 words (53.45%) and after tutoring for 41 words (57.77%), remembering of course that after tutoring 45 (38.79%) earlier mistakes were spelt correctly. The percentage of words corrected on the first or subsequent arrays are fairly similar before and after tutoring, as are the percentages of mistakes where the Franklin was unable to supply the required word. Few valid comparisons can be drawn from these `before tutoring' and `after tutoring' results, because the pool of words being discussed is not identical, as on the second occasion the 45 former mistakes were spelt correctly.

It is worth noting that the proportions of mistakes where the Franklin could be of no assistance remains fairly constant at 46% and 42% respectively. This indicates that the overall correction rate of the Franklin for all mistakes entered at the pre-test phase was almost 54%, about 1 word in 2. The correction rate at the post-test phase was 58%, indicating a slight but non-significant improvement.

From the original 116 spelling mistakes, the Franklin was of no assistance in identifying 47 of the attempted spellings. These words are listed below:

Word Intended	Word as Written
square	qusar
birthmark	berthmack
dent	dlunt
crash	cash
family	flimy
born	bore
hair	hear
brown	brow
friend	feng
standard	standiads
done	dune
Rongotai	rongtly
mechanic	micanik
months	momse
Melrose	meros
favourite	faret

eyes	esys
over	orere
than	then
tired	trid
sword	sowed
hair	her
such	saech
own	nae
tired	tiard
after	arfetr
usually	ushly
writing	wighting
minute	minunt
tournament	tortirment
coaching	couching
whistle	wisle
had	hat
draw	dror
other	aire
morning	maning
tidy	tade
shop	sopt
walk	wakll
family	falmy
lots	hips
maths	mats
kyaking	kakaeing
music	muice
choose	churse
maori	morai
Miramar	Mirumar

7. Contribution to Spelling Performance of Knowledge of Short Vowel Sounds

Table 22

Correlations Between Scores on Pre-test Vowels With Other Pre-tests and Repeat Pre-tests

Tests	Pre-Test Vowels N=32	Repeat Pre-test Vowels Treatment 2 N=16
Stick	0.15	- 0.18
Vowels	-	**0.72*** **
Consonants	0.21	0.51*
Regular Words	- 0.09	- 0.17
Regular Syllables	0.31	0.31
Burt Spelling	- 0.04	0.05

* significant at or beyond $p<0.05$
** significant at or beyond $p<0.01$
*** significant at or beyond $p<0.001$

Given that the initial teaching focus of the RSP was on mastering short vowel sounds and names, it was decided to look more closely at the Vowels test. Table 22 contains information on Vowels and other tests.

For Pre-tests and Repeat Pre-tests, Regular Syllables and Consonants correlate most with Vowels with one correlation reaching significance. The relationship between Vowels, Regular Words and the Stick Test is negligible. The median correlation for the 5 tests is 0.15. The correlation between Vowels and Burt Spelling was virtually non-existent indicating little relationship between scores at this pre-test stage.

The significant value of 0.72 between Pre-tests Vowels and Repeat Pre-test Vowels is a form of test-retest reliability and suggests that prior to the RSP, this test was only moderately reliable.

It is worth stressing at this point that these correlations are simply

relationship.

This represented the situation before the RSP had been started.

Table 23

Correlations Between Scores on Vowels and Other Post-tests

Post-tests	Post-test Vowels N=32
Stick	0.37
Consonants	0.06
Regular Words	0.24
Regular Syllables	0.11
Burt Spelling	0.03

Table 23 contains data on correlations between Vowels and five other post-tests. This table is parallel to Table 22, which presented data for pre-tests.

Correlations with the Stick Test and Regular Words show appreciable increase over the pre-tests but they remain non-significant. Correlations with Consonants and Regular Words have dropped below the levels recorded for pre-tests. The correlation for Burt Spelling remains negligible. The median correlation for the five tests is 0.11.

The correlations with the Stick Test of 0.37 and Regular Words of 0.24 indicate that to some extent, performance on these tests and performance on the Vowels Test went hand-in-hand but the relationship remained within chance levels. The main feature of the table is the lack of significant correlations between Vowels and the other tests. This then represented the situation after completion of the RSP.

Table 24

Correlations Between Scores on Pre-tests and October Follow-up Tests for Total Group

Pre-Tests	October Follow-up Tests		
	Graded Test	PRETOS Production	PRETOS Recognition
Stick	0.71***	0.68***	0.67***
Vowels	0.04	- 0.01	0.17
Consonants	- 0.12	- 0.25	- 0.27
Regular Words	0.63***	0.66***	0.38
Regular Syllables	0.32	0.24	0.11
Burt Spelling	0.67***	0.55**	0.51*

* significant at or beyond $p<0.05$
** significant at or beyond $p<0.01$
*** significant at or beyond $p<0.001$

Table 24 reports correlations between six pre-test measures and three October follow-up tests. Vowels and Consonants, the two specific tests not utilising whole words or syllables, show the least correlation. The level of Vowel correlations indicates virtually no positive relationship with the October tests, but for Consonants the relationship is slightly negative. Regular Syllables which showed the highest relationship with Vowels at Table 22, has a greater correlation with the October tests than do Vowels. It is clear that the tests comprising whole words (Stick, Regular Words, Burt Spelling) correlate significantly with the October tests which are based also on whole words. In each case the correlations with Pretos-recognition are less but remain significant. This test involves the recognition of errors, not the production of correct spelling, hence the task is a little different from the Graded test and the Burt test.

When knowledge as measured before tutoring is related to follow-up knowledge after tutoring, performance on tests of Vowels and Consonants show less of a relationship with the October tests, than other tests which, with the exception of Regular Syllables, are based on whole words.

