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Growing phonological and morphological knowledge and improving spelling outcomes in Year 2 primary school children through Explicit Instruction and contextualised dictation

Sally Louise Robinson-Kooi
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**Growing phonological and morphological knowledge and
improving spelling outcomes in Year 2 primary school children
through Explicit Instruction and contextualised dictation**

Sally Louise Robinson-Kooi

This thesis is presented for the degree of
Doctor of Philosophy

**School of Education
Edith Cowan University
Faculty of Arts and Education
June 25, 2019**

Abstract

Using Explicit Instruction (EI) to teach spelling is controversial because teaching approaches vary considerably in the contemporary classroom. Teachers may privilege visual over linguistic strategies and include target words based around themes, rather than the phono-morphological structures of words. There is also little current research about the benefits of using sentence dictation to practise taught spelling skills and thus to increase the likelihood of developing spelling automaticity. Spelling automaticity is important because it complements crucial reading and writing skills. Developing fluent spelling through EI, followed by sentence dictation, was a specific focus of this study.

Two primary schools in rural NSW and a total of 30 teachers were involved in this mixed methods research. One of the schools was used as a comparison school and the other was the intervention school. All 30 teachers involved in the study completed a knowledge survey about the components of the English spelling system considered essential to teach spelling explicitly. From this data, the specific knowledge of the teachers involved in the Year 2 intervention, the Learning Support Teacher and the Acting Principal, was extracted. The two Year 2 teachers in the comparison school received professional development on meaning-based approaches to spelling, whereas the five teachers at the intervention school received professional development on EI techniques and word level components of the English spelling system. Mid-intervention teacher interviews gathered data about their feelings on implementing EI techniques in practice. Post-intervention quantitative tests and interviews allowed in-depth and rich understandings of aspects that either enabled or hindered implementation of the intervention.

The spelling competence of 60 students at the two schools was also assessed before any intervention took place. The 35 Year 2 students in the two classes at the intervention school received EI in the phonological and morphological aspects of words, editing, and contextualised sentence dictation during Term 3. The 25 students in the Year 2 class at the comparison school continued their established literacy routine. Interviews with randomly selected students from both schools

facilitated an exploration of their feelings about spelling approaches used during the term.

The findings showed that spelling results in both schools improved as expected. However, overall the intervention school had superior results to the comparison school; one class in the intervention school consistently outperformed all other classes in word spelling and dictation assessments with moderate to large effects. Many of the teachers demonstrated an increase in morpheme knowledge, but not in word structure.

In this study the EI spelling Lesson elements were reinforced by teaching strategies that included contextualised editing tasks and daily sentence dictations. These tasks were embedded in the term science theme of *Insects*, which was chosen in collaboration with the intervention teachers. The dictation component, a previously underutilised tool, involved students writing two lines from a contextualised poem, each day. In Australia, current methods of teaching spelling remain varied and contentious. Teachers who are engaged in improving spelling knowledge may find that using EI strategies reinforced by contextualised dictation can improve outcomes for all students.

I certify that this thesis does not, to the best of my knowledge and belief

- i. incorporate without acknowledgement any material previously submitted for a degree of diploma in any institution of higher education;
- ii. contain any material previously published or written by another person except where due reference is made in the text of this thesis; or
- iii. contain any defamatory material.

Sally Louise Robinson-Kooi

June 25, 2019

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Table of contents

Chapter 1 Introduction	1
1.1 Context of the study.....	1
1.2 Development of the study.....	5
1.3 Purpose of the study.....	6
1.4 Research questions.....	9
1.5 Glossary of terminology.....	10
Chapter 2 Literature review:	
Part A: The role of spelling in literacy acquisition	17
2.1 Overview: The evolution of the English spelling system.....	17
2.2 Is spelling 'caught' or 'taught'?.....	21
2.3 Building and developing word level spelling knowledge.....	26
2.3.1 Phonological and phonemic awareness.....	26
2.3.2 Phonics.....	28
2.3.3 Morphemic knowledge.....	32
2.3.4 Orthographic knowledge.....	39
2.3.5 Summary of the interrelationship between the three components.....	41
2.4 Theories on developing student spelling and linguistic awareness.....	42
2.4.1 Two instructional approaches: Meaning-based and Explicit Instruction.....	45
Part B: The Australian Context	57
2.5 Introduction.....	58
2.6 Approaches to literacy and spelling instruction: An historical overview....	59
2.7 Balanced Literacy.....	63
2.8 Missing in action. Literacy wars remain unsolved: Interplay between policy and practice.....	66
2.8.1 Review of <i>The Australian Curriculum (AC)</i>	67
2.9 Phonics Screening Check (PSC).....	72
2.10 Turning schools around.....	75
2.11 Teacher knowledge and confidence to teach spelling.....	77
2.12 Initial Teacher Education (ITE) programs and undergraduate literacy standards.....	83
2.13 Resistance to change: The interplay between beliefs and practice.....	85
2.13.1 Engagement with research-based data.....	87

2.13.2 The role of leadership.....	90
2.14 Developing spelling skills: Three different pedagogical approaches.....	92
2.14.1 <i>Language, Learning and Literacy (L3)</i>	92
2.14.2 <i>Sound Waves</i>	98
2.14.3 <i>Spelling Mastery</i>	102
2.14.4 Summary of the three programs.....	107
2.15 Dictation.....	108
2.16 Summary of Literature Review Parts A and B.....	112
Chapter 3 Conceptual framework and methodology	117
3.1 Paradigm.....	117
3.2 Methodology.....	119
3.3 Methods.....	120
3.3.1 Qualitative and quantitative components.....	121
3.4 Schools and participants.....	125
3.4.1 Research ethics.....	125
3.4.2 Participants.....	126
3.5 Selecting and developing the assessment tools.....	129
3.5.1 Teacher knowledge surveys and individual interviews.....	130
3.5.2 Teacher fidelity protocol checklists.....	130
3.5.3 Student spelling assessments.....	131
3.5.4 Post-intervention student interviews.....	134
Chapter 4 Developing <i>The Spelling Detective Project</i>	135
4.1 Curriculum requirements.....	135
4.2 Diocese initiatives within the school.....	139
4.3 The school context.....	140
4.3.1 Collaboration.....	141
4.4 The weekly cycle structure and instructional sequence.....	142
4.5 Selecting The Project structure and content.....	144
4.5.1 Pedagogical and literacy components.....	147
4.5.2 Elements of explicit instruction in the lesson design.....	148
4.5.3 Lesson components and delivery techniques.....	150
4.5.4 Developing the teaching resources: Content and structure.....	153
4.5.5 The weekly lesson sequence.....	172

4.5.6 PowerPoint® slides and additional materials.....	179
4.6 Teacher professional development.....	187
Chapter 5 Data collection and analysis.....	193
5.1 Data collection.....	193
5.2 Data analysis.....	196
Chapter 6 Results.....	200
6.1 Fidelity of implementation data	200
6.2 Research Question 1.....	201
6.2.1 Teacher pre-intervention quantitative results.....	201
6.2.2 Summary of teacher pre-intervention quantitative results, Research Question 1a.....	204
6.2.3 Teacher pre-intervention qualitative results.....	205
6.2.4 Summary of teacher pre-intervention qualitative results, Research Question 1b.....	211
6.3 Research Question 2.....	212
6.3.1 Teacher post-intervention quantitative results.....	212
6.3.2 Summary of teacher post-intervention quantitative results, Research Question 2a.....	215
6.3.3 Qualitative results from individual teacher interviews, Research Question 2b.....	216
6.3.4 Summary of post-intervention teacher quantitative and qualitative results, Research Question 2.....	222
6.4 Research Question 3.....	223
6.4.1 Student pre-intervention quantitative results.....	223
6.4.2 Summary of student pre-intervention quantitative results.....	226
6.4.3 Student post-intervention quantitative results.....	227
6.4.4 Summary of student post-intervention quantitative results.....	229
6.5 Research Question 4.....	230
6.5.1 Student pre-intervention quantitative results.....	230
6.5.2 Summary of student pre-intervention quantitative results, Research Question 4a.....	234
6.5.3 Student post-intervention dictation quantitative results.....	234
6.5.4 Summary of student post-intervention results, Research Question 4a	237
6.5.5 Student post-intervention qualitative results, Research Question 4b	239

6.5.6 Summary of students' feelings about spelling.....	243
6.5.7 Summary of students' personal spelling strategies.....	246
6.5.8 Summary of students' perceptions of the usual spelling approaches, CPS1A	248
6.5.9 Summary of students' perceptions of the usual spelling approaches, CPS1B.....	249
6.5.10 Summary of students' perceptions of the usual spelling approaches, CPS2.....	250
6.5.11 Intervention school CPS1: Students' feelings on The Project spelling and dictation components.....	251
6.5.12 Summary of students' feelings on The Project spelling and dictation components, class CPS1A.....	252
6.5.13 Summary of students' feelings on The Project spelling and dictation components, class CPS1B.....	254
6.5.14 Intervention school CPS1: Summary of students' feelings on The Project spelling and dictation components.....	254
6.5.15 Comparison school CPS2: Students' feelings on the Term 3 spelling content and dictation assessment.....	255
6.5.16 Comparison school CPS2: Summary of students' feelings on the Term 3 spelling content and dictation assessment.....	256
6.5.17 Summary of post-intervention quantitative results, Research Question 4b.....	257
6.6 Research Question 5.....	259
6.6.1 Summary of qualitative results, Research Question 5.....	259
Chapter 7 Case studies.....	262
7.1 Robyn, CPS1A class teacher	262
7.2 Jan, CPS1B class teacher.....	268
7.3 Ella, Learning Support Teacher (LST).....	272
7.4 Tim, Acting Principal.....	275
Chapter 8 Discussion.....	279
8.1 Research Question 1.....	279
8.1.1 Summary of discussion, Research Question 1a.....	282
8.1.2 Summary of discussion, Research Question 1b.....	286
8.2 Research Question 2.....	287
8.2.1 Summary of discussion, Research Question 2a.....	290
8.2.2 Summary of discussion, Research Question 2b.....	296
8.3 Research Question 3.....	297

8.3.1 Summary of discussion, Research Question 3.....	301
8.4 Research Question 4.....	304
8.4.1 Summary of discussion, Research Question 4a.....	313
8.4.2 Summary of discussion, Research Question 4b.....	318
8.5 Research Question 5.....	319
8.5.1 Summary of discussion, Research Question 5.....	324
Chapter 9 Conclusion and implications.....	326
9.1 Research overview.....	326
9.2 Summary of answers to Research Questions.....	327
9.3 Limitations.....	334
9.4 Implications and recommendations.....	335
9.5 Concluding comments.....	336
References.....	338
Appendix A: Spelling lesson plan.....	360
Appendix B: Teacher Knowledge Survey (TKS) A and B.....	365
Appendix C: Teacher interview guide questions.....	369
Appendix D: The fidelity checklist and extracts from fidelity checks.....	372
Appendix E: The Schonell Spelling Tests.....	375
Appendix F: The adapted morphological knowledge test.....	377
Appendix G: Dictations 1 and 2.....	378
Appendix H: Student consent form and interview guide questions.....	379
Appendix I: The Scope and Sequence of Overview of Phonological and Graphological Processing Skills K-6.....	381
Appendix J: <i>The Spelling Detective Project</i> nine-week scope and sequence.....	386
Appendix K: The set of five dictation poems in <i>The Spelling Detective Project</i>	412
Appendix L: Acting Principal lesson report.....	414
Appendix M: Summary of student pre- and post-dictation 1 and 2 scores.....	415
Appendix N: Qualitative colour-coding categories, teacher interviews.....	417
Appendix O: Layout in classrooms CPS1A and CPS1B.....	424

List of Figures

Figure 1: Time line of the development of the English Language.....	18
Figure 2: Anglo-Frisian runic alphabet.....	18
Figure 3: An example of the Roman script Old English alphabet.....	19
Figure 4: Word matrix and word sums for the base word <i>sing</i>	38
Figure 5: The connecting components affecting student achievements	87
Figure 6: A model of teacher change.....	88
Figure 7: The role of spelling, including orthographical, phonological and morphological components in the writing process	110
Figure 8: Conceptual design of research paradigm and methodology.....	118
Figure 9: An overview of teaching and learning principle elements in <i>The Spelling Detective Project</i>	148
Figure 10: The TAPPLE steps to check for understanding (CFU).....	150
Figure 11: Robot Walking, Week 2 Lesson 1.....	180
Figure 12: Long and Short Vowel Game, Week 4 Lesson 3.....	180
Figure 13: Phoneme segmentation, Kung Fu, Week 4 Lesson 1.....	181
Figure 14: Phonics spelling, Phoneme Fingers and Hoop Stepping, Week 3 Lesson 4.....	181
Figure 15: Phonics spelling, Words in the Air, Week 3 Lesson 4.....	181
Figure 16: Tricky Words, Week 7 Lesson 4.....	182
Figure 17: Rule and mnemonic, Week 2 Lesson.....	182
Figure 18: Rule and digraph /ai/, Week 2 Lesson 3.....	182
Figure 19: Policeman’s Hat, Week 7 Lesson 4.....	183
Figure 20: Word building with split vowel digraph base words and <i>-ing</i> , Week 5 Lesson.....	183
Figure 21: Phonics spelling, Words in the Air. Adding morpheme <i>-ing</i> to split vowel digraph base words, Week 5 Lesson 1.....	183
Figure 22: Phonics spelling, Phoneme Fingers. Adding morphemes <i>re-</i> , <i>-ing</i> and <i>-ed</i> to base words, Week 7 Lesson 3.....	184
Figure 23: The Editor’s Desk sentences, Week 6 Lesson 2.....	184
Figure 24: The Editor’s Desk syllable sort, Week 8 Lesson 4.....	184
Figure 25: Dictation, Oswin sings, Week 8 Lesson 4.....	185
Figure 26: Hattie’s barometer of teacher influence on student outcomes.....	188
Figure 27: Students’ responses to feelings about spelling.....	240
Figure 28: Students’ responses to personal spelling strategies.....	244

Figure 29: CPS1A students’ perceptions of the usual class teaching approaches to spelling.....	247
Figure 30: CPS1B students’ perceptions of the usual class teaching approaches to spelling.....	249
Figure 31: CPS2 students’ perceptions of the usual teaching approaches to spelling.....	250
Figure 32: CPS1A students’ responses to feelings on Term 3 spelling, dictation and poem components.....	252
Figure 33: CPS1B students’ responses to feelings on Term 3 spelling, dictation and poem components.....	253
Figure 34: CPS2 students’ responses to feelings on Term 3 spelling component and dictation assessment.....	255
Figure 35: Thematic coding of teacher responses to teaching and engagement in <i>The Spelling Detective Project</i>	261

List of Tables

Table 1: Language origins of English words.....	21
Table 2: Australia’s ranking and mean score compared to Northern Ireland, England and the United States in the 2016 PIRLS.....	69
Table 3: Comparison percentage of NSW Year 3 students from each geolocation in Bands 1 and 2 NAPLAN spelling results, 2012-2017	70
Table 4: <i>Sound Waves</i> Year 2 weekly scope and sequence, term 3.....	100
Table 5: <i>Spelling Mastery</i> content and spelling strategies.....	103
Table 6: An example of a scripted phonemic segmentation component.....	105
Table 7: Scripted oral presentation exercise for whole words.....	105
Table 8: Spelling with morphographs.....	106
Table 9: Comparison of Bands 1 and 2 NAPLAN Year 3 spelling result percentages minimum standard and below for Year 3 in the intervention and comparison schools with the New South Wales average.....	128
Table 10: <i>Australian Curriculum: English (AC:E)</i> sequence of content, strand language, Year 2.....	136
Table 11: A spelling progression of instruction K-6 in the primary school aligned to the <i>NSW English K-6 Syllabus Stages 1-3</i>	145
Table 12: Explicit instruction lesson elements in <i>The Spelling Detective Project</i> based on Rosenshine’s Principles of Instruction.....	149
Table 13: The Editor’s Desk: Sentence editing Weeks 1-9.....	162
Table 14: The Editor’s Desk: Word Sorts Weeks 4-9.....	163
Table 15: Content introduced and reviewed Weeks 1-2: The garden.....	167
Table 16: Content introduced and reviewed Weeks 3-4: Ants.....	168
Table 17: Content introduced and reviewed Weeks 5-6: The farm spider.....	170
Table 18: Content introduced and reviewed Weeks 7-8: Oswin sings.....	171
Table 19: Overview of the weekly language skills development strategies and teaching activities: Concepts to review and concepts to introduce.....	172
Table 20: Overview of weekly word spelling: Reviewed and introduced concepts.....	173
Table 21: Phonological awareness: Skills development strategies and activities related to the total number of repetitions each lesson: Week 4.....	174
Table 22: Phonics skills: Skills development strategies and activities related to the total number of repetitions each lesson: Week 4.....	175
Table 23: Tricky words and rules: Skills development strategies and activities related to the total number of repetitions each lesson: Week 4.....	176
Table 24: Phonological awareness: Skills development strategies and activities related to the total number of repetitions each lesson: Week 8.....	176