Table 25

Correlations Between Scores on Post-Tests and October Follow-up Tests for Total Group

Post Tests	October Follow-up Tests		
	Graded Test	PRETOS Production	PRETOS Recognition
Stick	0.66***	0.44*	0.44*
Vowels	**- 0.20**	**- 0.12**	**- 0.21**
Consonants	- 0.63**	- 0.59**	- 0.49*
Regular Words	0.68***	0.53**	0.42*
Regular Syllables	0.45*	0.23	0.24
Burt Spelling	0.85***	0.80***	0.77***

* significant at or beyond $p<0.05$
** significant at or beyond $p<0.01$
*** significant at or beyond $p<0.001$

Table 25 presents data that duplicates data from Table 24, but this time from post-tutoring to follow-up. At this stage the knowledge measured by the six tests represents the situation after tutoring.

Vowels and Consonants continue to show the least positive relationships with the October tests. For Vowels and Consonants the correlations indicate significant negative relationships. In other words, there is a tendency for most individuals to score higher on Vowels and Consonants and lower on the October Tests, or vice-versa. This tendency is much more marked for Consonants than Vowels.

Significant correlations with the Stick test have declined with this post-tutoring data, but for the Burt Test have increased. For Regular Words and Regular Syllables they remain about the same.

Overall, it appears as though the relationship between whole word tests post-tutoring, and whole word tests in October has strengthened, and the relationship between components of words (Vowels and Consonants) post-tutoring and whole word tests in October, has become increasingly negative, but more so for Consonants than Vowels.

Table 26

Correlations Between Scores on Five Post-Tests and Measures of Phonetic Spelling for Total Group

Post-tests	Pre-test Phonetic Spelling	Post-test Phonetic Spelling
Stick	0.59**	0.63**
Vowels	**0.29**	**0.29**
Consonants	- 0.14	- 0.07
Regular Words	0.66***	0.67***
Regular Syllables	0.66***	0.61**

* significant at or beyond $p<0.05$
** significant at or beyond $p<0.01$
*** significant at or beyond $p<0.001$

As indicated earlier, one of the measures utilized in this study was a score for phonetic spelling taken from the Burt Spelling Test. For Table 26 the pre-test measure of phonetic spelling and the post-test measure of phonetic spelling were correlated with five other post-tests, including Vowels.

There is little change in correlations for phonetic spelling from pre-test to post-test for any of the five tests. There is a positive but non-significant correlation for Vowels, a slightly negative correlation for Consonants, and a significant correlation for Stick, Regular Words and Regular Syllables.

With the five post-tests scores remaining constant, there is very little change to the correlations for phonetic spelling scores before tutoring, or after tutoring. Relationships between Vowels and the two measures of phonetic spelling shows little change.

Table 27

Correlations Between Pre-Test and Post-Test Measures of Phonetic and Conventional Spelling

	Pre-Test			Post-Test		
	Phonetic	Conventional	Total	Phonetic	Conventional	Total
Phonetic	-	-	-	-	-	-
Conventional	0.29	-	-	0.46*	-	-
Total	0.79***	0.81***	-	0.87***	0.84***	-

* significant at or beyond $p<0.05$
** significant at or beyond $p<0.01$
*** significant at or beyond $p<0.001$

Table 27 looks at the relationship as measured by Pearson correlations, between phonetic spelling, conventional spelling and total score (phonetic and conventional) from the Burt Spelling Test on a pre-test and post-test basis.

The correlations incorporating the total score are in fact part/whole correlations, as the total score is made up of conventional score plus phonetic score. Accordingly, the total correlation will be inflated somewhat. However, the values reported for the total score are typical of correlations reported between spelling tests sampling from a common pool of words.

The correlations of 0.29 and 0.46 respectively between conventional and phonetic scores indicate a positive relationship at the pre-test and post-test stage with one being significant. The increasing tendency then, is for scores on one measure to reflect scores on the other, meaning that children who tended to score higher on phonetic also scored higher on conventional, and vice-versa. It would appear as though to some extent, tutoring has strengthened this relationship for some children. So, in conjunction with data from Table 20, it appears as though those who have made gains in conventional spelling have made more gains in phonetic spelling, although we cannot speculate on the causality of this. The possible influence of progress in phonetic spelling patterns and their

influences on conventional spelling (if any) and the reciprocal influence of conventional spelling on phonetic spelling, is one area this project has identified for further research.

Summary of Contribution to Spelling Performance of Knowledge of Short Vowels

- The relationship between the Vowels test and the 5 other tests of specific spelling skills is minimal at the pre-test stage.

- At the post-test stage the relationship between Vowels and 2 of the five tests strengthens, but overall it remains weak.

- There is little or no positive relationship between Vowels at the pre-test stage and the standardized tests administered during the October follow-up.

- The relationship between post-test vowels and the standardized tests administered during the October follow-up is slightly negative.

- There is a slightly positive relationship between the Vowels test and pre and post-tests of phonetic spelling. However, 3 of the remaining four tests show a stronger relationship.

- Overall, there is no strong evidence to support the Vowels test as measuring a crucial component of these children's spelling performance, either conventional or phonetic.

Table 28

Correlations Between Burt Word Reading Test and Burt Spelling Test for Pre-Test and Post-Test

	Burt Word Reading Test
Burt Spelling Test	
Pre-Test (N=31)	
Phonetic	0.28
Conventional	0.59***
Total	0.57***
Repeat Pre-Test (N=12)	
Phonetic	0.47
Conventional	0.49
Total	0.51
Post-Test (N=31)	
Phonetic	0.41
Conventional	0.63***
Total	0.61***

* significant at or beyond $p<0.05$
** significant at or beyond $p<0.01$
*** significant at or beyond $p<0.001$

In order to shed a little more light on possible relationships between conventional and phonetic spelling, Pearson correlations were computed between raw scores on the Burt Word Reading Test - New Zealand Revision and scores for Phonetic, Conventional and Total from the Burt Spelling Test. Results are presented in Table 28.

Highly significant correlations beyond the 1 chance in 1000 have been recorded at both pre-test and post-test for Conventional and Total spelling scores. There is a very strong tendency for the scores on Conventional spelling and Total spelling measured on Burt Spelling, to go hand-in-hand

with word reading, as measured by Burt Reading.

It will be noted that all correlations have increased from pre-test to post-test, most noticeably for Phonetic spelling. Despite the increase, however, these correlations remain at the chance level. It is evident also, that no statistical significance was recorded for the repeat pre-tests, despite the value of the correlations being little different than for pre-test and post-test. This is likely to be a function of the reduced N more than anything else.

The conclusion to be taken from this data is that conventional spelling and word reading performance were strongly related for the total group of 31 students, but phonetic spelling performance was more haphazard. **Stronger readers seem likely to be better conventional spellers, but there is no direct indication that poorer readers are better phonetic spellers.**

The increase in correlation to 0.41 for the phonetic score at post-test, although lacking statistical significance, also suggests that phonetic spelling tended to follow word reading performance more strongly after the programme. It looks as though stronger readers were becoming stronger phonetic spellers and poorer readers remained or became, poorer phonetic spellers.

DISCUSSION

1. Design of the Study

The study was designed so conclusions could be reached by comparing performance following a `treatment' phase with performance following a `control' phase, as the point was to link any improvements in spelling with the RSP.

Interpretation of outcomes following the `treatment' phase could be made more confidently if the performance of Group 1 students and Group 2 students was similar prior to tutoring. This was found to be so. There were no statistically significant differences between the means for the two groups on any of the measures taken at the pre-test stage, i.e. Stick Test, Vowels, Consonants, Regular Words, Regular Syllables; the Graded Spelling Test, PRETOS, Burt Spelling Test; or from the writing samples. Accordingly, the two groups of students may be regarded as being of similar achievement on the dependent variables at the outset. By inference, it appears as though effective randomizing procedures were used to allocate schools and participants to either Group.

At the point when Treatment 1 had completed the RSP and their post-tests, Treatment 2 undertook their repeat pre-tests. There were a few significant pre-test/post-test differences recorded by Treatment 1 at this stage, but no significant differences in the pre-test/repeat pre-test performances of Treatment 2. This underscored quite heavily the important point, that without intervention over the 6 weeks between their pre-test and repeat pre-test, Treatment 2 as the `control' group showed little increase in scores.

This lack of growth in the skills emphasised by the RSP had been a common occurrence over the 6 or so years of primary schooling, given their minimal achievement in the particular skills at issue here. If this finding was generalized to other primary children with similar low levels of accomplishment, it would indicate that without more effective help, these children would also show minimal progress. Without the `control' condition of this study, and despite the relatively short time that elapsed, this conclusion would not have been possible. It was regrettable that the repeat of the `control' condition as planned could not proceed.

2. Measures of general and specific spelling skills

It will be apparent from the summaries in the Results section, that in all bar one instance, the children made some improvement following their participation in the RSP. However, only a minority of these increases reach significance at or beyond the 1 in 20 chance level. This lack of statistically significant results reduce the confidence that may be placed on the potential impact of the RSP.

It is important to note, that the present study represented a stringent test for the RSP. The children chosen to participate had demonstrated minimal achievement in writing and spelling and in no instances were 'screened out', because of apparent 'learning difficulties', or 'behavioural difficulties'. There was a range of data collected and the measure of the effectiveness of the programme was based exclusively on the participant's performance. We did not simply report tutors' perceptions of effectiveness (which were mostly positive) or children's reactions.

It is quite clear from the results presented earlier that as far as raw scores are concerned, there were numerous increases from pre-test to post-test, so participants did demonstrate some definite learning. However, some learning was also evident during the 'control' condition, albeit to a lesser degree. This was independent of the RSP, but could have been a function of the pre-tests. Without attempting to minimise that children did increase their levels of skill from a very low base, the magnitude of the learning apart from a few instances, remained within chance levels. Thus, much of the learning that was associated with the RSP was at a level that was too minimal to be taken as a strong testimony in favour of the programme.

The only mean scores that increased significantly after tutoring were for the Vowels and Consonants test for Group 1, and Vowels and Regular Syllables for Group 2. There were no significant differences between means from pre-test to post-test on any of the 3 standardized tests of general spelling achievement. Means for the PRETOS and the Graded Test did increase from pre-test to October follow-up. In fact, increases from post-test to October follow-up, were greater than from pre-test to post-test, indicating perhaps that some benefits from the RSP may have accrued as the children gradually integrated their new knowledge of English spelling into their framework for writing. This seems to have implications for the RSP

in future.

It appears that tutoring does increase the children's recognition of vowels, consonants and syllables as shown by the statistically significant changes in mean scores. But these changes have not generalised to significantly increased levels of skill on the general spelling tests in the short term.

Another point to note from the data on specific and general spelling skills is the relative size of the standard deviations. These indicate that within even this group of Standard 4 children, there is a considerable range of achievement recorded. There are instances where the standard deviations on the standardized spelling tests are very little different from the values reported for the full standardization samples. It is worth noting too, that much of the variability comes from the lower end of this particular distribution, rather than from the upper end, indicating that even this restricted sample has a pronounced `tail'.

3. Writing sample measures and the Franklin Spell Master

Group 1 wrote shorter stories on average as they went through the various stages of testing, but these differences in length were not statistically significant. Group 2 wrote significantly longer stories on average at the post-test and October follow-up stages. However, there is no evidence to link either the longer or shorter stories with the nature or content of the RSP. This impact on writing fluency, one positive and one negative, may indicate some motivational variable linked to the different approaches of various tutors.

Mistakes as a percentage of words written was not significantly different for either group at any stage, as no matter whether stories were shorter or longer, percentages of errors varied from 9-13 at the pre-test, post-test and October follow-up stages. Repeat pre-test for Group 2 was one exception to this as 6.35% mistakes were averaged compared with 8.06% for the original pre-test. As this was the `control' condition, it seems to have little direct bearing on conclusions that might be drawn about the impact of the RSP on written spelling. This was one measure where the `control' condition showed spontaneous improvement. However, spelling accuracy during writing may be a dubious measurement at the best of times, as it takes no account at all of the complexity of the vocabulary used.