Table 25: Phonics skills: Skills development strategies and activities related to the total number of repetitions each lesson: Week 8.....	177
Table 26: Tricky words and rules: Skills development strategies and activities related to the total number of repetitions each lesson: Week 8.....	178
Table 27: Summary of data from the Researcher fidelity observations.....	201
Table 28: Mean pre-intervention scores in tests of teacher knowledge of word structure, syllables and morphemes.....	202
Table 29: Pre-intervention test scores in teacher knowledge of word structure.....	203
Table 30: Pre-intervention test scores in teacher knowledge of syllables.....	203
Table 31: Pre-intervention test scores in teacher knowledge of morphemes....	204
Table 32: Pre-intervention: Individual teachers' views on current approaches to teaching spelling.....	207
Table 33: Mean post-intervention scores within schools in tests teacher knowledge of word structure, syllables and morphemes.....	212
Table 34: Change in mean pre- to post-intervention scores within schools in tests of teacher knowledge of word structure, syllables and morphemes.....	212
Table 35: Pre-and post-intervention test scores in teacher knowledge of word structure.....	213
Table 36: Pre- to post-intervention test scores in teacher knowledge of syllables.....	214
Table 37: Pre- to post-intervention test scores in teacher knowledge of morphemes.....	214
Table 38: Scores of four teachers pre- and post-professional development: Tests in teacher knowledge of word structure, syllables and morphemes.....	215
Table 39: Mid-intervention: Individual teachers' views on approaches to teaching spelling.....	217
Table 40: Post-intervention: Individual teachers' views on approaches to teaching spelling	219
Table 41: Mean results in pre-spelling and morpheme assessments interclass and interschool.....	224
Table 42: Number and percentage of students making errors in the pre-intervention Schonell Spelling Test.....	225
Table 43: Number and percentage of students making errors in the pre- and post-morpheme assessments.....	226
Table 44: Mean results in post-spelling and morpheme assessments interclass and interschool.....	227
Table 45: Number and percentage of students making errors in the post-intervention Schonell Spelling Test.....	228
Table 46: Mean results in pre-dictation 1 and dictation 2, interclass and interschool.....	230

Table 47: Number and percentage of students making errors in pre- and post-dictation 1.....	231
Table 48: Number and percentage of students making errors in pre- and post-dictation 2.....	233
Table 49: Mean results in post-dictation 1 and dictation 2, interclass and interschool.....	234
Table 50: Post-intervention effect size values using Cohen's <i>d</i> and probability of superiority (PoS) interclass and interschool.....	237
Table 51: Calculations of post-intervention effect size values using Cohen's <i>d</i> and probability of superiority (PoS) intraclass and intraschool.....	238

Chapter 1 Introduction

*“Spelling is the foundation of reading and the greatest ornament of writing”
attributed to Noah Webster, 1773.*

Developing students’ spelling skills has not received the same attention as developing their reading skills. Lack of fluent spelling can affect the development of reading and writing competence, leading to long-term personal and social issues (Graham & Perin, 2007; Joshi, Treiman, Carreker, & Moats, 2008; Schlagal, 2013). In addition, correct spelling is greatly valued by society (Moats, 2006). However, there has been prolonged disagreement on how spelling is best learned. Some consider that children learn to spell naturally through reading (Cambourne, 2015; Goodman, 1989; Krashen, 1989, 2002), whilst others state explicit and systematic teaching of spelling is required to develop accomplished spelling skills (Berninger & Fayol, 2008; Ehri, 2014; Joshi et al., 2008; Moats, 2010; 2014; Schlagal, 2013; Westwood, 2018).

Long-term research evidence supports the view that teaching synthetic phonics is important to developing spelling and reading success (Johnston & Watson, 2005a). Whilst phonics instruction is an important and effective approach, phonics knowledge alone does not represent a true picture of the English spelling system (Treiman, 2018). Children need to learn about the interrelationships between phonology, morphology and orthography in words (J. Bowers & Bowers, 2017). It is claimed that the most effective instruction incorporates these three components in a well-designed, developmental sequence of explicit instruction (Berninger & Fayol, 2008, Henry, 2010; Moats, 2010).

1.1 Context of the study

In Australia during the 1980s and 1990s, constructivist approaches to literacy teaching were popular (Freebody, 2007; Westwood, 2005, 2008) and the explicit teaching of spelling was seen as unimportant. However, the decline in student literacy standards that followed, including spelling, resulted in an agreement between the Australian states and territories that teaching spelling was as important as teaching reading and writing. In 1998, the document *Focus on Literacy: Spelling* (NSW Department of Education and Training, 1998) was published to encourage the explicit teaching of spelling components. It stated the importance

of developing students' spelling skills and that accurate spelling reflected an individual's literacy accomplishment.

A continued overall decline in Australian literacy standards including spelling led to the Australian federal government instigating the *National Inquiry into the Teaching of Literacy* (NITL) (Rowe, 2005) to seek reform. Recommendations in the executive summary were drawn from evidence-based research on literacy development that also included findings from the *National Reading Panel* (2000) in the United States (US). Recommendations included the need for students to be taught alphabetic code-breaking skills through explicit instruction of systematic phonics to optimise their literacy outcomes. Since the NITL, the NSW Department of Education has produced a series of policy documents emphasising the importance of explicitly teaching literacy skills, including spelling, in a systematic, balanced and integrated approach.

Current instructional practices to developing literacy and spelling skills in the Australian primary school fall, in the main, under either meaning-based or teacher-centred instructional approaches. Meaning-based or constructivist approaches emphasise the importance of a literacy rich environment with an emphasis on the comprehension of text and building on students' current knowledge. The teacher provides partial guidance, and where spelling is concerned, this may include teaching sound-symbol correspondence based on words occurring in the text. Teacher-centred instruction which includes various explicit or direct instruction approaches also builds on current student knowledge. However, a major difference is that explicit instruction methods are teacher-directed not child-centred. Lessons follow a carefully planned sequence that optimise student engagement and active participation.

Explicit instruction comprises five main pedagogical approaches. These are: Explicit Instruction (EI) (Archer & Hughes, 2011); direct instruction (Rosenshine, 1987, 2012); Explicit Direct Instruction (EDI) (Hollingsworth & Ybarra, 2009, 2018); I do, We do, You do (Wheldall, Stephenson, & Carter, 2014), and Direct Instruction (DI) (Engelmann & Carnine, 1991; 2016). All these approaches share common instructional principles that see the concepts or skills being taught delivered in a teaching sequence that proceeds in small steps. It comprises activating prior

knowledge, checking for student understanding, with active student involvement during a sequence of guided and independent learning tasks (Rosenshine, 2012). A difference between these five approaches is that Direct Instruction or DI (Engelmann & Carnine, 1991; 2016) is accompanied by a fully scripted lesson content. This is a somewhat controversial, but highly effective teaching method that has delivered excellent outcomes (Hempenstall, 2013; Stockard, Wood, Coughlin and Khoury, 2018).

Rowe (2006) drew on key research findings on effective teaching practices for all students and found that neither a meaning-based or explicit instruction approach alone is suitable for developing all student learning. However, he emphasised that in order to facilitate inquiry and discovery learning, students first need explicit instruction in essential literacy foundation skills such as the alphabetic principle to support this approach.

Currently, balanced literacy is a favoured pedagogical approach in many schools. The contemporary model is ill-defined (Riddle, 2015) and varies between schools and teachers. In the main, where spelling is concerned, it comprises both meaning-based and phonics instruction approaches. A balanced and systematic approach to spelling is emphasised in *An introduction to quality literacy teaching* (NSW Department of Education and Training, 2009). It promotes using the *Four Literacy Resource* model (Luke & Freebody, 1999), a non-sequential but integrated approach when applying sound-symbol relationships to decode print. However, the more recent resource, *Phonics: A guide for teachers* (Board of Studies NSW, 2015) does not include the *Four Literacy Resources* model. It advises implementing synthetic phonics in a logical sequence that builds on prior learning. The contradiction between these two documents could be seen as confusing for teachers when developing a program of literacy and spelling instruction.

Low literacy outcomes in international assessments and the *National Assessment Program Language and Literacy* (NAPLAN) (Australian Curriculum Assessment and Reporting Authority (ACARA), 2018) continued. This led the federal government to allocate funds specifically for education reforms. It includes a proposed Phonics Screening Check (PSC) assessment in Year 1 to identify students who may need early extra assistance in numeracy and literacy skills. *The Australian Curriculum:*

English (AC: E) (ACARA, 2013) and *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) require students to learn the phonological, morphological and orthographic components of spelling and develop their knowledge about these constructs. This means teachers need to have a sound knowledge of this content and how best to teach it. Indeed, Stark, Snow, Eadie, and Goldfeld (2015) reported findings from Australian and international studies on the knowledge both pre-service and practising teachers had about the components of the English language system. It showed that there was great variation in teacher knowledge of basic constructs as well as their confidence to teach spelling explicitly.

For Year 2 students, where spelling is concerned, the AC: E *Sequence of content, strand language, Year 2* (ACARA, 2015a, pp. 6-7) states each student will acquire the following skills:

Understand how to use knowledge of digraphs, long vowels, blends and silent letters to spell one and two syllable words including some compound words (ACELA1471)

Use knowledge of letter patterns and morphemes to read and write high-frequency words and words whose spelling is not predictable from their sounds (ACELA1823)

Build morphemic word families using knowledge of prefixes and suffixes (ACELA1472). (ACARA, 2015, pp. 6-7)

A lack of teacher knowledge of these components is problematic. Continuing professional development is required for all teachers in Australia throughout their teaching career (Australian Institute for Teaching and School Leadership (AITSL), 2011). However, the interplay between beliefs which teachers may have developed during their pre-service training and classroom practices can affect their engagement with research-based literature and professional development programs (Carter & Wheldall, 2008). This may also have consequences when selecting a pedagogical approach to teach literacy components and have implications for delivering curriculum and syllabus content effectively.

How curriculum and syllabus content is to be taught is left to the discretion of schools and teachers. Many NSW schools have implemented the literacy program *Early Action for Success (EAfS)* which the NSW Department of Education (2014) developed. It is a strategy to underpin an early literacy initiative called *Best Start*, and was designed to reduce the risk of poor early literacy outcomes, especially for

students from low socio-economic backgrounds. However, concerns have been raised by teachers about the efficacy of *Language, Learning and Literacy (L3)* (NSW Department of Education and Communities, 2011) which is a component of the program content (Buckingham, 2018).

Other teachers use a commercial spelling program to teach students the spelling content. A concern, however, is that during the selection process, teachers may not seek evidence that the chosen program was developed based on research-based instruction principles (Wheldall, 2007). It may also be used to supplement their knowledge and save preparation time (Mullock, 2012) as most programs provide a selection of spelling practice activities. A popular strategy, Look, Cover, Write, Check (LCWC) is also used extensively for students to practise and learn spelling visually. Some research studies have found it a beneficial approach to recall taught spelling patterns (Westwood, 2008). Others state that whilst a student may have a perfect score in their spelling test, the burden on working memory does not enable transference to other writing tasks (Berninger & Richards, 2002; Moats, 2007; Nunes & Bryant, 2006) or facilitate building a knowledge about spelling.

There has been little research to date on the effect that sentence dictation may have on supporting the development of taught word spelling to automaticity. It has been suggested that dictation is an undervalued and underutilised but effective way for students to practise taught spelling and increase the likelihood of it becoming generalised in self-composition (Berninger et al., 2000). Dictation has been included as a statutory requirement for five- to seven-year-old students in the *National Curriculum for English* in England (UK Government Department of Education, 2013). It is used so students can apply taught spelling rules and common words in written sentences.

This present research is a Year 2 spelling intervention project that focuses on both teacher and student outcomes. The development of the research study follows.

1.2 Development of the study

This study was born from the Researcher's experiences as an independent literacy consultant whilst providing professional development in aspects of literacy in the primary school sector. Over the past five years, a session on the teaching of spelling

has been a popular request. During and after these sessions, experienced teachers who had been teaching literacy including spelling for many years often said they had not previously known about the constructs of the English spelling system or how to teach them. The rhetorical question was “Why weren’t we taught this at university?” Furthermore, teachers said many students did not remember spelling from one week to the next, could not apply taught concepts in their writing, and had low spelling results as measured by the *National Assessment Program Language and Literacy* (NAPLAN) (Australian Curriculum Assessment and Reporting Authority (ACARA), 2018).

The Melbourne Declaration on Educational Goals for Young Australians (Ministerial Council on Education Employment Training and Youth Affairs, 2008) states the importance of promoting equity and excellence for all students regardless of their social, cultural and geographic background. In many rural NSW schools, there have been concerning Year 3 NAPLAN spelling results. Between 2012-2016 the number of students at or below the minimum Band 2 standard was almost double that of metropolitan students. This means these students are at risk of requiring intervention in spelling instruction if they are to increase their spelling skills and resultant assessment outcomes. The schools involved in this research were not in an area that was classified as being educationally disadvantaged, and were representative of an average level of socio-economic and educational community advantage as measured by the Index of Community Socio Educational Advantage (ICSEA) (ACARA, 2010). However, their Year 3 students’ spelling results also reflected the above 2012-2016 NAPLAN outcomes in NSW rural schools. Targeting Year 2 students in this research meant they would be provided with an opportunity to increase spelling skills and optimise outcomes well in advance of the Year 3 NAPLAN assessments.

1.3 Purpose of the study

The purpose of this intervention study was to provide teachers with an Explicit Instruction (EI) spelling program for them to use to teach their Year 2 students. As part of this study, the Researcher also designed the Term 3 spelling program called *The Spelling Detective Project* (known as The Project). A comparison school continued with their usual literacy program. The research undertaken in this study

also built on existing research literature as well as extended studies from previous research in the following manner.

First, this study collected data on teachers' knowledge of the components of words that are required to teach spelling explicitly. Australian studies have found that in general, teachers have limited knowledge of these language constructs. Thus, results from this study add to previous research that either supports or refutes previous findings.

Second, the study enabled research into how the teachers who took part in the Professional Development (PD) session before The Project engaged with the content and if it impacted on their word spelling knowledge. It also provided a forum in which to investigate if there was a flow-on effect from the PD session to other teaching staff. Yoon, Duncan, Lee, Scarloss, and Shapley (2007) have suggested that teachers increase their knowledge and skills through engaging with PD and its content. Conversely, Guskey (2002) found that many do not, and that they remain sceptical unless they see a change in student outcomes. The current study enabled exploration of the attitudes of teachers involved in The Project that may have influenced take up of the PD content and The Project as a whole.

Third, this study measured the impact that Explicit Instruction (EI) in the phonological and morphological aspects of spelling incorporated into a learning progression had on student spelling outcomes. The review of literature undertaken prior to this study showed that instruction in phonics alone is not sufficient (Treiman, 2018) as it does not provide a true picture of the English spelling system. Students require instruction comprising the explicit modelling of strategies that link spoken and written words including the phonological, morphological and orthographic components (Berninger & Fayol, 2008; Joshi et al., 2008; Moats, 2010, 2014; Westwood, 2018) in order to develop fluent spelling. In this current study, student pre- to post-spelling results in the intervention school were measured. These were compared to results from the same assessments for the comparison school students who continued with their usual meaning-based literacy program. The study also examined the views that students hold about the strategies their teachers used during the term to teach spelling. Exploring these factors was important in order to measure what may motivate students to engage, or not, with

the instructional content. Previously, Bowers, Kirby, and Deacon (2010) reported that a detective theme used in a spelling project involving a similar study of word components was likely to foster student enjoyment and motivation. They hypothesised that involving students in an investigative approach might also heighten their focus on words and support acquiring long-term knowledge. In this research, post-study interviews from the intervention school students and the comparison school students were considered to see if responses from either cohort reflected knowledge on the aspects of spelling.