As mentioned, the relationship between number of words misspelt and the number of words written is worthy of further investigation. If as appears to be the case in Tables 13-16, the positive relationship as indicated by the correlation of 0.56, suggests a need for a more focused approach to the writing of the failing spellers. Is there any point in encouraging quantity, if this generates increasing spelling mistakes for some children, and there is no classroom strategy to cater for this? It could be that an approach which stresses quality over quantity will pay better dividends. For most young writers, writing is seen as the appropriate way to grow into better spelling. However, for those for whom spelling remains a mystery, some other approach seems called for. And in terms of the evidence considered to date, the RSP as it is presently formulated, does not provide the answer for all children.

We are aware that for writing we have concentrated on quantifiable data alone, and while this may add a certain objectivity to this investigation, it may also ignore important elements related to the 'quality' of spelling.

In addition too, much of our analysis has utilized group data, and one outcome of this may be that a few extreme cases may have a disproportionate bearing on group figures, particularly with an N of 16.

As indicated earlier, the Franklin Spell Master was used as a means of assessing the quality and phonetic accuracy of spelling in writing. For both Group 1 and Group 2, a slightly decreased percentage of mistakes was 'recognised' by the Franklin for post-tests compared to pre-tests. The data from Tables 12-16, does not support any increase in the incidence of phonetic misspellings as compared to the incidence of non-phonetic or idiosyncratic misspellings during writing. This does differ from the data from the Burt Test which indicated some increase in phonetic misspellings from pre-test to post-test, for both Group 1 and Group 2.

Although the Franklin added an element of reliability to judging the phonetic quality of spelling attempts, it introduced another set of difficulties as well. There are three obvious problems for the Franklin arising from the sample of words as entered here. One is to do with the highly idiosyncratic nature of some spelling attempts e.g. 'feng' for friend; 'qusar' for square; and 'aire' for other. There are very few idiographic cues or clues to indicate the word the writer intended, so it is unlikely that the Franklin could 'fill in the gaps,' so to speak. A

second more basic problem comes about when a correct word form is put up as another word, e.g. `bother' for brother, `cash' for crash, `are' for our, as there appears no foolproof mechanism for the Franklin to generate other alternatives that the writer might utilize. There is the `second guess routine' for a limited selection of words, but this calls for reasonable word recognition skills by the writer if it is to be utilized fully. The third problem is that a particular word may have a range of plausible phonetic possibilities, but unfortunately for some writers, the Franklin has a limited range of options programmed for a particular word. Examples of plausible alternatives not recognised include `ushly' for usually; `practic' for practice; `micanik' for mechanic.

Although the Franklin enabled a high degree of consistency to be achieved in our analysis, and added a very useful dimension to assessing whether spelling in writing was moving closer to increasing `phonetic regularity', the problems outlined above may have tended to compromise aspects of the validity of the measurements.

4. Phonetic and Conventional Spelling

As indicated in the Results section, the Burt Spelling Test was marked to give a score for conventional spelling and a score for phonetic spelling. The procedures for phonetic spelling and the judgements needed did have some continuing difficulties.

To arrive at a phonetic score for each individual, three judges were used. If two or more judges were able to recognise the word intended, it was given as `correct'. Obviously, as the words were not within a context of writing, the task was made more difficult because of the lack of available cues to meaning. However, as the Burt is made up of just 90 words, the expectations that the judges had about the `true identity' of the phonetic approximation were restricted. It is possible that as the judges marked tests and got to know what the test word actually was, their judgement of what the approximation was meant to be may have been influenced. For example, word forms like `wraser' for `razor', `desieze' for `disease' or `peaqula' for `peculiar' may have been facilitated by knowledge of what the approximation was meant to be.

The conclusion to be considered is that estimates of phonetic spelling may have been more generous in this context, than they might have been if

the measurement was made from a sample of writing, notwithstanding the influence of context. It needs to be remembered too, that our analysis of the incidence of phonetic spellings in writing as measured by the Franklin, showed no increase from pre-test to post-test.

Irrespective of the conclusion that these estimates of phonetic spelling as shown in Tables 17-20 may be inflated, scores on this measure did increase although not significantly. From pre-test to post-test Group 1 improved by 2.69 words, and Group 2 by 4.25 words. Interestingly enough, Group 2 increased their scores by 3.71 during the 'control' condition. This may be a reflection of marker unreliability as much as anything else. It was not possible within this study to undertake an analysis of marker reliability, but in retrospect, this would have provided additional valuable information.

5. Generalizing From Testing of Mistakes in Writing

Data was presented for 21 candidates reporting the outcome of testing spelling mistakes identified from their pre-test writing samples. This testing was undertaken after the RSP had been completed and following on from the other post-tests that were administered.

The data reported on p. 48 indicate that at the post-tutoring phase these students had made progress through the stages as outlined by Gentry (1982), particularly in the reduction of number of mistakes categorized at the pre-communication and semi-phonetic level, and with 45 of the original 116 spelling mistakes correct at the post-tutoring stage. A very positive movement indeed.

It was clear also from data on the number and percentage of spelling mistakes in the pre-test and post-test writing samples, that progress as indicated by the dictated testing of former mistakes, was not transferred in any general sense to writing. How then is this apparently conflicting situation to be reconciled?

Without too much doubt, the dictated testing of words formerly misspelt, constituted a direct measure of one programme outcome. What is not clear, is how well this improvement by individuals in spelling of certain words, might have generalized to their written spelling. On the surface at least, there is little evidence of transfer, although the data from the writing of the sample of 21, did not have their pre-test/post-test

writing re-analyzed separately.

Three considerations to be noted are that of the 45 former mistakes spelt correctly when re-tested, some were proper nouns or other words with spelling patterns that would not generalize readily and therefore assist with spelling other words, e.g. `done', `become', `Melrose', `eyes', `very', `soccer', `goals', `every', `family', `Miramar', `Maori'. Also, the records of tutoring indicate that 13 of the 116 original mistakes were covered by tutors as part of their direct teaching - obviously sound tutoring practice but a difficulty here - and that 5 of these were in the 45 words spelt correctly. The third unknown is the effect on spelling of having a series of words dictated, rather than these words being generated during writing. A sounder experimental procedure would have been to re-test the mistakes immediately following the pre-test and prior to the programme, the outcome of this procedure to be compared with a second oral testing after the post-test. This might have reflected some practise effect, and to nullify this, would have called for an elaborate design incorporating another `control' condition.