Fourth, the study extended previous limited research on the effects the use of dictation may have on developing spelling skills. Berninger and Richards (2002) found that developing student knowledge about the orthological, phonological and morphological components of spelling played a central role in underpinning the writing (and reading) process. Their rationale for the benefits of using dictation was that students draw on their knowledge of these three components when writing meaningful sentences. Furthermore, the load on working memory would be more similar to composing than it is when spelling single words (Berninger et al., 2000). This is important, as previous research has shown that extensive independent practice is required to develop automaticity of a skill (Rosenshine, 2012) and writing development in part, depends on automatic spelling (Berninger & Richards, 2002). This is a significant aspect in this study. Dictation has been used to practice and measure the effect the spelling instruction had on the students' ability to write taught spelling in connected text. Results will either support or refute previous research in this field.

Finally, this study contributed to existing research on teachers' attitudes towards the EI instructional elements that were used in the structured spelling progressing during The Project. In a summary of previous research, Dinham (2009) stated the essential elements of a structured lesson are "both student centred and teacher-directed" (Dinham, 2009, p. 55). He asserted that those committed to a constructivist approach may have a negative attitude toward implementing the important steps associated with EI approaches. This study has explored the factors that either enabled or impeded the teachers' engagement with the EI pedagogical approaches.

The spelling constructs used in this intervention are stated requirements to be taught in the AC: E (ACARA, 2014) and *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) throughout the primary school. Therefore, this study is particularly relevant to teachers who are engaged in improving their knowledge, and their students' knowledge, about the constructs of spelling. It is an important area that has received less attention than reading development.

1.4 Research Questions

Research Question 1: a) Which phonological and morphological aspects of English spelling did all teaching staff in two rural NSW primary schools demonstrate? and b) What were the current views and approaches to teaching spelling, specifically in Year 2?

Research Question 2: a) Did the teachers in both rural, NSW primary schools develop their phonological and morphological aspects of word level knowledge of English spelling? and b) What phonological and morphological word level knowledge did teachers demonstrate after professional development?

Research Question 3: To what extent did spelling performance improve when Year 2 children were taught explicitly about phonological and morphological aspects of words?

Research Question 4: a) How does the implementation of explicitly targeted spelling instruction about the phonological and morphological aspects of words impact on Year 2 children's sentence dictation? and b) How did the Year 2 children feel about spelling and the teaching strategies used to teach spelling in their classroom during the term?

Research Question 5: How well was the intervention taken up by the teachers and Principal at the rural, NSW primary school?

The following is a glossary of abbreviations and terminology that are used in this research.

1.5 Glossary of terminology

Definition of abbreviations

Abbreviation	Definition
AC	Australian Curriculum
ACARA	Australian Curriculum Assessment and Reporting Authority
AC: E	Australian Curriculum: English
ACER	Australian Council of Education Research
AITSL	Australian Institute of Teachers and School Leadership
BCE	Before Common (Christian) Era
BL	Balanced literacy
CFU	Check For Understanding
CoST	Components of Spelling Test (Daffern, 2016)
cvc	consonant-vowel-consonant word (e.g. <i>dog</i>)
ccvc	consonant-consonant-vowel-consonant word (e.g. <i>ship</i>)
EFL	English as a Foreign Language
EI	Explicit Instruction
EDI	Explicit Direct Instruction
ELL	English Language Learner
ES	Effect size
ESL	English as a Second Language
EAL/D	English as an Additional Language or Dialect
KAL	Knowledge about language
LBOTE	Language Background Other Than English
LSL	Learning Support Leader

LST	Learning Support Teacher
LCSWC	Look, Cover, Say, Write, Check
MGR/MOI	Mental graphemic representation/Mental orthographic image
NAPLAN	National Assessment Program Literacy and Numeracy
NITL	National Inquiry into the Teaching of Literacy
NRP	National Reading Panel (US)
NSW	New South Wales
PSC	Phonics Screening Check
PSTs	Pre-service teachers
SAST	South Australian Spelling Test (Westwood, 2005)
TWFT	Triple Word Form Theory (see key terminology)
vc	vowel-consonant word (e.g. <i>on</i>)
WALT and WILF	'We Are Learning To' and 'What I am Looking For'
WL	Whole Language

Definition of terms

Term	Definition
Automaticity in spelling	When the letters of a word are “fully specified in memory” (Joshi et al., 2008, p. 9) and can be transcribed accurately and automatically.
Balanced literacy	A program that uses both whole language and phonics instruction approaches.
Code-based instruction	The “explicit, direct instruction in sound-symbol relationships” (Mahar & Richdale, 2008, p. 18).
Cognition	A term applied to “all mental processes that involve attending, remembering, reasoning, language comprehension, problem solving, and decision making” (Westwood, 2014, p. 48).

Conjoint Theory of word level spelling development	A theory that phonological, orthographic and morphological aspects of word level knowledge develop concurrently (Berninger, Abbott, Nagy, & Carlisle, 2010).
Consonant blend	A group of consonants appearing together in a word without any vowels in between. Each consonant is heard with minimal change, for example, <i>split</i> .
Constructivist (or child-centred) approach	When students are self-directed and involved in decision making about their learning.
Content word	A word that carries meaning on its own, for example a noun (cat), verb (sit), or adjective (heavy).
Cover, Copy, Compare (CCC)	Similar to Look, Cover, Write, Check (LCWC).
Decode	“The process in which knowledge of letter-sound relationships and knowledge of letter patterns is used to identify written words” (Board of Studies NSW, 2012a, p. 133).
Deep or dense orthography	A language where the grapheme-phoneme correspondences are inconsistent, for example, the English language (Bowers, Kirby & Deacon, 2010).
Derivational morpheme	A morpheme affix that when combined with a base word changes the meaning or part of speech, for example, <i>able + un-</i> makes <i>unable</i> .
Differentiated instruction	Providing instruction that meets the needs of individual students.
Digraph	Two letters that represent a single sound (phoneme), for example, vowel digraphs have two vowels (<i>oo, ea</i>); consonant digraphs have two consonants (<i>sh, th</i>); vowel/consonant digraphs have one vowel and one consonant (<i>er, ow</i>).
Direct Instruction (also known as ‘big DI’ or ‘big EI’)	Scripted lesson introduced by Siegfried Engelmann with the publication of a reading program Direct Instruction System for Teaching and Remediation (DISTAR) (National Institute for Direct Instruction, 2018).
Encoding instruction	Instruction in which students relate, use and exercise phoneme-grapheme relations in word work.
Explicit Direct Instruction (EDI)	A term introduced by Hollingsworth and Ybarra (2009).

explicit instruction (also known as 'little ei or di')	The concepts and skills to be taught are fully explained by the teacher in a "structured, systematic and effective methodology for (scaffolding) teaching academic skills" (Archer & Hughes, 2011, p. 1).
Extended instruction	Extending instruction time so students "receive more encounters with, and exposure to, target vocabulary" (Coyne et al., 2009, p. 3).
Function word	A word that has little meaning on its own, for example a preposition (on), article (the) or conjunction (and).
Grapheme	A letter or combination of letters that represent a sound (phoneme), for example, d-o-g has three graphemes; the word <i>cough</i> also has three graphemes c-ou-gh (Board of Studies NSW, 2012a).
Graphophonic knowledge	The knowledge of how letters in printed English relate to the sounds of the language.
High frequency word	"common or high-frequency words in English [that] are not able to be decoded using sound-letter correspondence because they do not use regular or common letter patterns" (Board of Studies NSW, 2012a, p. 136).
Instruction centred approach	Instruction that is teacher-directed, for example, explicit instruction, to target a specific aspect.
Inflectional ending (morpheme)	A morpheme affix that when combined with a base word indicates tense, number, mood, person or gender, for example, <i>-s</i> ; <i>-ed</i> ; <i>-er</i> ; <i>-est</i> ; and <i>-ing</i> .
<i>Language Learning and Literacy (L3)</i>	A literacy intervention project aimed at reducing poor literacy outcomes for students from low socio-economic backgrounds.
Levelled (leveled) books	Fountas and Pinnell (1996) described their kindergarten levelled books as having a simple story line with a direct link between pictures and text. Print is in the same place on each page and is set apart from the pictures. Frequently used words are regularly repeated. There is usually one to four lines of text on each page. The text becomes more complex and longer as students progress.
Literature-based instruction	See Whole Language.
Look, Cover, Say, Write, Check (LCSWC)	A visual and rote memorisation approach often utilised for learning the weekly spelling list.

Meaning-based instruction (constructivist approach)	A “focus on content and meaning to induce sound-symbol correspondences” (Mahar & Richdale, 2008, p. 18).
Mental graphemic representations (MGRs)	Mental images of written words (Apel, 2017b).
Metacognition	The “ability to think about and control one’s own cognitive processes” (Westwood, 2014, p. 48).
Metalinguistic awareness	“An acquired awareness of language structure and function that allows one to reflect on and consciously manipulate the language. It includes an awareness of phonemes, syllables, rhyme and morphology” (Fielding-Barnsley & Purdie, 2005, p. 17).
Morpheme	“The smallest meaningful or grammatical unit in language” (Board of Studies NSW, 2012a, p. 140).
Morpheme (bound)	A base word that can stand alone, for example, <i>cat</i> , <i>cook</i> .
Morpheme (free)	Part of a word that cannot stand alone including prefixes and suffixes that change the base word meaning, for example, <i>-s</i> , <i>-ing</i> , <i>-ed</i> added to a base word, e.g. <i>cats</i> , <i>cooking</i> , <i>cooked</i> .
Morphograph	A “group of letters that carries meaning” (Hempenstall, 2015, p. 65).
Morphology	Units of meaning in words.
Onset and rime	“The phonological units of a spoken syllable” (Board of Studies NSW, 2012a, p. 142). Onset consists of initial consonant or consonant blends. Rime consists of the vowel or vowel digraph and final consonants. The word <i>each</i> has no onset. The rime is <i>each</i> . In the word <i>peach</i> , <i>p</i> is the onset and <i>each</i> the rime.
Orthographic knowledge	Acquiring knowledge of the sounds of speech and the corresponding letters in the spelling system (Apel, 2011).
Orthographic mapping (OM)	“Orthographic mapping (OM) involves the formation of letter-sound connections to bond the spellings, pronunciations, and meanings of specific words in memory” (Ehri, 2014, p. 1).
Orthographic processing	“Orthographic processing is the global term used to discuss the ability to acquire, store, and use both MGR and orthographic pattern knowledge” (Apel, 2011, p. 594).
Orthography	The conventional (English) spelling system.

Phoneme	The smallest unit of sound in a language, for example, cat has three phonemes c-a-t .
Phonemic awareness	Phonemic awareness is a subset of phonological awareness. It is the awareness of speech sounds (phonemes) in a word, the order in which they occur, and the ability to manipulate those sounds.
Phoneme segmentation	Isolating the number of speech sounds (phonemes) in a word, for example, peach has three phonemes, p-ea-ch .
Phonic knowledge	“Understanding that there is a predictable relationship between the sounds of a spoken language and the letters and spelling that represent these sounds in written language” (Board of Studies NSW, 2012a, p. 142).
Phonics teaching: analytic (implicit)	The particular letters and their sounds in a known whole word are highlighted to assist with new words during story book or incidental reading activities.
Phonics teaching: embedded	Uses “letter-sound relationships with context clues to identify and spell unfamiliar words encountered in text” (Rowe, 2005, p. 88).
Phonics teaching: synthetic (explicit)	All letter sounds are initially taught then emphasised through building words from those sounds.
Phonological (awareness)	Developing the conscious awareness of rhyme, intonation, syllables, onset and rime in words.
Phonological, morphological and orthographic awareness	Developing conscious awareness to be able to reflect “about a spoken or written word and its parts or its relationship to other words” (Berninger et al, 2010, p. 142). For example, the phonological parts (units of sound), morphological parts (units of meaning) and orthographic parts (the spelling system) of words.
Phono-morphological knowledge	The knowledge that words are made up of phonemes (units of <i>sound</i>) and morphemes (the units of <i>meaning</i>).
Research-based instructional principles	Principles based on research and agreement between three sources: a) cognitive science; b) classroom practice by master teachers; and c) “cognitive supports to help students learn complex tasks” (Rosenshine, 2012, p. 12).

Schwa	“The neutral vowel in unaccented or unstressed syllables in English words, such as the sound that corresponds to the grapheme <i>a</i> - in <i>asleep</i> ” (Henry, 2010, p. 313).
Shallow orthography	A language where the grapheme-phoneme correspondences are consistent, for example, the Finnish language (Bowers & Kirby, 2010).
Sight word	“A word that students know by sight without having to analyse it to pronounce it. ... they may have regular (e.g. jump, stop) or irregular (e.g. where, only) spelling. Also called [sic] high-frequency word.” (Henry, 2010, p. 313).
Stage Theory of word level spelling development	The theory that phonological, orthographic and morphological aspects of word level knowledge develop in sequential stages.
Syllable	“A unit of sound within a word containing a single vowel sound, for example, <i>won-der-ful</i> ” (Board of Studies NSW, 2012a, p. 149).
Synthetic language	Teaching language through a focus on word structure (Crystal, 2003).
Systematic instruction	Instruction that teaches the curriculum content and skills “in an ordered manner” (Castles et al, 2018, p. 12).
‘Think aloud’	A problem-solving strategy whereby a teacher scaffolds a student to talk through a problem aloud.
Triple Word Form Theory (TWFT)	A contemporary of Conjoint Theory where phonology, orthography and morphology are taught concurrently (Berninger et al., 2010).
Word families	Groups of words with a similar spelling pattern, for example, digraph ea : meat , each , read , lead .
Working memory	An umbrella term for the larger system of which short-term memory is a part.
Whole Language	A philosophy that children develop spelling skills naturally by being immersed in rich language, literature-based activities.

Chapter 2 Literature review. Part A: The role of spelling in literacy acquisition

The literature reviewed here provides a framework for this research project and is presented in two sections. Part A commences with an overview of the evolution of the modern English spelling system and its constituent parts. Following this, approaches pertinent to the role acquiring fluent spelling knowledge plays in literacy development are reviewed. Approaches comprise: first, opposing viewpoints about how spelling is best learned; second, building word level spelling and developing word level knowledge including the phonological, morphological and orthographic components and their interrelationship; third, theories on developing student spelling and linguistic awareness; and finally, meaning-based and teacher-centred approaches to literacy instruction.

Part B presents a review of the approaches to developing literacy in general, and spelling instruction in particular, in the Australian context and positions the focus of the present study.

2.1 Overview: The evolution of the English spelling system

To understand the spelling system (orthography) of English, it is important to review some major historical facts that shaped its development. In 450 BCE, the decline of the Roman Empire was intensified in Britain when the Germanic Jutes, Angles and Saxons invaded, replacing the Celtic inhabitants (Henry, 2010; Moats, 2010). As a result, Celtic and Latin words amalgamated with their lower German tongues to form Old English (Anglo-Saxon) (Moats, 2006). Medieval scribes wrote left to right using the Roman alphabet with capital letters. This now formed the basis for the English alphabet and so began the English spelling and writing system. Figure 1 provides a time line of the evolution of English from 800 BCE and an overview of this illustrates its development.

Old English 450-1150 BCE

The birth of Old English saw the early Anglo-Saxons write using runic alphabet, a set of characters called *futhorc*, or Anglo-Frisian runes, that are thought to have been

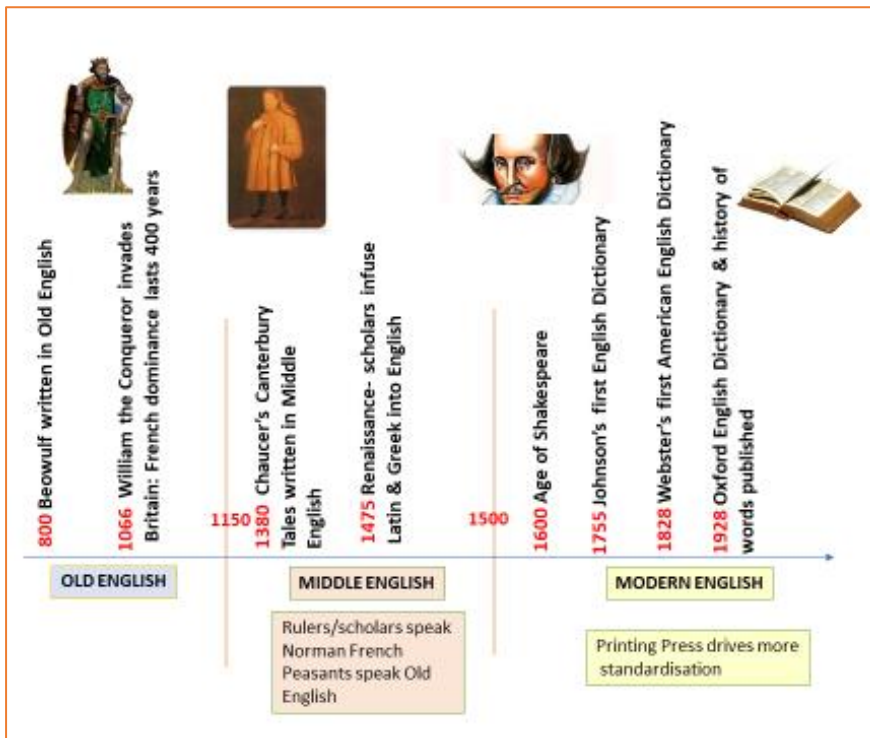


Figure 1. Time line of the development of the English Language (adapted from Moats, (2006)).

used in Friesland (see Figure 2). Runes were later replaced with 24 letters of the Roman alphabet that included digraphs, for example /ea/ and /th/ (Crystal, 1995) based on the sounds of everyday Old English speech.

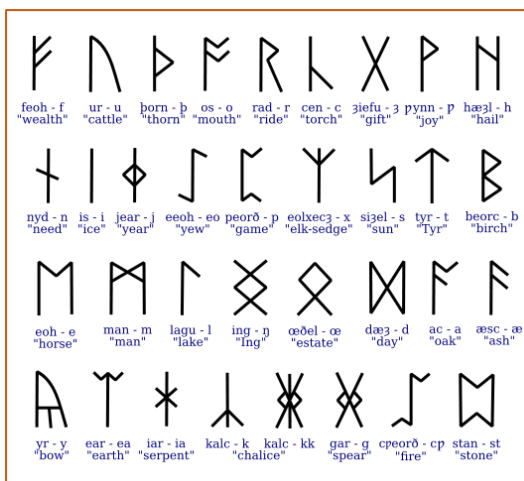


Figure 2. Anglo-Frisian runic alphabet (extracted from Wikipedia https://en.wikipedia.org/wiki/Anglo-Saxon_runes).

Old English became the dominant language with scribes writing short, common, everyday words to emulate speech (Moats, 2006). However, there was considerable variation in spelling due to individual scribe's pronunciation. During this period, prefixes and suffixes entered the language and the educated ruler, William the Conqueror and clerical French priests, monks and nuns also wrote using

Roman script. Normans spoke Norman French and upper and ruling classes wrote in their native tongue whilst Latin (Moats, 2006) became the official language of government and commerce. An example of the Roman script of the old English alphabet is provided in Figure 3.

Old English alphabet								
Ǻ	ǣ	ƀ	Ɔ	Ɔ	Ɔ	Ɔ	Ɔ	Ɔ
a	ash	be	ce	de	eth	e	eff	yogh
a	ǣ	b	c	d	ð	e	f	ȝ (g)
[ɑ]	[æ]	[b]	[k/ʃ]	[d]	[θ/ð]	[e]	[f/v]	[g/v/j/ʒ]
h	l	l	m	n	o	p	r	s
há	i	ell	emm	enn	o	pe	err	ess
h	i	l	m	n	o	p	r	s
[h/ç/x]	[i]	[l]	[m]	[n]	[o]	[p]	[r]	[s/z]
T	u	p	x	y	þ			
te	u	wynn	eks	yr	thorn			
t	u	p (w)	x	y	þ			
[t]	[u]	[w]		y	[θ/ð]			

Figure 3. An example of the Roman script Old English alphabet (extracted from Omniglot online encyclopaedia of writing systems and languages. <https://omniglot.com/writing/oldenglish.htm>).

Middle English 1150-1500

After the Norman invasion, England had become a bilingual country. Whilst the upper and ruling classes spoke French, the lower and uneducated classes spoke a Middle English (1150-1307) which sounded somewhat like modern German (Henry, 2010). This included words that were spelled with less phonetically regular representations, such as “*rough, cough, although and through*” which use one spelling (-*ough*)” (Henry, 2010, p. 29). During this period, Norman French and Old English merged together into what was to become Middle English and in the late 1300s, Chaucer wrote *Canterbury Tales*. In this Renaissance period, Latin was still seen to be a lingua franca for conducting political and trade relations resulting in many Latin affixes being added to base words.

At this stage there was considerable diversity in spelling, due to the French invasion, population movements and pronunciation changes, such as the vowel shift (Crystal, 1995). During this transition there was a gradual change in the pronunciation of vowels (1400 to 1600 approximately) (Hanbury King, 2000).

Vowels were pronounced “farther forward in the mouth, and existing front vowels were diphthongized” (Hanbury King, 2000, p. 60). To illustrate:

Chaucer’s *lyf* (leef) became *life* and *hus* became *house*. The next highest vowels moved forward to take their place. Chaucer’s *ded* became *deed* and *mon* became *moon*. In addition, *e*, *o* and *a* were lengthened, as in modern *break*, *home*, and *name*. (Hanbury King, 2000, p. 60)

This change included adding spellings that contained inconsistent vowel representations, for example, “*au/aw, ai/ay, ei/eu, u/eu/ew, oi/oy* and *ou/ow*” (Moats, 2010, p. 89). What is now called silent ‘e’ was used on the end of syllables to denote a long vowel sound. “Words such as *time, stake, and before*” (p. 89) were pronounced as two syllable words, (*ti-me*) with the ‘e’ pronounced in the second syllable and by the 16th century had become a spelling convention (Moats, 2010).

Early and Modern English 1500 - present

By the mid-17th century with the arrival of dictionaries, variations in spelling were scorned and a standard orthographic spelling emerged. As irregular spellings became part of the orthography, spelling guides were printed and children’s school books contained homophones. A gulf was created between the various speech forms and their spelled form and by the 18th century inaccurate spelling was frowned upon (Crystal, 1995).

Thus, Modern English developed into a phono-morphological language, based on both sound and meaning. Depending on the dialect, the 26 English letters have over 40 speech sounds (Moats & Tolman, 2009). Today there are more than 250 graphemes to spell the 44 phonemes in English (Moats, 2010) where the grapheme-phoneme correspondences can be inconsistent. These orthographic inconsistencies make English a deep or dense orthography (Bowers, Kirby, & Deacon, 2010). Table 1 outlines the characteristics of English words according to their language origin, commencing with Old English (Moats & Tolman, 2009). How students best learn the English spelling system is contentious and differing standpoints are reviewed in the following section.

Table 1. *Language origins of English words (excerpted from Moats, L., & Tolman, C., (2009))*

Language of origin	Features of Words	Word Examples
Old English (Anglo-Saxon)	<ul style="list-style-type: none"> • Short, one-syllable words, sometimes compound • Use of vowel teams, silent letters, digraphs, diphthongs in spelling • Words for common, everyday things • Irregular spellings 	sky, earth, moon, sun, water, sheep, dog, horse, cow, hen, head, arm, finger, toe, heart, shoe, shirt, pants, socks, coat, brother, father, mother, sister, hate, love, think, want, touch, does, were, been, would, do
Norman French	<ul style="list-style-type: none"> • Ou for /u/ • Soft c and g when followed by e, i, y • Special endings such as -ine, -ette, -elle, -ique • Words for food and fashion, abstract social ideals, relationships 	amuse, cousin, cuisine, country, peace, triage, rough, baguette, novice, justice, soup, coupon, nouvelle, boutique
Latin/Romance	<ul style="list-style-type: none"> • Multisyllabic words with prefixes, roots, suffixes • Content words found in text of social sciences, traditional physical sciences and literature 	firmament, terrestrial, solar, stellar, mammal, equine, pacify, mandible, extremity, locomotion, paternal, maternity, designate, hostility, amorous, contemplate, delectable, deception, reject, refer
Greek	<ul style="list-style-type: none"> • Spellings ph for /f/, ch for /k/, and y for /u/ • Constructed from combining forms, similar to English compounds • Philosophical, mathematical and scientific terminology 	hypnosis, agnostic, neuropsychology, decathlon, catatonic, agoraphobia, chlorophyll, physiognomy

2.2 Is spelling ‘caught’ or ‘taught’?

The orthography of English comprises both phonological and morphological aspects, and the cognitive processes that are significant in the development of spelling are “phonological processing, syntactic awareness, working memory and orthographic processing” (Low & Siegel, 2009, p. 294). According to some researchers, learning to spell is a long-term endeavour developed over many years of explicit and meaningful instruction so that it can be transferred to different literacy tasks (Bear, Invernizzi, Templeton, & Johnston, 2012; Frith, 1985; Henry, 2010; Joshi, Treiman, Carreker, & Moats, 2008; Moats, 2007).

Typically developing spellers acquire a range of strategies when learning, storing and retrieving spelling (Westwood, 2014). However, reviews of research on instruction for students with learning difficulties reveal that they can experience genuine problems, especially in learning, storing and retrieving spelling rules.

Differentiation and the explicit teaching of words emphasising the patterns of spelling that is then practised and immediately transferred into writing (Low & Siegel, 2009) are some instructional principles considered superior to teaching spelling rules to these students.

Opinions amongst those who theorise and research how spelling is best acquired remain contentious (Westwood, 2018). On the one hand, some argue that spelling is 'caught', an approach whereby spelling is acquired naturally in the same way as learning to speak (Goodman, 1989; Krashen, 1989, 2002). They state that teaching spelling is unproductive and inefficient (Goodman, 1989; Krashen, 1989, 2002). By reading and writing, spelling is acquired incidentally and modelling correct spelling during the writing process provides sufficient opportunity for students to learn to spell. Others declare that "English is a visual language, not a phonetic language" (Hendrickson, 1967, p. 39). Gabarró (2011) asserts accurate spelling is reliant on teaching students to develop a combination of proficient visual processing and visual memory.

It is important to highlight that you will be teaching a process. This is quite different from teaching words, rules or tricks to spell better. As soon as the process becomes automatic your students will continuously improve the way that all good spellers do. They may or may not know the meaning of a word, but once they have seen it, they will not forget it. By equipping your students with this skill, you will be giving them something they can use now and for the rest of their lives. This ability will help them with the spelling of any words they have access to. In addition, this same mental process can be used with any language." (Gabarró, 2011, p. 5)

Conversely, those supporting the spelling is 'taught' approach argue that explicit and systematic teaching of spelling skills is required for students to become accomplished and effortless spellers (Berninger & Fayol, 2008; Ehri, 2014; Joshi et al., 2008; Moats, 2010; Schlagal, 2013; Westwood, 2015, 2018). Whilst spelling has a relationship to reading, it is more difficult as the words need to be produced, whereas reading requires words to be recognised (Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001). Rayner et al. (2001) state: "A conventional spelling process requires complete specification of constituents, whereas the reading process, which needs only to discriminate a presented word from other words, does not" (p. 42). This entails explicit instruction in the alphabet principle to learn that certain phonemes are represented by graphemes in spelling and writing and the sound-symbol relationships and morphemes should be taught explicitly (Graham & Santangelo,

2014; Joshi et al., 2008; Moats, 2010). Furthermore, an Australian longitudinal observational study that followed children from infancy to age seven, revealed that accurate spelling was a strong predictor of students' single word reading competence (Serry, 2015).

Graham and Santangelo (2014) conducted a comprehensive meta-analytic review of experimental and quasi-experimental studies with alphabetic language systems (in which English was always included) to examine these two polarised standpoints. In the review, they cite two systematic literature reviews that provide support to the approach that spelling is 'caught' naturally in a similar manner to speech (Graham & Santangelo, 2014; Krashen, 1989). Indications that growth did occur in lower primary grade students was obtained from some studies, but Graham (2000) concluded one-fifth were pre-1970s and "many of the investigations contained methodological flaws ..." (p. 245). On the other hand, a number of systematic reviews provide support for the spelling is 'taught' approach, revealing that explicit teaching of spelling yields better spelling outcomes (Graham & Santangelo, 2014).

There is also long-standing and continued support for the argument by Krashen (2002) that teachers should encourage spelling to develop naturally in the early years. For older students, Krashen recommends teaching them to use spell checkers and spelling dictionaries and that they leave addressing spelling mistakes until the final draft. Conversely, others state that spell checkers do not find all the mistakes (Moats, 2006; Nicholson, 2017). Moats (2006) cited a study in which only 30 to 80% of spelling errors were detected and in students with a learning disability only 53%.

In their meta-analytic review, Graham and Santangelo (2014) evaluated the Krashen claim that "formal spelling instruction is ineffective and inefficient" (p. 1706). The 53 studies in the review included 6,037 students from Kindergarten to Year 12. The review contained experimental and quasi-experimental studies that measured the effect of formal spelling instruction against little or no instruction on phonological awareness, spelling, reading and writing outcomes. Results revealed explicit teaching of spelling to be far superior to little or no instruction. Effect sizes (ESs) reveal enhanced student spelling performance in the following applications

- learning to spell (ES of 0.43);

- using correct spelling in writing (ES of 0.94);
- maintaining spelling gains over time (ES of 0.53);
- enhancing phonological awareness (ES of 0.51); and
- enhancing reading (ES of 0.44).

Hattie (2009) considers a good effect size should exceed 0.4. Furthermore, the gains students made in their spelling outcomes endured (Graham & Santangelo, 2014) providing further support for explicit spelling instruction techniques. That explicit spelling instruction resulted in increased *correct* spelling in students' writing is of particular interest. "Collectively, the studies that addressed this issue produced almost a full standard deviation gain in correct spelling in writing. As a result, an average student would move from the 50th percentile on such measures to the 83rd percentile" (Graham & Santangelo, 2014, p. 1735). This has long been a major concern of teachers who often lament that while taught spelling was correct on their students' weekly spelling test, it was not correct in their subsequent writing (Graham & Santangelo, 2014). As poor spelling delivers an adverse impact on the reader and can lead to long-term social, and education issues, hindering continued literacy growth (Graham & Perin, 2007; Joshi et al., 2008; Schlagal, 2013) such findings are informative.

Overall, the studies in this review provided strong support for the explicit and systematic teaching of spelling in the regular school setting as being superior to learning spelling naturally. In addition, these positive outcomes were constant irrespective of the pupils' grade level or literacy skills (Graham & Santangelo, 2014). However, the review did not examine the impact of explicit spelling instruction on students diagnosed with, or at risk of, learning difficulties (LD).

Following a previous study by Wanzek in (2006), Williams, Walker, Vaughn, and Wanzek (2017) conducted a synthesis of systematically reviewed studies from 2004 to 2014 to provide updated data on the effect of spelling and reading interventions on spelling outcomes for students with diagnosed or suspected LD. Ten group intervention studies with participants from Kindergarten to Year 12 met the inclusion criteria. Six of the ten studies were with Year 2 children. The interventions were with small groups (one to six) and mostly of short duration (ten hours or less). Samples utilised either self-correction techniques such as Cover, Copy, Compare

(CCC) for words to be later assessed or explicit instruction with repeated practices and immediate corrective feedback. There was an increase in accurate spelling on taught words for participants in both interventions strategies but not to significant levels. Increased spelling accuracy using explicit instruction in letter-sound writing, oral word segmentation, the use of the *Spelling Mastery Program* and self-correction techniques, “did not improve spelling accuracy to clinically significant levels, as the total percentage of words spelled correctly was often less than 70 %” (Williams et al., 2017, p. 294). It was suggested that to improve outcomes for LD students, more time may need to be allocated to Direct Instruction spelling programs. Overall, limitations were that most of these studies were of short duration and did not assess skills generalising into new situations.

Dymock and Nicholson (2017) recently conducted a study with 55 students from two Year 3 classes, who were taught spelling for 20 minutes three times weekly over 10 weeks. One group (strategies) learned spelling strategies, for example, vowel sounds, syllabification and rules. The second group (list) utilised the Look, Say, Cover, Write, Check (LCSWC) approach, listing words in alphabetical order before writing the words in sentences. The third group (control) undertook non-related spelling tasks. Both groups receiving spelling instruction made greater gains in post-assessments on spelling taught words than the control. “There was a significant effect of condition on taught words, $F(2,8) = 20.98$, $MSE = 37.41$, $p = .001$. Effect sizes were: Strategy versus Control = 4.27; List versus Control = 4.54; Strategy versus List = .48.” (p. 180). However, in assessing the transfer of taught spelling concepts to new words, the strategy group showed a significant effect size over the list and control groups: “Strategy versus Control = 2.07; List versus Control = .27; Strategy versus List = 2.13.” (Dymock & Nicholson, 2017, p. 180). This study has similar parallels to the current study undertaken by the Researcher.