It is clear that the group of 21 children who were tested on their former 116 mistakes could spell 45 of the words. What is not clear is to what extent this reflects application of their new knowledge of vowels and consonants. What is evident also, is that much of this new learning was not generalized to written spelling during the time this evaluation was undertaken.

6. The Contribution of Knowledge of Short Vowels

One of the more intriguing questions of some theoretical importance to arise, is how important is knowledge of short vowel sounds to the spelling progress of these children?

The evidence that we have, which is mainly by way of correlation, indicates that this knowledge may not be crucial. There is a weak relationship at best between performance on our measure of Vowels and other measures of conventional spelling. As far as phonetic spelling is concerned, the relationship with vowels is a little more evident, but could not be described as even moderate. Other measures, namely the Stick test, Regular Words and Regular Syllables are much more strongly related to Vowels. In turn too, performance on Vowels is not related strongly to

these tests.

As the data revealed by correlations are primarily evidence 'by association', and do not bring evidence of possible causal relationships, the more powerful multiple regression technique was applied to pre-test and post-test vowels and the October follow-up tests. These results have not been included in this report, but the overall finding was that neither pre-test or post-test Vowels showed any predictive relationship with either the Graded Spelling Test or the PRETOS, administered as part of the October follow-up. In other words, performance on the Vowels tests did not predict later performance on these standardized tests, suggesting that knowledge of vowels had no causal relationship with these other measures of spelling.

It does need to be noted here that the ceiling effect evident on Vowels, and in particular post-test Vowels, may be influential in this result, as without increased variability on the measure of Vowels, it becomes increasingly unlikely that regression analysis will untangle any possible predictive power that knowledge of vowels might indicate.

There is no evidence from this study to emphasise the importance of knowledge of vowels in the participants' spelling performance. This study was not designed specifically to answer this question, so we cannot be unequivocal on this matter, even in view of the almost total lack of positive evidence. Research designed to illustrate the role of short vowels in spelling performance should be accorded utmost priority before further development of the RSP is contemplated.

7. Impact of Reading Skills

Another question of interest that arose as the study progressed related to the importance of reading as a factor that might influence individuals' performance on the RSP. Although in the original design of the RSP it was intended to cater for all failing spellers, irrespective of their other achievements, it was decided later that incorporation of some reading data was worth pursuing.

As indicated at Table 28, correlations were undertaken between scores from the Burt Word Reading Test - New Zealand Revision and the Burt Spelling Test. Highly significant relationships were found between word reading scores and scores for conventional spelling, indicating that even for these children with fairly minimal spelling attainments, that better

readers also tended to be better spellers. This strong group relationship did not hold for phonetic spelling, so it cannot be concluded that better reading goes hand-in-hand with better phonetic spelling. In the absence of negative correlations we cannot conclude either, that poorer readers are in fact better phonetic spellers. This seems consistent with the weak to moderate relationship identified between conventional and phonetic spelling for these children.

The main implication here is that any progress recorded with conventional or phonetic spelling has not been independent of word reading skills. It looks as though stronger readers have a better chance of progressing on this programme. As a result, the programme may need some different features if it is to cater well for the failing speller who had reading problems as well.

8. Implications for the RSP

A number of points with implications for the RSP are evident in the discussion.

The first point is that the lack of evidence supporting the role of vowels in the spelling of these low-achieving children should be addressed, given that knowledge of short vowels is a cornerstone of the RSP. This would seem to be a matter of priority. If this central feature cannot be validated, aspects of the RSP would need to be reformulated and some present emphasis should change.

A second point to be addressed is in connection with the general notion of phonetic spelling. Just what this is needs to be specified much more clearly, and the characteristics of phonetic, as opposed to non-phonetic spelling, need to be clarified. It is not much help to describe any spelling that conveys meaning to the reader as being `phonetically effective'. The reality is that the interpretation may well be more a function of the reader's skill at decoding (literally), than the writer's skill in spelling. Although we would be first to acknowledge that spelling is a communication skill, an individual's competence in spelling cannot be defined by another person's ability or inability to read what they have written. There is a definite need for users of the programme to be given the means of identifying progress, as children move from less-phonetic to more-phonetic spelling. A framework like the one provided by Gentry (1982)

would prove more helpful, than the undefined notion of 'phonetic effectiveness'.

If phonetic spelling is to remain an important aspect of the RSP, it is important that procedures are developed to help children utilize and integrate newly-acquired phonetic skills into their writing. This of course represents a sizeable challenge. This evaluation has indicated some growth in phonetic spelling was exhibited in the word list context, but in writing, very little growth was evident. And as we agree, improved written communication is the major goal.

A third point is concerned with how children might be helped to use their new knowledge of consonants and vowels in their writing. It was quite clear that most children on the RSP improved this knowledge and, equally clear, that this new knowledge did not transfer to their writing. One possibility to strengthen the RSP might be for the present sequence of 6 lessons to be interspersed with some structured writing activities to help the learner apply this new knowledge. Some variation of word building techniques and word generation strategies, emphasizing the new vowels sounds, or some adaptation for a writing context of onset and rhyme techniques, could be developed.

There are suggestions from this evaluation that time is needed to integrate the new skills. As a consequence, it may be beneficial to move away from the short, sharp, concentrated nature of the programme to something that makes more provision for the new skills to be consolidated, applied in a structured setting and later utilized in suitable written activities. Once again, these developments would need to be creative and would be demanding to formulate.

It probably comes as no surprise to most readers, that the minimal achievements participants had achieved over almost 6 years at primary school were not to be rectified by a 'short sharp programme'. In this case time, coupled with appropriate intervention techniques, does seem to be 'of the essence'.