Summary

Whilst some researchers and theorists believe it is unnecessary to teach spelling as children learn it naturally, decades of research have found that for children to develop fluent, accurate spelling, instruction in the alphabetic code and the phonological, morphological and orthographic aspects of the English language is a superior approach. Treiman (2018) summarises both standpoints. She believes that

to some degree children learn about spelling through reading. However, during reading one concentrates on the meaning of the text rather than the spelling and this is insufficient to underpin fluent spelling development. "Spelling instruction encourages close attention to written words, including all the letters" (Treiman, 2018, p. 2). Children require systematic instruction not only in phonics, but word study that includes phonological and morphological content to learn how the spelling and writing system works (Westwood, 2018). This requires teachers to address both the working mechanics of the writing system and the typical errors children make when learning to spell and "how the writing system works" (Treiman, 2018, p. 3) in order to achieve success. Accurate spelling is an important skill that supports learning to read and write.

2.3 Building and developing word level spelling knowledge

Correct spelling is greatly valued by society (Moats, 2006), a lack of which can lead to long-term deficits in the growth of fluent reading and writing which can result in personal and social issues (Graham & Perin, 2007; Joshi et al., 2008; Schlagal, 2013). Many employers reject an applicant due to bad grammar and spelling (Hempenstall, 2018). Some researchers state that with the advent of spell check, initial accurate spelling is no longer required (Krashen, 2002) and that being concerned about correct spelling stifles the writing process (Lowe & Bormann, 2012). Whilst spell checkers are a part of the digital age, they are not always interpretative of what a student has written and many mistakes, approximately 30% to 80% (Moats, 2006), "slip through" (Nicholson, 2017, para. 12).

There are numerous studies substantiating the importance of developing phonological awareness and phonics, orthographic and morphological knowledge to optimising word spelling (Berninger, Abbott, Nagy, & Carlisle, 2010; Berninger & Fayol, 2008; Henry, 2010; Joshi et al., 2008; Moats, 2010; Treiman, 2017b). Therefore, it is important to discuss the role each of these components play in developing student knowledge about and competence in spelling.

2.3.1 Phonological and phonemic awareness

Phonological awareness (PA) is having the ability to develop the conscious awareness of rhyme, syllables, onsets and rimes, intonation and phonemic awareness in spoken words. Teaching phonological awareness skills enables a child

to think about the “internal details of the spoken word” (Moats, 2010, p. 56). To illustrate, PA develops a student’s ability to segment syllables, (*spi-der*) identify onset and rime in a word (*sp-ider*) and to count and blend each sound (phoneme) in a word (*s-p-i-d-er*) (Moats, 2009a).

Phonemic awareness is a subset of phonological awareness. It is the awareness of speech sounds (phonemes) in a word, the order in which they occur, and the ability to manipulate those sounds. It is an oral language task, and involves “the structure of spoken words rather than their meaning” (Hempenstall, 2015a, p. 3). For example, in the word *park*, /p/ (onset) is followed by *ark* (rime). When changed to *bark* students need to be able to identify the difference between the unvoiced /p/ in *park* and the voiced /b/ in *bark*.

Studies reveal that developing teacher knowledge about the structure of the English phonological system, the way in which these skills are processed and appropriate pedagogical approaches to optimise development of these skills for all students, has not been prioritised in teacher education programs (Moats, 2009a) and will be reviewed in the following Chapter. Furthermore, there is long-standing confusion about these terms (Hempenstall, 2014) which also appear in the teaching content of the curriculum and syllabus documents.

How phonological awareness contributes to world level spelling

Joshi et al., (2008) presented findings from eight decades of research and cites a study from 1926 with deaf students who, compared to hearing students, learnt to spell well using visual memory cues. From this study, many believed that due to the variations in sound symbol relationships “learning to spell is essentially a matter of rote memorization” (Joshi et al., 2008, p. 6). The researchers also cite contemporary studies that found this method only allows for memorising “two or three letters in a word” (p. 6). In subsequent studies, typically developing Year 2 students were divided into two groups and given a list of words to spell. The visual method group was shown flash cards with correct spelling for the incorrect words; the language based group was explicitly taught the sound symbol relationships (the alphabetic principle) in the misspelled words. The latter group had significantly greater correct spelling development than the visual group.

Joshi et al. reported that in another study a researcher examined five “successful spelling instructional approaches” (Joshi et al., 2008, p. 7) used for students experiencing LDs. Findings revealed that the effective programs were all based around structured, explicitly taught concepts including sound-symbol principles. Other studies revealed that spelling (and reading) of students from low socio-economic backgrounds improved when they were taught phonological awareness. From these studies the researchers concluded that “effective spelling instruction explicitly teaches students sound-spelling patterns. Students are taught to think about language, allowing them to learn how to spell – not just memorize words” (Joshi et al., 2008, p. 8).

Moats (2010) also states that “learning to spell and read words is not a rote process of memorizing letter string of increasing length” (p. 11). Students need to be taught how the sound-symbol correspondences are organised, including learning about the phonological (speech sound) components that make up words. These are the “linguistic building blocks of words” (Moats, 2010, p. 10). Research viewpoints on developing phonic, morphemic and orthographic knowledge follow.

2.3.2 Phonics

Whereas phonemic awareness is understanding the workings of the sounds in oral language, phonics is the relationship between the sounds of speech and the letters that “represent those sounds in an alphabetic writing system” (Carnine, Silbert, Kame'enui, & Tarver, 2010, p. 51). Adoniou acknowledges sounds (phonemes) are important, but states “only about 12% of words in English are spelt the way they sound” (Adoniou, 2013, para. 17) and that it “is not a language we can sound out – it is not a phonetic language” (Adoniou, 2016a, p. 2). Conversely, much research refutes this view point, supporting the position that alongside phonemic awareness, phonic knowledge is an essential component of teaching all children the sound-symbol relationships in words (Berninger et al., 2002; Henry, 2010; Joshi et al., 2008; Moats, 2006) including those from EAL/D backgrounds (Low & Siegel, 2009; Westwood, 2018). Developing phonic knowledge and skills is important as it enables students to understand the relationship between speech sounds and the letters representing them and the workings of the spelling system (Johnston & Watson, 2005a, 2005b; Joshi et al., 2008; Moats, 2006). It is also important in both

deep or dense orthographies, such as English and shallow orthographies, for example, Finnish. Whilst the dense English orthography and some spelling patterns are complex, researchers have estimated that almost 50% of English words “can be spelled accurately based on sound-symbol correspondences alone” (Moats, 2006, p. 14) and “another 34% are predictable except for one sound” (Joshi et al., 2008, p. 8). For example, when teaching a child in Year 1 that two letters, /s/ and /h/ together represent the sound /sh/ (Moats, 2006, p. 17), they may segment the sounds in an Anglo-Saxon word such as *crash* and write each in a box (c/r/a/sh/). In Year 2 more complex Anglo-Saxon spelling patterns should be introduced, for example, when to use the *-ge* and *-dge* representations for the sound /j/ and inflectional endings such as *-ed*, *-s*, and *-ing*. These patterns should be taught through systematic phonics instruction of which there are several different approaches. A summary of the key features of three approaches follows.

Analytic implicit phonics: In this approach, particular letters and their sounds in a known whole-to-part approach (Rowe, 2005) are emphasised during story book or incidental reading activities and those letters and their sounds are highlighted (Hempenstall, 2018).

Embedded phonics: In this approach, particular letter sound relationships are highlighted along with context clues to identify and spell unknown words within a text (Rowe, 2005).

Synthetic or explicit phonics: This is a part-to-whole approach (Rowe, 2005), where all letter sounds are initially taught then emphasised through building words from those sounds. Synthetic phonics is taught in Austria and Germany before children receive reading instruction (Rowe, 2005). English speaking countries mainly use analytic phonics. Using a synthetic phonics approach to spelling instruction enables the teacher to provide phonics instruction in a systematic and methodical way that reflects how “alphabetic writing systems represent spoken language” (Castles, Rastle, & Nation, 2018, p. 12).

In presenting the findings of *The National Inquiry into the Teaching of Literacy* (NITL) in Australia, Rowe (2005) included a body of scientific evidence that was synthesised in the United States, the *Report of the National Reading Panel: Teaching Children to Read* (NRP). Two studies included in the NRP methodology

were from Johnston and Watson (2005a) that examined the effects of analytic versus synthetic phonics programmes on literacy development. The first study was with five-year-old beginning students (Johnston & Watson, 2004) who received either a supplementary synthetic phonics program (n = 117), a supplementary analytical phonics plus phonological awareness program (n = 78), or a supplementary analytic phonics program (n = 109). The program lasted for 16 weeks with two post-tests immediately and 15 months after training. The synthetic phonics program resulted in better reading, spelling and phonemic awareness growth outcomes (Johnston & Watson, 2005a).

The second, a longitudinal study conducted over seven years in Clackmannanshire, Scotland involved following the progress of approximately 300 predominantly disadvantaged students commencing in Primary 1. In this study, students were divided into three phonic program groups: the analytic phonics program; the systematic phonics program; or the analytical phonics program including systematic phonemic instruction “without reference to print” (Johnston & Watson, 2005a, p. 8). The researchers examined student reading and spelling progress when delivered 20 minutes daily by their class teachers. Results at the conclusion of Primary 1 revealed the group taught synthetic phonics were “reading and spelling 7 months ahead of chronological age” (p. 8). At the end of “Primary 7, word reading was 3 years 6 months ahead of chronological age, spelling was 1 year 8 months ahead and reading comprehension was 3.5 months ahead” (p. 8).

Another study was conducted by Roberts and Meiring (2006) with mid to low socio-economic Year 1 students (n = 55) of mixed ability levels and 18 % identified as EAL/D students. Students were randomly assigned to one of two treatments that were delivered by the class teachers who had received professional learning and a scripted teaching sequence. One treatment received phonics instruction in a literature context (embedded), the other was taught within a phonics spelling program unrelated to children’s literature. Both treatments received the same sequence and phonic components 20 minutes daily, including blending using a synthetic approach, segmenting sounds and the use of visual and aural examples. At the end of Year 1, results revealed that students who received whole word phonics instruction did better than those who received literature-embedded

phonics instruction. Furthermore, these changes continued and transferred to writing tasks by the end of grade one and “comprehension 4 years later” (p. 705). “The effect sizes were moderate to large, ranging from 0.45 (writing) to over 1.0 (spelling and reading phonetically regular words)” (p. 705). Contra to the suggestions that students from low socio-economic backgrounds benefit more from contextualised phonics instruction, this study revealed that decontextualized phonics training was more successful for the children at risk than the literature-embedded instruction (Roberts & Meiring, 2006). However, it was telling that students with low alphabet knowledge fared significantly less well than those with average to high alphabet knowledge. Roberts and Meiring (2006) reflected that instruction that included more letter-sound correspondence, blending and spelling patterns was probably required to strengthen alphabet knowledge.

Some years later, Tse and Nicholson (2014) conducted a study with 96 Year 2 children from low SES schools in South Auckland, New Zealand (n = 96) to test the hypothesis that supports a combination of explicit phonics instruction and “text-centred reading instruction” (p. 2) as superior to each taught on their own. The majority of students were from a Maori (42.7 %) or Pacific Island (56.3 %) background, almost half of whom spoke solely English at home (46.9 %). Participants were split into three ability groups then randomly allocated to one of four treatments. There were 24 sub-groups comprising four students of low, middle or high reading ability, each receiving a total of 12 weekly lessons of 30 minutes’ duration. The treatments comprised a control (maths tuition); a combined Big Book reading plus explicit phonics instruction group (including revising and learning letter sound-rules and letter-sound relationship); a Big Book reading plus incidental (analytic) phonics, punctuation or attention to a particular feature group; or an explicit phonics only group. Pre-post results revealed that overall, the combined group instruction “was more effective than phonics for all literacy measures” (p. 11) including spelling “except for basic decoding skills where it was equally effective (p. 11).

Chapman, Greaney, Arrow, and Tunmer (2018) also maintain that teaching phonics concurrently with phonemic awareness skills is beneficial for children to develop alphabetic coding skills. They conducted a survey on the use of phonics in New

Zealand primary schools in 2018. Teachers of students from Years 1 to 3 (n = 666) were surveyed on their knowledge of “basic language constructs” (p. 93) and their use of phonics and how it was taught in their literacy unit. Despite New Zealand adopting a constructivist approach to literacy teaching since the 1980s, over 90% of teachers said they used a phonics program. Approximately 65% said phonics was integrated into their literacy component whilst 29% taught phonics, but separately from their literacy component. The majority of teachers (558 out of 666) said that the main advantage of teaching phonics was that it developed children’s decoding skills and supported their reading and writing growth (Chapman et al., 2018). Most teachers also said there were few disadvantages in teaching phonics, but teaching it alone was an issue; it should be systematically integrated into reading and writing strategies. Teachers also reported the need for appropriate professional training in the principles of phonics instruction.

In summary, there is long-term research evidence to support the view that including synthetic phonics as part of a literacy program “has a major and long lasting effect on children’s reading and spelling achievement” (Johnston & Watson, 2005a, p. 69). There was evidence of spelling skills growth long after and the researchers stated it was apparent that many students probably have developed and employ a “self teaching technique” (Johnston & Watson, 2005a, p. 69). Failure to master basic phonic skills may impede student developmental progress in spelling and reading. For example, in a study of 3,000 Australian students, (Harrison, 2002) found that 30% of nine-year-old students had not grasped the letter-sounds. In addition, 72% of incoming high school students could not read regular words of three or four syllables. Furthermore, synthetic phonics instruction supports a range of students including students at risk of literacy difficulties and children from low socio-economic backgrounds who have achieved as well as students from advantaged backgrounds (Johnston & Watson, 2005b). The role that developing morphemic knowledge plays in fostering skills follows.

2.3.3 Morphemic knowledge

A morpheme is the smallest unit of meaning in a word. Morphemes are classified as *free morphemes* (a word which can stand alone such as a base word) or *bound morphemes* (those which cannot stand alone, mainly affixes) (Crystal, 2003).

Developing morphological knowledge includes knowing that morphemes are the smallest units of language that carry meaning and is important for two reasons (Nunes & Bryant, 2006). First, it “is essential in learning to read and spell” (p. 9) and second, it “plays a central role in the growth of school children’s vocabulary” (p. 9) because a sound knowledge of word structure and the role of morphemes assists in developing knowledge *about* language (KAL). For example, at a simple level, the word *cats* has two morphemes: *cat* being the singular noun and *-s* added to form the plural. The word *unforgiveable* comprises three morphemes: *forgive* is the verb, but putting *-able* at the end forms an adjective; adding *un-* at the beginning makes the opposite meaning. Developing such knowledge at the level of the word and “fostering student curiosity about how language works” (Derewianka, 2012) is well recognised by many researchers from both constructivist and explicit instruction standpoints (Adoniou, 2016a; Carlisle, 2007; Derewianka, 2012; Henry, 2010).

Children learn approximately 3,000 words each year through speech pertinent to subject matter (Carlisle, 2007). After Year 3 many new words comprise “a base word with one or two affixes that change the meaning and grammatical role” (Carlisle, 2007, p. 79). Citing Nagy and Anderson (1984), Carlisle (2007) states that of the unknown words students face, approximately 60% of these can be deduced through morphemic analysis. However, teaching the morphological aspects of word structure has received very little classroom focus (Bowers et al., 2010; Henry, 2010; Nunes & Bryant, 2006; Wolter, 2009). Developing knowledge about the role morphemes play in spelling also connects to expanding reading skills. “Once morphological regularities between spelling and meaning are discovered, orthographic learning does not need to proceed one item at a time” (Castles, Rastle, et al., 2018, p. 23).

To determine if the effects of implementing morphological instruction in the classroom fostered students’ use of these conventions in their spelling, Nunes and Bryant (2006) conducted a four-stage longitudinal intervention study using exercises and games with students in Years 3 to 7. The study comprised an initial laboratory controlled intervention followed by three collaborative research studies using ‘waiting list’ control settings (the control receives the same treatment at a later stage whilst progressively increasing teacher control). All study stages

revealed strong progress in spelling outcomes and extension of vocabulary knowledge with the intervention groups compared to the controls.

In a publication three years later, Wolter (2009) reviewed 13 peer-reviewed quantitative research publications examining language and literacy outcomes in school-aged children who received spelling instruction methods incorporating orthographic, phonological and morphological components. Outcomes revealed that the explicit teaching of word level knowledge using linguistically based instruction that was then practised in writing improved the writing skills of struggling Year 2 students. Furthermore, Wolter, Wood, and D'Zatko (2009) found that Year 1 students also appeared to not only use phonetic but morphological knowledge to assist spelling one and two morpheme words with final consonant clusters.

Bowers et al. (2010) also conducted a meta-analysis of morphological interventions ($n = 22$) with students from preschool to Year 8 ($n = 2,652$) on literacy outcomes. They examined the effects of morphological instruction on reading, spelling and vocabulary outcomes and morphological skills development in alphabet orthographies in English ($n = 18$), Danish ($n = 1$), Dutch ($n = 1$) and Norwegian ($n = 2$) to provide a broader sample, despite the differences in orthographic density. There were 18 samples, eight with struggling students. The rest were with students randomly assigned to samples before being allocated into lower and higher ability groups. All the interventions focused on affixes, eight targeted base words or stems which mainly focused on the meaning of the base word. The authors reported that:

we calculated the average effect sizes ... for (a) overall samples, (b) less able versus undifferentiated samples, (c) younger (preschool-Grade 2) versus older students (Grades 3-8) and samples that received morphological instruction in isolation compared to morphological instruction with other literacy instructional strategies. (p. 164)

Results in word reading measures versus controls saw an overall modest effect size (measured by Cohen's d) ($d = 0.41$, $SD = 0.45$); the effect for spelling measures was similar ($d = 0.49$, $SD = 0.48$); the effect for vocabulary measures were less ($d = 0.35$, $SD = 0.51$) (p. 161). Morphological assessments comprised oral or written tasks. Non-morphological assessments comprised "phonological awareness, syllable segmentation, pseudo-word reading and rhyme recognition" (Bowers et al., 2010, p. 151) measures. Effects were stronger in the less proficient reader groups with

morphological instruction being equally effective for younger students in early literacy instruction as for those in the upper years. Instruction was more effective when integrated into other literacy aspects. Bowers et al. (2010) noted that four of the studies adopted a 'detective theme' problem solving approach to the assessments, aimed at enhancing student motivation. Whilst not part of the research question, the researchers hypothesised that using the detective strategy may have heightened children's focus on the words that in turn supported the processing required to promote long term knowledge. In relation to the present study, a word detective component is a feature of the intervention.

Evaluating instructional approaches formed the major part of an integrative review conducted by Carlisle (2010) when exploring theories on the role morphological awareness plays in growing literacy in relation to "evidence-based practice" (Carlisle, 2010, p. 480). Carlisle investigated: a) if morphological knowledge improved with teaching; b) if it resulted in improved literacy outcomes (word reading, vocabulary and reading comprehension) including spelling; and c) the differences in content and method in morphological awareness teaching programs. The review comprised 16 studies with English (n = 8), Chinese (n = 4) and Norwegian, Danish, Dutch and French (n = 4) speaking participants, (13 with a control) in a variety of settings, with and without students with learning difficulties in the years K, 1, 3, 4, 5, and 6. It included an adolescent group with significant reading difficulties that the authors described as dyslexic. Results revealed instruction varied in content, method design and quality, and pedagogic approach. The various approaches used by the teachers involved are listed below in decreasing order of frequency.

1. **The most used approach:** activities such as games and breaking up words were used to raise awareness of morphemic structure in words.
2. **A common approach:** instruction in affix meanings, provided students with knowledge to analyse word meanings and assist spelling.
3. **Used by many but not all:** student pairs used problem solving to explore how word meanings change, for example, through editing spelling errors and changes in meaning (*forget, forgetting, forgettable*).
4. **Three studies:** students were given instruction in using morphological analysis to deduce meanings of unknown words when reading.

Carlisle (2010) deduced that the first four methods were good starting points to developing morphemic knowledge and may have been appropriate for the younger students, whilst the latter two offered students strategies to analyse new words when spelling and reading. The morphological content of the instructional programs contained features such as using simple to more complex word meanings for students with LDs, a progression building from phonemes, syllables, morphemes, to etymology, and words chosen from children's books. Overall, results indicated that increasing student morphological awareness even in kindergarten, has the capacity to support literacy development, especially when it fosters a knowledge of spelling, meaning and the role of morphemes in words.

However, Carlisle (2010) noted some concerning limiting factors. Little was available from the researchers about the morphological elements they utilised in their studies, such as the phonological, orthographic and affix components or the target words:

We need to consider the extent to which these results provided evidence of research-based practices, such that practitioners might want to implement them in their schools and classrooms. Research in the area of morphological awareness instruction has only partially reached maturity that we hope to see in studies that are used to make decisions about instructional practices. However, analysis of the research designs, methods, and results provides some useful insights about what is needed to move forward. (Carlisle, 2010, p. 480)

Goodwin and Ahn (2013) drew on the Carlisle (2010) and Bowers and Kirby (2010) reviews when they conducted a meta-analysis of 30 independent intervention studies (with a control) that examined the effects of teaching morphological content on literacy outcomes which highlighted them as "units of meaning" (p. 264). Only interventions conducted in English were included. Participants comprised students from pre-school to Year 12 taught in researcher or teacher instructional settings. Instructional settings ranged from small group to individuals, and research designs, quasi-experimental and experimental. Goodwin and Ahn (2013) explored the effects developing morphological knowledge had on phonemic awareness, vocabulary, decoding, spelling and reading comprehension, and fluency and at which age it was most beneficial.

"There were significant and moderate effects on morphological knowledge ($d = 0.44$), phonological awareness ($d = 0.34$), vocabulary ($d = 0.34$), decoding ($d = 0.59$),

and spelling ($d = 0.30$)” (Goodwin & Ahn, 2013, p. 257). There were statistically significant larger effects with pre-school and younger primary school children up to Year 2 followed by the middle then upper Years (p. 279). The researchers state that previous meta-analysis found “stronger effects for researcher-led interventions” (p. 279). Therefore, it is noteworthy that results in this analysis indicate researcher and teacher instructional interventions were equally effective and this may be due to developing morphological knowledge to broader literacy outcomes. It suggests that instruction that includes developing morphological knowledge through segmenting, teaching affixes and root meanings and morphological patterns that assist spelling development strengthens literacy outcomes, supporting earlier findings.

Apel and Lawrence (2011) conducted a study that compared Grade 1 students who were typically developing ($n = 44$) to those with a speech sound disorder (SSD) ($n = 44$). Results revealed that the SSD students scored significantly lower on morphological awareness, spelling and reading assessments than students without SSD. The authors suggest that for children at risk in reading and spelling growth, including morphemic awareness alongside phonemic awareness and letter knowledge instruction may be necessary to optimise their reading and spelling development.

In a later study conducted with Year 2 and Year 3 students ($n = 56$), Apel, Wilson-Fowler, Brimo, and Perrin (2012) identified which skills predicted student reading and spelling outcomes. They ascertained how multiple linguistic processing skills including phonemic, morphological and orthographic awareness might influence reading and spelling development. Results revealed that as expected, age played a role in growing each skill. However, “importantly, beyond age, morphological awareness uniquely contributed to both spelling and word recognition and approached significance in its unique contribution to reading comprehension” (Apel et al., 2012, p. 1297). These results contribute to the growing research providing evidence that morphological awareness impacts literacy development early and for the need to incorporate such instruction in reading and spelling approaches.

Subsequently Apel and Werfel (2014) provided a tutorial that included detailed information for scientists and teachers that integrates morphemic awareness instruction into writing tasks, claiming it is “a strong tool to aid written language

skills” (p. 251) and linguistic development. Techniques include modelling and explaining tasks such as segmenting, word sorts and word building that break words down into their units of meaning. For example, a simple explicit analysis of a word such as the word *trees* comprises the base word *tree* plus plural affix marker of -s.

At a more complex level (such as combining base words with prefixes and suffixes) students choose an affix to change the meaning of the base word, for example, with base word *fit* (e.g. *fit*, *fitting*, *fitted*, *unfitted*, *unfitting*). In this way students are studying the consistent spelling of morphemes whilst seeing how different affixes change the meaning of a base word. Developing affix knowledge in students Grades 1 to 3 was found to play a crucial role in advancing their reading skills “above other known literacy predictors” (Apel & Henbest, 2016, p. 148). Affix consistency is illustrated in the matrix in Figure 4 and shows the spellings of “a morphological family” (J. Bowers & Bowers, 2017, p. 130). The authors argue that the matrix depicts Chomsky’s (1970) “lexical spelling” (p.288) theory that “letters represent segments in lexical spellings, not sounds” (p. 296).

re as		sign	al	
			ing ed er ment	
re	de		ate	ure

Figure 4. Word matrix and word sums for the base word *sign* (extracted from J. Bowers & Bowers (2017, p. 130)).

Improving both teacher and student affix knowledge was central to an Australian study conducted with children across six rural primary schools in the composite grades of Years 3, 4 and 5 (n = 223) (Hinton Herrington & Macken-Horarik, 2015), where spelling outcomes were a major concern. The ten teachers involved in the study answered a questionnaire to tease out their knowledge of the English spelling system. This was followed by an interview with the researcher where teachers discussed gaps in their knowledge about language, as well as their confidence to

teach spelling in general and morphological components in particular. As a result, teachers received substantial professional development from the researcher to underpin the delivery of the intervention. Pre- and post-tests revealed noteworthy improvements in student spelling after the intervention. There was also improved teacher and student knowledge about the significant roles morphemes play in words as well as how to “bolt together morphemic knowledge with established phonemic knowledge” (p. 69) and an increase in their confidence. Developing teacher knowledge about morphemes was also a feature of this current study.

In summary, morpheme awareness appears to be a strong predictor for both reading and spelling skills and contributes to improved literacy outcomes for typically developing and at-risk students (Apel, 2017a). Younger students exhibit greater understanding of inflectional morphemes (e.g. *-s*, *-ing*, *ed*) than derivational forms (e.g. *un-* that changes the meaning of the base word (e.g. *unable*), awareness of which develops around Year 3. Morphemic awareness is an underutilised but robust and important tool that is seldom taught in schools. Some researchers have found that whilst most teachers know what an affix is, they are unaware of the term, or definition of *morpheme* and the role they may play in developing student knowledge and skills in spelling (Hinton Herrington & Macken-Horarik, 2015; Nunes & Bryant, 2006). Instruction should include exploratory activities that target word sorts, word relatives, word building and problem solving (Apel, 2017a). To optimise literacy development, it should be integrated with phonological and orthographic awareness. A description of the role orthographic knowledge plays in spelling development is provided in the next section.

2.3.4 Orthographic knowledge

Orthography is the conventional writing system of a language and is derived from the Greek roots, *orthos*, meaning *correct* and *graphein*, meaning to *write* (Apel, 2017b). Developing orthographic knowledge in English means acquiring knowledge of the spelling system and occurs as children internalise understanding of the sounds in spoken words to their corresponding letters in the written form (Apel, 2011; Moats, 2010). Kilpatrick (2015) defines spelling as “an index of orthographic knowledge” (p. 186) and states that deficits in spelling may indicate phonological and orthographic weakness.

Inconsistent terminology and concepts accompanying orthographic knowledge has led to confusion. Apel (2011) aimed to address this by recommending the use of precise terms to facilitate uniformity. He states orthographic knowledge comprises two components: orthographic pattern knowledge (e.g. spelling patterns and conventions); and mental graphemic representations (MGRs) (e.g. mental images of written words) (Apel, 2017b). “Orthographic processing is the global term used to discuss the ability to acquire, store, and use both MGR and orthographic pattern knowledge” (Apel, 2011, p. 594).

Whilst research to date reveals that orthographic knowledge uniquely contributes to spelling and reading development, how exactly is uncertain. Some current research findings suggest that orthographic knowledge develops early as a result of learning to read. Ehri (2014) states that as children develop phonemic awareness and grapheme phoneme knowledge, orthographic mapping (OM) is facilitated.

Orthographic mapping occurs when, in the course of reading specific words, readers form connections between written units, either single graphemes or larger spelling patterns, and spoken units, either phonemes, syllables or morphemes. These connections are retained in memory along with meanings and enable readers to recognize the words by sight. An important consequence of orthographic mapping is that the spellings of words enter memory and influence vocabulary learning, the processing of phonological constituents in words, and phonological memory. (Ehri, 2014, pp. 5-6)

To illustrate, when students develop knowledge of the alphabetic principle (sound-symbol relationships) they are developing orthographic pattern knowledge (e.g. long vowel digraphs with two letters; rules such as *ck* goes at the end of a word with a short vowel sound, such as *chick*). MGRs are words or parts, the sequence of which are stored as images in our brain (Apel, 2011). Apel (2011) suggests that MGRs are not only acquired through phonological associations to sounds in words as children read, citing studies that suggest learning MGR happens earlier, in pre-school and kindergarten children, by direct and indirect means.

Developing automaticity in word reading and spelling means acquiring fluent word recognition without the need to analyse it. Ehri (2005) suggests that students learn to read words by sight when connections between speech and its printed representations (letters) materialise. They do this irrespective of regular or irregular spelling. Spelling becomes automatic when during pronouncing a word, the written letters are glued to the phonemes and syllables they represent. To

illustrate, in one study, children who could “spell a word such as *interesting* segmented it into the four syllables represented in the spelling (*in-ter-est-ing*), whereas those who misspelled the word tended to find three segments (*in-tres-ting*” (Ehri, 2014, p. 18), thus mirroring their pronunciation. Ehri and Rosenthal (2007) emphasised the importance of students being taught to pronounce new words, also when reading independently and for researchers to include orthography in their work, in particular into working memory theories.

Summaries of research from the 1990s until the beginning of the 2000s on the characteristics of orthographic knowledge are provided by Apel (2011) and Kilpatrick (2015). Apel (2011) concludes that researchers have found that in the early stages of literacy development, orthographic knowledge appears to be “an independently developing skill” (p. 598) and that it may be a predictor of spelling. However, Kilpatrick’s (2015) summary supports the view that orthographic knowledge seems to be dependent on phonological knowledge and it is the “*product* of learning to read and the reading experience, not a causal factor in learning to read” (p. 184). More research is required to better understand how orthographic knowledge develops to further aid optimal instructional practice.

2.3.5 Summary of the interrelationship between the three components

Whilst visual memory plays a role in spelling development, accurate spelling is not developed through visual memory alone (Joshi et al., 2008; Moats, 2010; Westwood, 2014). As children move through primary school, they need to learn how the interrelationships between morphology, phonology and orthography differ for words from Anglo-Saxon and French origins to support fluent spelling development (Henry, 2010; Joshi et al., 2008; Moats, 2010).

Phonics instruction is an effective instructional approach but alone it does not reflect a true picture of the English spelling system (Treiman, 2018). Children require systematic instruction in the code of English. They need to learn “the logic of the English spelling system” (J. Bowers & Bowers, 2017, p. 131). Morphology has been a neglected component in spelling instruction, but has been described as a “binding agent” (Kirby & Bowers, 2017, p. 5) or vehicle that facilitates the integration of phonology and orthography (J. Bowers & Bowers, 2017). Effective instruction comprises modelling of explicit strategies that link spoken and written

words, includes phonological, morphological and orthographic components, incorporates etymology, explicitly teaches spelling rules and revises taught concepts (Berninger & Fayol, 2008). Theories on how best to teach these components are reviewed in the next section.

2.4 Theories on developing student spelling and linguistic awareness

There are some well-known theories that suggest children develop spelling skills in a linear fashion, mostly in sequential stages. Two of these are Stage Theory and Phase Theory. Stage Theory suggests that spelling develops in sequential stages of phonological, orthographic and morphological components (Bear et al., 2012; Templeton & Morris, 1999). However, Bear et al. (2012) state that an overlap often occurs as students develop conceptual knowledge. The names of each stage reflect the key layers in the English language and it is not to suggest that students leave one stage before progressing to another, finally ending on the morphological stage. This theory is seen as a useful framework for the teaching and learning cycle (Bear et al., 2012; Daffern, Mackenzie, & Hemmings, 2015; Ehri, 2005). Phase Theory proposes that students progress through four phases in the course of reading and spelling development. These are pre-alphabetic, partial alphabetic, full alphabetic and consolidated alphabetic phases. Ehri (2005) also believes that in progressing through each phase, overlaps occur.

In a recent theory review, Treiman (2017a) cites research on the Integration of Multiple Patterns (IMP) framework. In contrast to stage and phase theories, IMP suggests that in learning to spell, children utilise two forms; “writing’s outer form” and “links” (p. 273) such as phonology, morphology or other linguistic structures. Treiman cites studies with British, Dutch and French speaking children that found students learned to spell a word more easily when utilising more than one source, supporting the IMP theory.