A fourth point is that more emphasis may need to be placed on the principle that the prime purpose of spelling is to improve written communication. As a consequence, more effort may be needed to link each child's writing needs to the programme. This of course ties back into the third point, as attempts to help children apply their knowledge of spelling to writing will be accomplished through individual's writing. However,

noting data that indicated quite strongly that the more these children wrote, the more they misspelt, a guiding principle might be 'quality before quantity'. Clearly, targeted writing is to be advocated instead of the more general encouragement to write more, even if this latter approach is preferred for young writers who do not show the problems of these participants.

A fifth point is that there is a definite need to establish the personal and learning characteristics of children who might benefit most from programmes of this sort. The sizeable standard deviation reported for most measures indicate a broad range of achievement. Questions need to be asked about the characteristics of earners associated with this range of achievement if more effective programmes are to be devised. Is there an age effect? Is gender, or ethnicity a factor? Are school attendance patterns important? Are aspects of the programme applied differently by different tutors? Is this a strength or a weakness? What is the influence of reading achievement on progress? Should poor readers be given the same instruction as stronger readers? What classroom support is needed for those on the programme? How important is this? Are there lessons for the RSP from reading recovery, about how best to integrate a special programme and classroom instruction? These and other similar questions should be the subject of further research.

9. Final Comment

The developer of the RSP and the staff who took part in the trial are to be commended for their efforts to improve the spelling and writing of this group of 32 learners, and by implication, about 5-10 percent of children in the middle primary school. There may be some disappointment that all results of the trial have not been more positive but, on the other hand, a few individuals were identified as making considerable growth in some skills. This feature however, does not generalize to the group as a whole.

It is the lack of significant results for a majority of the participating children that reduces support for the RSP being implemented on a wide scale with a reasonable degree of confidence. Modifications to the programme as outlined in general terms previously, may improve its effectiveness and help win wider support. Provided the benefits are not overstated, there is no reason why the techniques incorporated in the RSP

should not be summarized in a form available to teachers, so it may then take its place alongside other classroom strategies. Some children are likely to benefit.

The RSP is low-cost and not too demanding in time. Schools could utilize its most basic form for some failing spellers of 10-years of age or a little older. There is a pressing need to clarify the role of short vowels in the spelling performance of primary age children. There is also a need to know much more about the transition from phonetic spelling to conventional spelling for this 5-10 percent of young writers. It would be selling these children short to accept improving phonetic spelling as a goal in itself.

Identification of the 32 children from 10 schools in Wellington did suggest a possible general literacy problem in spelling and writing for something like 5-10 percent of Standard 4 children. We have no reason to believe that the children from these schools differ markedly from the nation's 50,000 or so Standard 4 children, so an implication is that there may be a group of 2500 - 5000 children nationwide, showing the same lack of accomplishments as this small group. A properly planned and conducted incidence survey would reveal the size of this group at particular class levels and indicate the actual extent of their achievement difficulties.

It is somewhat sobering to think that in most Standard 4 classrooms where the spread of achievement usually associated with formal education is represented, that there may be about 3 children experiencing quite major spelling and writing shortcomings. The corollary, of course, is that there are about 27 children in each room who do not achieve at this level, but at this point our focus is on this small minority.

The information presented in this report suggests that the initiative of those most involved with the RSP should now be built on, with further investigations of this problem undertaken and targeted developments for these children put in place.

Conclusions

The following conclusions are put forward:

1. Participants' knowledge of short vowels and consonants increased significantly.

2. Increased knowledge of short vowels did not transfer in a consistently measurable way to spelling in writing.

3. Specific knowledge of short vowels and consonants were not related strongly to the other measures used in this study.

4. Knowledge of short vowels did not predict later performance on the follow-up measures.

   There is little evidence to indicate that knowledge of vowels in isolation was of central importance in the spelling performance of these children. This is an important point that should be investigated further.

5. Mean performance on the general spelling tests showed some increases, but these were not statistically significant.

6. Subsequent testing of initial mistakes from 21 children's writing indicated a statistically significant improvement. Analysis of tutoring records showed that some former errors had been covered during tutoring. Some were examples of `one-off' spelling patterns that would not generalize readily to other words.

7. After the programme, measures of `phonetic' spelling showed greater increases than measures of conventional spelling. These differences were not statistically significant.

8. Correlations between conventional spelling and `phonetic' spelling increased during the period of the study. Although causality cannot be attributed, increases in either phonetic or conventional spelling, seemed to go hand-in-hand.

9. The overall correction rate achieved by the Franklin Spell Master remained at about one word in two.

   There was a slight but non-significant decrease in the correction rate by the Franklin, from pre-test writing samples to post-test writing samples. This data does not indicate any improvement in the frequency of phonetic spelling in writing.

10. There were highly significant correlations between the number of words written and the number of spelling mistakes made.

    As children progress through class levels, correlations between words written and number of spelling mistakes generally decrease, but the correlations for these Standard 4 children were more typical of correlations at the Standard 1 level. This relationship between words written and number of spelling mistakes should also be explored further.

11. In general, there was greater measured progress in skills from post-tests to follow-up testing, than from pre-tests to post-tests; a period that included the actual tutoring.

    These differences suggest that there may be a time element involved in the skills from the RSP becoming integrated into these children's writing strategies. This is another area for additional research.

12. The lack of progress measured during the 'control' phase indicated that without intervention, these children continued the minimal progress many had demonstrated to date.

13. Given the minimal nature of the achievements in spelling and writing of the 32 participants, and in view of the maximum 120 minutes intervention over a 4-week period, and the relatively unselected nature of the sample of children and the emphasis on objective data, this evaluation provided a stringent test of the RSP.

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Appendix 1

Samples of Writing 'About Myself' from Eight Participants

Sample 1

A.B.OUT. My Self
Hi my name is [redacted]
I live at 48 [redacted] rd.
I like playing Hockey and
Tennis as wall I like
reding I have got
a ~~bother~~ bother called [redacted]
and I have got a
~~Sither~~ sister as wall ~~hire~~ hir
name is [redacted]. [redacted]
is 6 yeas old and [redacted]
is 12. my Birthday is
on the 14th of August
I am 10 yeas old
and allmost 11. And
I all so like playing
h gusur with my frien

Sample 2

Hobey camping

I look like this Blue eys Black eBonde her Black eys bro

my flamye craig is a litte brate Becye you never

see. she is owas up at the house paddek Reading

Annimals Books.

School Oxford [redacted] School

Sample 3

9 24/4/92

About My self

About me well I'm kind to people and I brown hair, brown eyes and also I have a berthmake on my face and it is red. I have 6 people in my fliimy tow sister and one brother, Mum and Dad. And my hobes are riding my bike playing with friends and more things like helpping my Mum and Dad my brother is 19 yerys old and my sister Nhung is 10 yers old my other sister is 13 yers old. After school when I get home I somtimes play on the computer on it I play Blue max and some other games I somtimes read books like Fighters, insects, cars and more things or books. I like walking home with my friends, Mumand my sister our car just got a dunt in it on Saturday because they was a car cash at night.

BEST COPY AVAILABLE

Sample 4

Birthday
On May the 13 it is my Bavde
~~and~~ I am gating a ~~se~~ ~~sgr~~
[redacted] far it and Me Kylem Tim
and Kefa are going to [redacted] ~~pa~~ (Nav
(Pool) Paulv and we wau be going on
The hagr Sad and the daving bads
alw day ~~and~~ fan we wal go home
have a Pate and a Sepa ofar sleep
play and 9ale [redacted] alh Nalt in — until we fe
Talw we falw a Sel9 and to — (tom
marw we a [redacted]

Sample 5

~~In ten yers I~~
In Ten yers Time I will have
a Job. I 15 yers Time I will
be marry. In Sevn yers Time
I will be a millynare. In 8 ~~eagt~~
yers Time a will have a big
house. In nien yers Time
I will have a car and a Jetb
too.

BEST COPY AVAILABLE

Sample 6

24

A about My Self

My name is [redacted] I my ten going
I like swimming and running
and I like fishing sometime. I lik
fish and chip McDonald's and
more fast foods the thing I do not like
are thing that take a long time
like geting my bird to talk and
going on boats and long car tarp
and my Dad tolking to some one
I get mad at him I like Friday Be

Sample 7

When I came from up (S[redacted]) I ~~don~~
work that teacher
some ~~work~~ ~~but the~~ work ~~the~~ the ~~teacher~~
gave me was easy because ~~it~~ I was
two
a standi ~~two~~ but two years later I
Standid
was a ~~standard~~ four I dun hard w
but I handled it because I know my
mother when I finish [redacted] by and [redacted]
(Will)?
I ~~want~~ ~~become~~ a micanik or a
police man

The end

 BEST COPY AVAILABLE

I Live at 34 [redacted] st. I have one ster and two bruves a mom and a dad. I am 10 years old and I Like art my Best frn is [redacted] I Like reding book til bed. I ... my one times two times and ten times I have 3 bikes and I like ridein them My clas room is room 7. I am ... not a ... my techer is [redacted] and ... ...

81 I like making stfe out of wood and I like the bech. My Best friend [redacted] ... in room 6. my mom like doing ... and my Dad Likes Doing ... my Birthday was on the 9th of [redacted]

and I like simming in the school pool. I sit next too [redacted] and [redacted] I like painting. I ... a banke. I ... on the top. with my ster [redacted] and I Like [redacted] school. I am the olds cield.

BEST COPY AVAILABLE

THE FONETIK™

SPELLING PROGRAMME

TEACHING STEPS

STAGE ONE

STEP ONE

TEST the learner's knowledge of known consonants and consonant sounds and unknown consonants and sounds by using a letter identification score sheet. Record the nature of the errors phonetically.

STEP TWO

TEACH the learner the difference between vowels and consonants if this distinction is unknown.

STEP THREE

TEACH any unknown consonant sounds, both name–to–sound as well as sound–to–name.

STEP FOUR

TEST the learner's knowledge of short regular vowel names and their sounds.

STEP FIVE

TEACH the unknown short regular vowel sounds, both name–to–sound and sound–to–name.

DO NOT take younger learners into the second stage of the programme until knowledge of short vowel sounds is firmly established and consolidated with practice.

Some older learners, however, can be taken into the second stage of the programme before their vowel sounds are secure because, as they actually apply the strategy, their knowledge of vowel sounds is further reinforced within the context of the words they are asked to spell.

STAGE TWO

STEP ONE

BEGIN with a phonetically regular one syllable word, progressing to two to three or more, phonetically regular words using the word lists provided. Explain that you want the learner to spell the word as it sounds by listening carefully to how it sounds.

STEP TWO

ENUNCIATE the word clearly so that the learner clearly hears all the sounds made by the word, syllable by syllable. Keep your intonation and prounciation of the word natural.

STEP THREE

ASK the learner to distinctly repeat the word to you just as you have pronounced it. If the learner has not articulated the word clearly, or into all its component syllables, ask the learner to repeat the word until it is cleary articulated, and just as the tutor has patterned it.

STEP FOUR

TEACH the learner to identify the number of syllables in any given word, then instruct the learner to draw the equivalent number of boxes on his/her paper.

STEP FIVE

ASK the learner to spell out aloud the first syllable of the word, letter by letter.

DO NOT FORGET

The pupil must spell the word out to you orally letter by letter before writing the word down. Step Five is important because:

- *It continues to re-inforce the sound pattern of the particular word.*
- *The learner is given constant practice in repeating a word just as he/she hears it.*
- *If the learner nominates the wrong vowel name for a given vowel sound and the tutor pronounces the particular syllable with the wrongly attributed vowel sound the learner is given added practice in discriminating between the various vowel sounds within the context of the word selected.*
- *Wrongly attributed vowel names are eliminated at the oral level of learning. The tutor is thus assured that once the pupil writes the particular syllable down it is containing the correct vowel name appropriate to its sound.*

STEP SIX

PRONOUNCE the syllable exactly as it sounds should the learner nominate the wrong vowel. Then pronounce the whole word with its incorrect first or subsequent syllables. Then, again pronounce the whole word as it should sound.