For the purpose of the present project, research from Berninger (2010) and (Garcia, Abbott, & Berninger, 2010) that supports developing linguistic awareness in tandem with word spelling was of particular interest. According to Berninger et. al. (2010) there are two core theories on the subject of teaching word level spelling and student phonological, orthographic, and morphological awareness to develop student linguistic awareness. One is Stage Theory discussed above, and the other is

Conjoint Theory. Conjoint Theory suggests that phonology, orthography and morphology contribute conjointly to literacy learning (Apel & Masterson, 2001; Berninger et al., 2010). Triple Word Form Theory (TWFT) (Berninger et al., 2010) is a contemporary Conjoint Theory of evidence-based knowledge maintaining that best outcomes are achieved by learning the key elements of word structure simultaneously rather than sequentially. “Learning to read and write words is a process of learning to become aware of and coordinate the three word forms and their parts” (Berninger et al., 2010, p. 157). It is suggested that developing phonological, morphological and orthographic awareness and knowledge, greatly assists students to expand their knowledge about which strategy or strategies to apply when confronted with the need to spell unknown words. This theory has “been validated in a series of brain imaging studies” (p. 157). TWFT is a non-linear approach to developing spelling skills that adopts “relationships of multiple language skills to spelling development” (Garcia et al., 2010, p. 61). It utilises a multivariate approach to spelling assessment and suggests that quite young students synchronise phonological, orthological and morphological components during spelling development (Daffern et al., 2015).

Originally, TWFT research was conducted on students who met the criteria for dyslexia¹ utilising various methods including brain imaging, instructional studies and family genetics as well as comparing students with dyslexia and controls (Garcia et al., 2010). Results of all studies revealed that “all three word forms and their parts alone and in coordination with each other were relevant to understanding, assessing, and treating dyslexia” (p.62). In the TWFT theoretical framework:

spelling is the visible representation of internal word-level language using written symbols in conventional sequences (orthography) that (a) represents speech sounds (phonology) and word parts that signal meaning and grammar (morphology) and (b) activate and express associated semantic (cognitive) representations. (Garcia et al., 2010, p. 63)

When writing, spelling utilises several knowledge bases and patterns: phonological (speech sounds); orthographic (letters in written words); and morphological (base words and affixes). Therefore, to develop accurate spelling students should be

¹ The authors did not provide a definition of dyslexia in this study (Garcia et al., 2010).

taught to marry the phonological, orthographic and morphological components. To evaluate the effectiveness of this approach, the researchers conducted a study with an equal number of girls and boys identified as low (n = 20), medium (n = 20) and high (n = 20) ability spellers in Years 1 and 3. Annual assessments were administered for four years to determine if they remained in their groupings over time. The effectiveness of three assessments (phonological, orthographic and morphological) was also evaluated. Each of the following assessments included three measures and required either an oral or written response.

- The phonological awareness assessment (oral) comprised deleting either a syllable, phoneme or rime in a word delivered orally by the researcher. It required students to “store a heard spoken word in working memory while they reflected upon it” (p. 71).
- The orthographic assessment (oral) comprised analysing either “all the letters in a word, a single letter in a word, or a letter group in a word” (p. 71). Students were presented with a word to hold in memory before it disappeared. They then decided if the next word was a perfect match to the previous word or if any of the letters, sounds, or groups of letters were missing.
- The morphological assessment (oral or circle the answer) comprised choosing the correct inflectional ending to fit the blank in a sentence (measuring knowledge of tense, number or part of speech); adding a suffix to a base word so the new word made sense in the sentence; and a decomposition task requiring the student to provide the correct base word from the “derived form” (Garcia et al., 2010, p. 72).
- Students were also given the two written spelling-related predictor measures and word reading and pseudo word reading assessments.

Phonological, orthographic and morphological tools consistently forecast students’ fit into one of the three spelling ability levels and was maintained over the four-year study. Furthermore, results from brain imaging for students (nine to 12-year-olds) support the benefits that combined phonological, orthographical and morphological components make to developing spelling and reading. This suggests that spelling does not develop in discrete stages but that students draw on all three linguistic components from early spelling development (Garcia et al., 2010).

A longitudinal study over four years with students in Years 1 to 6 (n = 241) revealed considerable growth in phonology, orthography and morphology transpired in the first three years with “some forms of morphological awareness showing maximal growth in fourth grade and thereafter” (Berninger et al., 2010, p. 156). The studies recorded growth in these three areas early in students’ spelling instruction, with the researchers concluding that spelling instruction should comprise phonological, orthographic and morphemic linguistic elements. This is the time when explicit instruction in these three linguistic components and their interconnections are likely to be advantageous.

Responding to the benefits TWFT has to offer, a recent spelling assessment tool informed by TWFT, Components of Spelling Test (CoST) was developed by Daffern et al. (2015) to provide teachers and researchers with a “valid and reliable spelling assessment tool” (Daffern et al., 2015, p. 72) for middle and upper primary students. It aims to provide a measure of students’ phonological, orthographic and morphological skills within the Australian English spelling system. Spelling errors in the CoST are grouped under one of these three skill components. Unlike the stage method of spelling error analysis that is based on the premise of linear spelling development, the CoST approach aligns with current and emerging research on spelling development (Berninger et al., 2010; Daffern et al., 2015; Garcia et al., 2010). However, as this current study was conducted with younger Year 2 students, it was not considered an appropriate assessment tool. Current instructional practices to developing literacy and spelling skills in the primary school fall, in the main, either under meaning-based or teacher-centred instructional approaches.

2.4.1 Two instructional approaches: Meaning-based and Explicit Instruction

There are many different instructional approaches used in the contemporary classroom. However, most can be grouped into one of two pedagogical approaches: 1) constructivist student-centred, meaning-based instruction; or, 2) teacher-centred, explicit instruction approaches.

Meaning-based pedagogy

Meaning-based instruction is also recognised as Whole Language. This approach is grounded in constructivist theory and formed in the field of educational psychology from Piaget’s theory of cognitive development and Vygotsky’s social learning

theory (Vygotsky, 1978). The set of assumptions that underpin meaning-based instruction in the constructivist classroom is that knowledge and meaning are socially constructed within a supportive climate where teacher and students cooperate in setting goals and learning outcomes (Cambourne, 2002; Hyslop-Margison & Strobel, 2008). These goals provide students with challenges for problem solving issues that are presented in “information-rich settings” (Kirschner, Sweller, & Clark, 2006, p. 76). It is believed that most successful learning occurs when students find their own solutions to a problem with minimal guidance.

In the literacy classroom, constructivism emphasises the importance of a rich literacy environment in a flexible structure where the teacher is a facilitator, providing partial guidance for individual students, often within a theme or topic of study. The classroom is manipulated to offer a supportive community of discovery learning where students come to their own understanding of literacy concepts. Student- and teacher-developed learning focus and goals are integrated into a program of literacy development. There is an emphasis on comprehension of text and where spelling is concerned, may include sound-symbol correspondences based on the words occurring in the text. It is believed that spelling will be picked up naturally by immersing students in a literature rich environment and in the context of the purposeful reading and writing tasks (Cambourne, 2002, 2015; Goodman, 1989). The more children engage with sophisticated literacy activities of the sort used by proficient adults the more authentic the learning (Goodman, 1989).

It is important to note that teaching strategies vary considerably in the contemporary constructivist classroom, and the degree to which implicit or explicit teaching, planning and contextualised teaching is applied is more or less dependent on the teacher involved (Cambourne, 2002). It can be stated that most teachers lack deep knowledge of either approach. For example, contrary to many constructivist teachers’ beliefs, Goodman asserts that “traditional school concerns – spelling, handwriting, grammar and usage – are integrated in Whole Language classrooms into authentic language experiences” (Goodman, 1989, p. 210) but not taught in isolation. He likewise maintains that Whole Language practice supports the learning of phonics as it relates “between the sound system and orthographic

system” (p. 215) of language and that spelling develops without explicit instruction, but within a framework of reading and writing in the context of meaningful literacy immersions.

According to Cambourne (2002), the principles that contemporary teachers have articulated as having emerged from constructivist pedagogy are a blend of four elements of teaching and learning: “explicitness, systematicity, mindfulness and contextualization” (p. 30) that are in fact not exclusive to constructivism. It needs to be recognised that despite the instructional approach used, students will always generate their own meanings.

Cambourne (2002) has theorised about how children learn to spell for 40 years. He has formed the view that spelling is naturally acquired through the process of writing and should not be taught explicitly. In more recent times, Cambourne (2015) reaffirmed this view in an evaluation of natural learning approaches and teacher-directed approaches to spelling instruction. In evaluating the teacher-directed approaches, he concluded “its [sic] difficult for this approach to explain how anyone could ever learn the conventional spelling [of] all the words that an average adult writer has to store in memory” (p. 34). “Such learning is simply too extensive, intricate, complex, subtle, and pervasive” (p. 35.) In saying this, Cambourne implies that the complexity of teaching spelling lies in teacher-directed approaches when it could be argued that the opaqueness of the English language and need to consider the phono-morphological aspects of words (Moats, 2009), is in fact more challenging.

Whole language approaches are used extensively in Australian schools. However, it is important to note that its use was not highlighted in “any of the 20 recommendations of the 2005 National Inquiry into the Teaching of Literacy” (Snow, 2016, p. 89). Carnine (2000) reported a similar situation in the US, where WL has been the main approach to literacy teaching, despite it being unsupported by scientific researchers and politicians.

Explicit Instruction pedagogy

One similar approach to meaning-based instruction that Explicit Instruction (EI) pedagogical methods share is that they also build on current student knowledge. A major difference between the two approaches is that in EI, meanings are easily

supplied thus lessening the cognitive load on students which in turn may also increase student engagement (Centre for Education Statistics and Evaluation, 2017). The teacher utilises a carefully planned lesson sequence and instructional language in a controlled environment that optimises student engagement. Explicit instruction teaching approaches need to be defined, as they are often misunderstood (Hammond & Moore, 2018) with terms in research papers and policy often overlapping (Hempenstall, 2017).

The terms *explicit instruction* or *direct instruction* are summary terms for recent findings on effective teaching. They refer to a systematic method of teaching with emphasis on presenting “new material in small steps with student practice after each step” (Rosenshine, 2012, p. 19). Explicit instruction lessons provide fully guided instruction in the concepts and skills that the student is to learn (Clark, Kirschner, & Sweller, 2012).

The term *direct instruction* was used by Rosenshine when in 1976, he first researched a set of effective teaching practices that specifically linked to considerable improvement in student outcomes (National Institute for Direct Instruction, 2018). As Direct Instruction was a term already used by Siegfried Engelmann (Engelmann & Carnine, 1991; 2016) to describe his scripted programs, like DISTAR, Rosenshine later adopted the terms *explicit teaching* and *explicit instruction*.

There are five main pedagogical approaches to delivering EI and the differences are often confused. The approaches are

- Explicit Instruction (EI) (Archer & Hughes, 2011);
- direct instruction (Rosenshine, 1987, 2012);
- Explicit Direct Instruction (EDI) (Hollingsworth & Ybarra, 2009, 2013, 2018);
- I do, We do, You do (Wheldall, Stephenson, & Carter, 2014); and
- Direct Instruction (Engelmann & Carnine, 1991; 2016).

Explicit Instruction (EI)

Supporters of the EI model suggest that the most effective instruction to maximise student engagement and learning comprises a set of instruction principles that support the methods used to deliver the material being taught (Archer & Hughes,

2011; Clark et al., 2012; Hollingsworth & Ybarra, 2009, 2013, 2018; Rosenshine, 2012). In this model the teacher uses a series of scaffolds to: a) select, design and sequence the content to be taught; and, b) scaffold the content delivery, which is broken down into manageable units matched to student cognitive capability. Instruction is unscripted and delivered in “manageable amounts” (Rosenshine, 2012, p. 12) in which students’ understandings are scaffolded throughout a lesson in sequential guided practice, accompanied by the teacher checking for student understanding to optimise student learning.

In the context of this study, there is much evidence to suggest that EI is an effective strategy to develop student word level spelling skills and is seen as essential by many researchers including Berninger et al. (2010); Berninger and Richards (2002); Bowers et al. (2010); Joshi et al. (2008); Nunes & Bryant (2006); and Westwood (2005, 2008). EI is a particular focus of this project and both the principles and methods that interact during teaching are summarised as follows.

Principles of effective Explicit Instruction (EI)

The principles of effective EI instruction as summarised by Archer and Hughes (2011) are based on prior research into teacher effectiveness conducted by Ellis and Worthington (1994). The six principles comprise

- optimising engagement time;
- optimising high levels of student success;
- covering as much academic content as possible;
- maximising either teacher-led whole class or skill-level group instruction in preference to one-on-one teaching;
- providing scaffolded support to promote academic success before fading support to encourage independent learning; and
- developing and applying different types of skills and knowledge such as factual information, procedural knowledge and how to apply these in context (Archer & Hughes, 2011).

The second EI model is known as direct instruction (Rosenshine, 2012). Rosenshine drew on investigations from three different fields of education research that are in agreement with each other on the best instructional practices to establish ten researched-based instructional principles. These three fields of education were: 1)

cognitive science; 2) classroom practice of master teachers; and 3) research on cognitive support. The fact that the instructional ideas and practice from these three different fields of research support each other provided Rosenshine with confidence in establishing validity of these findings. Input from these sources “supplemented and complemented each other” (Rosenshine, 2012, p. 12) and were the source of the following of effective explicit instruction principles

- review previous learning;
- present new material in small steps accompanied by student practice;
- ask numerous questions to ascertain broad student response and connect to previous learning;
- provide examples, prompts and scaffolds;
- guide practices by elaborating on and summarising new material;
- check for understanding through asking questions and using ‘think alouds’;
- aim for an 80 % student success rate;
- scaffold and model difficult tasks;
- follow with extensive independent practice to enhance skills automaticity; and
- provide extensive weekly and monthly reviews (Rosenshine, 2012).

The Rosenshine direct instruction lesson format comprises three stages: introduction to the new content; the main lesson; and finally, student practice with immediate teacher feedback. This explicit guidance is absent in Constructivist approaches. With explicit teaching, instruction is unscripted and delivered in “manageable amounts” (Rosenshine, 2012, p. 12) in which students’ understandings are scaffolded throughout a lesson in sequential guided practice accompanied by the teacher checking for student comprehension to optimise student learning for all ability levels.

Explicit Direct Instruction (EDI)

The third EI model is known as Explicit Direct Instruction (EDI) (Hollingsworth & Ybarra, 2009, 2018). EDI is a set of “instructional practices” (Hollingsworth & Ybarra, 2018, p. 16) that together provide a design for the teacher to deliver structured lessons to students of all abilities. It is particularly designed for teachers to present “grade-level content (p. 16) that includes specific problem-solving tasks.

Drawing on the teacher-centred approaches to DI, and the outcomes from the *No Child Left Behind Act* of 2002, Hollingsworth and Ybarra (2018) introduced Explicit Direct Instruction in the early 2000. “It is based on educational theory, brain research, direct instruction, and classroom observations” (Good to Great Schools Australia, 2017, p. 1). The authors also have drawn on the work of researchers including Rosenshine (1987; 1997) and Clark et al. (2012). The lesson principles design components and methods delivery strategies are listed below.

Principles (design components) of EDI

- The learning objective provides a statement of what the students will achieve by the end of the lesson.
- The teacher activates prior knowledge to connect previously taught concepts and build knowledge and connect with new content.
- Concepts to be developed are stated in the learning objectives.
- Skills development involves teaching students how it is done.
- Guided practice provides step by step support and checking for accuracy.
- Lesson closure sees students supply proof they have achieved the learning objective prior to independent practice.
- Independent practice enables the students to effectively practise what was taught. (Hollingsworth & Ybarra, 2018).

Methods (delivery strategies) of EDI

EDI delivery methods employ two major strategies, Student Engagement Norms and TAPPLE, to check that students are learning what is being taught. The Engagement Norms utilise the following strategies

- Pronounce With Me;
- Track With Me;
- Read With Me;
- Pair-Share;
- Attention Signal;
- Whiteboards (including Chin-it); and
- Complete Sentence (Hollingsworth & Ybarra, 2009, 2018).

TAPPLE is used to confirm students are learning during the lesson. The teacher continuously checks for understanding and provides corrective feedback, aiming for 80 to 100% correct answers for each question. The acronym stands for the following steps

Teach First

Ask a Question

Pause (2009) – Pair-Share (2018)

Pick a Non-Volunteer

Listen to the Response

Effective Feedback (Hollingsworth & Ybarra, 2009, 2018).