STEP SEVEN

WHEN the learner has nominated the correct vowel he/she writes the syllable in the first box. This ensures that the learner writes the correctly spelt syllable down first time around without having to rub or cross out incorrect work. In this way, previous errors are eliminated at the oral level of learning. Should the learner experience difficulty picking up the difference between correct and incorrect vowel sounds you have probably moved too quickly into the second stage. Simply return the learner to stage one of the programme.

STEP EIGHT

ENUNCIATE in turn the second and third syllables of the word repeating the same steps as for the first syllable of the word. Once the correct vowel has been nominated the learner writes the syllable in the next box. Finally, the word is written down, without boxes, in the usual way.

STEP NINE

GIVE the learner two ticks if the word is accurately spelt, if generated from phonic cues. Reward the learner one tick if the learner has spelt the word in a phonetically effective way and the meaning of the word can be identified unambigously from its phonetic spelling.

STEP TEN

FADE the visual and auditory prompts once the learner has fully internalised the strategy.

STAGE THREE

STEP ONE

ASK the student to spell by listening to how the word sounds, simple phonetically regular, one syllable words.

STEP TWO

USING the word lists provided progress to phonetically regular two syllable words. Once the learner has spelt these words either correctly or phonetically, move on quickly to three to four syllable, phonetically regular words.

STEP THREE

INTRODUCE phonetically irregular words of two to five syllables, which the learner then spells in a phonetically regular way. Check that the meaning of the word is known and that the pupil does not already know how to spell the word conventionally.

STEP FOUR

The learner is asked to spell words of any number of syllables or phonetic complexity, that he or she nominates.

STEP FIVE

INTRODUCE the electronic dictionary so the learner may correct phonetic to conventional spellings of any word.

STEP SIX

INSTRUCT the learner to dictate a story to you orally. Write down the story as it is dictated, then read the story back to the pupil who then writes it down. The learner should tackle any word that previously she/he has not been able to spell correctly or would not have used by spelling that word phonetically. Proof-read or edit this story in the usual way.

TUTORING SEQUENCES IN SUMMARY

ONE

Say the word carefully in its syllables so the learner hears each sound.

TWO

Ask the learner to repeat the word.

THREE

Ask the learner to identify the number of syllables and draw the correct number of boxes on his paper

FOUR

Ask the learner to spell out orally the first syllable of the word.

FIVE

If he spells out the wrong vowel – pronounce the syllable as he said it – then again correctly.

SIX

When the vowel in the first syllable is correct the learner writes it down in the first box.

SEVEN

Repeat for all other syllables

EIGHT

If the word is phonetically effective award one tick – if accurately spelt, award two ticks.

FADING THE PROMPTS

In the early stages of the programme a number of prompts both auditory as well as visual are used to build up the confidence of the learner. Once the learner has gained confidence and has grasped the strategy both prompts should be faded away. It is highly likely that older learners (Standard 4 and above) willnot require careful fading of the prompts.

The ***visual*** prompts are faded in this way:

art | if | ish | al

to

art – if – ish – al

to

art if ish al

to

artifishal

The ***auditory*** prompts are faded in this way:

The word to be spelt is sounded out aloud by the tutor in a clearly articulated way and at slightly raised amplitude. The enunciation of the word must be made very distinct with a slight vocal pause between syllables. The child repeats the sounds pattern of the word exactly

to

increasingly more natural pronunciation but the word is still enunciated clearly and precisely

to

natural pronunciation at normal amplitude under usual classroom conditions

to

the child repeating the word quietly at normal conversational levels

to

saying the word quietly under his/her breath

to

saying the word 'inside his/her head' (sub–vocalisation) so that it cannot be heard by the tutor

Appendix 3

Measures of Specific Spelling Skills

Test 1 : 'Stick' Test.

Test 2 : Knowledge of short regular vowel sounds - name to sound; sound to name.

Test 3 : Knowledge of consonant sounds, name to sound; sound to name.

Test 4 : Test of phonetically regular words.

Test 5 : Test of phonetically regular nonsense syllables.

Test 6 : Burt Spelling Test.

REMEDIAL SPELLING PROJECT

Test 1 : Stick Test

stick	stars	rushed
song	bar	still
hat	cakes	read
tent	pad	send
cans	nuts	wet
pot		

Test 2 : Knowledge of Vowel Sounds and Names

Date_____
Tester_____
Child_____
School_____

Name of Vowel	First Sound Given (render phonetically	Vowel Sound	Name of Vowel Given
a		'ah'	
e		'eh'	
i		'ih'	
o		'oh'	
u		'uh'	

Test 3 : Knowledge of Consonant Sounds and Names Date_____

Tester_____

Child_____

School_____

Name of Consonant	Sound	Sound of Consonant	Name
b	_____	'bih'	_____
c	_____	'sih' 'kih'	_____
d	_____	'dih'	_____
f	_____	'fih'	_____
g	_____	'gih'	_____
h	_____	'hih'	_____
j	_____	'jih'	_____
k	_____	'kih'	_____
l	_____	'lih'	_____
m	_____	'mih'	_____
n	_____	'nih'	_____
p	_____	'pih'	_____
q	_____	'qwih'	_____
r	_____	'rih'	_____
s	_____	'sss'	_____
t	_____	'tih'	_____
v	_____	'vih'	_____
w	_____	'wih'	_____
x	_____	'icks'	_____
y	_____	'yeh' 'yih'	_____
z	_____	'zee' 'zih'	_____

Test 4 : Regular Real Words

van	plum	cricket
ten	skim	level
win	glad	mood
log	dwell	upon
rub	stop	strap

Test 5 : Regular Nonsense Words

pib	siblem	dupraplet
nud	dopped	hidsabtog
taz	tradsum	sugjozdek
lem	sentin	dimleptip
dop	donup	stepdabnet