I do, We do, You do

Another EI approach is known as I do, We do, You do (Wheldall et al., 2014). This approach may be utilised during the EI instructional sequence. It sees the teacher first model what is to be learned (I do), followed by guided practice of the target skill with effective feedback (We do). The final step is student independent practice of the target skill (You do).

None of these four EI approaches use a fully scripted teaching sequence. This is a feature of the Direct Instruction (DI), the next model presented.

Direct Instruction (DI)

The term Direct Instruction (DI) often referred to as DI, was introduced in 1968 with the publication of a reading program called DISTAR (*Direct Instruction System for Teaching and Remediation*) by Siegfried Engelmann. It was based on a significant empirical research study and numerous subsequent studies that had taken place over the previous 30 years (National Institute for Direct Instruction, 2018). One such project, *Project Follow Through*, was an historically vigorous ten-year controlled study that appraised nine different methods of instruction. When it culminated in 1967, nine major methods of teaching students at risk had been appraised. Methods assessed included DI and constructivist learning approaches (Carnine, 2000). Research evidence that found the systematic and planned approaches used in DI had a significant effect on all students' mastery of academic achievement of curriculum content (Liem and Martin, 2013). The DI method of

teaching at risk students consistently outperformed the other teaching methods on basic cognitive and affective domains (National Institute for Direct Instruction, 2018). Further, research has shown that DI approaches are good for all students from “a wide range of communities” (Carnine, 2000, p. 7) and with DI they are not left wondering about concepts they may have missed (Hempenstall, 2016).

Emphasis on repetition and practice in DI fell out of favour with Whole Language approaches. As a result, DI was and still is often seen as unfashionable (Hempenstall, 2013, 2015b). Over the years many programs have been shaped by the DI model yet criticism has been common. Hempenstall (2013) provides a summary that includes the following unfavourable viewpoints

- the evidence is distorted;
- the focus on phonics is bad;
- it is incompatible with, and less effective than discovery learning and Whole Language;
- it is best for basic skills;
- it destroys student motivation; and
- it has “a lack of methodological soundness in the research” (Hempenstall, 2013, para. 58).

Furthermore, critics of scripted programs state that scripting stifles teacher creativity and resembles robotic practice (Luke, 2014b). McMullen and Madelaine (2014) reviewed literature on the resistance DI attracts. They stated that many educators, in particular those favouring meaning-based instruction, believe DI comprises teacher dominated rote learning exercises and is merely an approach that is useful for basic skills. Teaching institutions also rejected including it in pre-service teacher programs despite strong empirical evidence to its value. Some teachers disliked the scripted content and some “felt their value as a professional was diminished” (p. 146). A reading educator reported watching an animated teacher delivering a scripted lesson, describing lively interaction between the engaged students and teacher (Commeyras, 2007). She also generally disliked scripted content, but now saw a script had its place depending on the nature of the lesson. These comments correspond to those from the teachers involved in this research project.

Scarparolo and Hammond (2017) found that teachers in their study did not feel inhibited using a semi-scripted structure. Barbash (2012) felt DI programs are “designed to free teachers from having to reinvent the wheel for every class and subject, and to let them focus on the give and take with students which is rarely boring or predictable” (p. 40).

Despite its critics, there is a large body of research that highlights the benefits of DI for all students. Coughlin (2011) presented preliminary results of a meta-analysis of randomised control trials comprising 20 studies on DI programs containing 95 comparisons. They included reading, maths and language programs. Over half (n = 11) of the studies comprised students with a learning difficulty; the remainder were mainstream students. Results revealed that all of the DI programs delivered a moderate to large effect size, regardless of the program content area or student ability group.

Another meta-analysis involved examining 328 studies including 413 designs and approximately 4,000 effects was conducted by Stockard, Wood, Coughlin, and Khoury (2018). The studies were over 50-years and involved a broad range of subjects, comparison groups, pedagogical methods and locations. Similarly, the study included maths, reading, language, and spelling programs. “All of the estimated effects were positive and all were statistically significant ...” (p. 1) with effects being greater for the students who received longer program tuition.

DI has continued to be an effective method of teaching not only for students at risk, but for all students of all ages; that is, for students who range from being at risk, disabled, typically developing or highly competent across all school years, in preschool to high school settings. Furthermore, students enjoy the lesson, becoming actively engaged and motivated (Barbash, 2012; McMullen & Madelaine, 2014).

Teachers’ views on DI were sought by Demant and Yates (2003) who surveyed approximately 150 primary school teachers in seven Adelaide schools. Of the 58 surveys returned, 19% of teachers had negative views and 81% positive views towards using DI. Positive views reflected teachers’ experience and knowledge of DI components such as those outlined by Rosenshine (2012). Seeking teachers’ views on the use of a semi-scripted content is a feature of this current research.

However, there was strong disagreement (53 %) on the statement that “Direct instruction is a highly effective teaching method with all students” (p. 488). Agreement was 39 % and the neutral position, eight percent.

Summary

Drawing on key findings from researchers, Rowe (2006) stated that neither explicit instruction or meaning-based models alone are suitable for fostering all facets of learning. However, Rowe argued that before students embark on exploration and discovery of phenomena through meaning-based instructional approaches, developing “sufficient prior knowledge” (p. 2) through explicit instruction in essential foundational skills such as learning the alphabetic principle is required. This is important to support the reading, writing and spelling skills that will facilitate and produce new learning in a subject or topic. Furthermore, there is solid evidence that an “exclusive emphasis on *constructivist* approaches to teaching are neither initially nor subsequently in the best interests of any groups of students, and especially for those experiencing learning difficulties” (p. 1).

For decades, meaning-based approaches to teaching have seen the teacher as a facilitator rather than a leader. Many teachers find it hard to accept that DI is effective. Dinham (2009) suggested that results from meta-analytic effect size research on DI have made teachers who have been committed to “one pedagogic party all their lives think they’re now being asked to reconsider their unquestioned allegiance and vote for the opposition” (p. 54). He views the word *instruction* as having a negative connotation associated with “technical transfer of knowledge” (p. 54). This is despite Hattie’s (2009) research that revealed DI has a superior effect size to meaning-based instruction.

In a synthesis of over 800 meta-analyses of teaching methods that best support student achievement, Hattie (2009) used $d = 0.40$ as a hinge point to evaluate the effect of different teaching strategies on student outcomes. He reasoned that a zero point would be ineffective to demonstrate the effect of the myriad of teaching and learning strategies used in schools. He considered that the minimum standard for success should be set at $d = 0.40$ and “any innovation, any teaching program” (p. 249) should exceed this. He explained there are seven major steps to DI. These are

- clear learning intentions;
- transparent success criteria of student performance;
- building commitment and engagement;
- clear guides of lesson presentation including modelling and checking for understanding;
- guided practice;
- closure to review and clarify learned concepts; and
- independent student practice.

Dinham (2009) suggested this summary does not mean every lesson must follow a precise, inflexible structure. What each lesson does require are these essential elements. He believes the best teachers have the ability to generate and manage learning “that is both student-centred and teacher-directed” (p. 55).

The emphasis on repetition, reciting and drilling in DI, which fell out of favour and is very different from meaning-based approaches, appears to be highly successful. However, DI does have some features that are common to explicit instruction and EDI, “(e.g. reinforcement, stimulus control, prompting, shaping, extinction, fading), and with the effective teaching movement (mastery learning, teacher presentation skills, academic engaged time, and correction procedures)” (Hempenstall, 2015b, p. 61). It would appear that the best methods utilise highly active and guided teacher instruction, active student involvement and high student motivation and empowerment. It is asserted that Explicit Instruction methodology underpins improved learning and accommodates the diversity of students in the classroom to achieve optimal outcomes (Kame'enui, Carnine, Dixon, & Burns, 2011).

The present study took place in NSW schools in Australia. Therefore, the next chapter provides a review of research relevant to the teaching of spelling in the Australian context.

Chapter 2 Part B: The Australian context

This section provides a review of literature relevant to the Australian context in which this research is situated. First, recommendations from international and national reports pertinent to literacy and spelling development are provided. This is followed by an historical overview of approaches to spelling instruction in Australia over the past four decades. New South Wales (NSW) policy and associated documents, *The Australian Curriculum: English (AC: E)* (Australian Curriculum Assessment and Reporting Authority (ACARA), 2013), and *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) relevant to the teaching of spelling are reviewed.

Continuing into the next section, an account of the varied current practices and routines that comprise balanced literacy including teaching spelling skills is provided. Following this, the continuing low literacy student outcomes and subsequent government action to address the situation are explored. This includes an examination of differing opinions on the pedagogical approaches required to improve student outcomes. The interplay between research-based pedagogical outcomes, policy and practice is highlighted.

A review of issues surrounding the proposed Phonics Screening Check to enable early identification of students who may need targeted literacy assistance is then provided. This links to the next section, in which a review of the role leadership and instructional approaches played in turning student outcomes around in high performing schools.

Next, the knowledge and confidence that teachers have to explicitly teach spelling is explored. This leads into research on the content connected to teaching early reading in Australian and preservice teacher education programs which also has implications for the teaching of spelling. The importance of teachers being well prepared by teacher education institutions and the role personal beliefs play in classroom practice follows.

Literature on three different approaches to developing spelling skills currently in use in NSW primary schools is then appraised. Lastly, the role of dictation, which is a particular focus of this research project, is examined in relation to the effect it

could have on spelling development. A summary of Part A and B concludes the Literature Review section.

2.5 Introduction

In Australia, the importance of promoting equity and excellence for all students (Goal 1 of The Melbourne Declaration on Educational Goals for Young Australians) (Ministerial Council on Education Employment Training and Youth Affairs, 2008) regardless of social and cultural background and geographic background is stated in the preamble of the Declaration. It is also specified in the 2014 NSW Board of Studies Teaching and Educational Standard, NSW (BOSTES) Blueprint for Action (Board of Studies NSW, 2014). Factors such as home environment, socio-economic skills, language and cultural background as well as learning difficulties all play a role in the diverse range of language skills that children develop before they attend school (de Lemos, 2002).

An overall summary from the three enquiries into the particular knowledge and skills required to teach reading effectively was published in the 2014 the Board of Studies NSW Teaching and Educational Standard, NSW (BOSTES) (Board of Studies NSW, 2014). Whilst reading development was the main focus of these reports, they also include the processes necessary for the development of writing skills including the importance of spelling. Recommendations from three of these reports that are also pertinent to developing spelling ability, including the phonological aspects of English to support reading and writing development, are summarised as follows.

- a) The *National Reading Panel*, United States (2000) determined that no single approach to teaching reading should be utilised and an amalgam of techniques should be employed. Fourteen years later the Board of Studies NSW took the view that “teaching children explicitly and systematically to manipulate phonemes (phonological and phonemic awareness) significantly improves their reading and spelling abilities and the evidence on this is so clear cut that this method should be an important component of classroom reading instruction” (Board of Studies NSW, 2014, p. 7).
- b) In the executive summary of the *National Inquiry into the Teaching of Literacy*, in Australia, Rowe (2005) stated that literacy teaching should be “grounded in findings from rigorous evidence-based research” (p. 11).

Recommendation 2 states that to optimise student outcomes teachers should “provide systematic, direct and explicit phonics instruction so that children master the essential alphabetic code-breaking skills required for foundational reading proficiency” (p. 38). The summary also reflects findings from the *National Reading Panel* in the US (National Reading Panel (NRP), 2000).

- c) The *Rose Report*, England (Rose, 2006) recommendations also acknowledged that for students to be successful in reading and writing “the knowledge, skills and understanding that constitute high quality phonic work should be taught as the prime approach in learning to decode (to read) and encode (to write/spell) print” (p. 70).

In an overview of research literature, de Lemos (2002) drew on a wide range of work from experts to provide essential findings and implications for informing teaching practice and policy development that are of specific relevance to Australian education. Developing fluent reading and writing skills is essential and, for the vast majority of children, both rely on acquiring good spelling knowledge. The developing of reading and writing skills is different, and as expressed by de Lemos:

both are dependent on the set of spelling-sound correspondence rules of the language, or what is termed in the literature the orthographic cipher.

Knowledge of the cipher is therefore seen as critical to the acquisition of literacy, since it is a basic component of both decoding, which underlies the acquisition of reading, and spelling which underlies the acquisition of writing. Knowledge of the cipher is in turn dependent on two main factors: phonemic awareness, or the knowledge that the spoken word can be broken down into a series of specific sounds, and exposure to print, which provides models of written text and specific letters and words, which can then be connected to specific sound sequences. (de Lemos, 2002, p. 5)

Ways in which spelling instruction has been approached in Australia since the 1990s are examined in the following section.

2.6 Approaches to literacy and spelling instruction: An historical overview

Many different approaches to the teaching of English spelling have been proposed over the past four decades (Freebody, 2007; Westwood, 2005, 2008). Westwood

(2008) presented an overview of literature on spelling teaching practices in Australia from 1995 to 2007. He discussed how in the 1980s and 1990s, meaning-based pedagogy or Whole Language philosophy became popular (details of this approach are provided in Part A of this Literature Review). During this time, teaching spelling was seen as an “obsolete methodology” (Westwood, 2008, p. 34). Children mostly wrote in an unstructured natural environment with an emphasis on personal writing (Pritchard & Honeycutt, 2006) without spelling and punctuation instruction. Pritchard and Honeycutt (2006) cited the review works of Hillocks (1984;1986) which resulted in the claim that ultimately this approach yielded little positive impact on writing quality.

Subsequently, there was agreement between the Australian states and territories in 1997 that spelling was important in its own right and that every child should be able to read, write and spell at an appropriate level (Westwood, 2008). In 1998 the NSW Department of Education and Training produced the document *Focus on Literacy: Spelling* (NSW Department of Education and Training, 1998a). In the foreword the then Director-General of Education and Training, Ken Boston, stated that teachers were “encouraged to teach spelling in the same explicit and systematic way that they teach all other literacy skills and understandings” (p. 3). He further stated the considerable importance of spelling “because the ability to spell is a highly visible sign of a person’s level of literacy” (p. 3).

A companion document, *Teaching Spelling K-6* (NSW Department of Education and Training, 1998b) provided teachers with a detailed model for teaching spelling to students from Early Stage 1 to Stage 3. It states that students need to develop four components of word spelling and knowledge from the beginning of literacy development: phonological, visual, morphemic and etymological components. Examples show teachers how to explicitly teach spelling “in the context of a talking, listening, reading or writing focus, in guided and modelled lessons, and across all key learning areas” (p. 9). It includes teaching basic spelling rules as well as the use of a ‘Have a Go Sheet’ and the Look, Cover, Say, Write, Check (LCSWC) strategy. It states that students need to be encouraged to develop the skills to self-edit and proof read their writing and for those finding such tasks difficult, working in pairs with more competent students is recommended.

Look, Cover, Write, Check (LCWC) became a popular strategy used extensively for students to practise and learn spelling visually (NSW Department of Education and Training, 1998b). For example, each word in the (weekly) spelling list is written, covered and re-written to commit it to visual memory via rote memorisation (Bowers & Cooke, 2012; Hinton Herrington & Macken-Horarik, 2015; Nunes & Bryant, 2006). Often there is little or no emphasis put on the correspondence of letters and sounds before students write the weekly word list (Bowers & Cooke, 2012). According to Westwood (2008) research on the enhanced Look, Say, Cover, Write Check (LSCWC) strategy revealed this version is beneficial for recalling spelling patterns. Nevertheless, it is proposed by some researchers that in applying such a method, whilst the child may score a perfect spelling test on Friday, the burden on working-memory does not allow for transference to independent writing (Berninger & Richards, 2002; Moats, 2007; Nunes & Bryant, 2006) or accommodate a long-term view of knowledge about spelling.

Debate on the best approaches to literacy teaching continued. It reached a crescendo in March 2004, when the then Minister for Education, Science and Training, The Honourable Dr. Brendan Nelson received an open letter from 26 Australian reading researchers and psychologists registering their alarm about the typical approach to teaching beginning reading in schools. As later reported, they claimed that the dominant methods used, mostly Whole Language, were not consistent with evidence-based research on how children “best learn to read” (Rowe, 2005, p. 2). They further claimed that “poor reading skills are in many cases due to ineffective teaching practices based on whole language approaches during the crucial early years of ‘first wave’ classroom teaching” (p. 2). First wave teaching is the “initial mainstream classroom teaching” (p. 2). As a result, the Minister instigated the *National Inquiry into the Teaching of Literacy* and an independent committee chaired by Dr. Ken Rowe to review the status quo (see section 2.8.1).

The decline of spelling standards in Australia continued and led to public dismay. To illustrate, in 2006, journalist Justine Ferrari published an article in *The Australian* reporting the success of English foreign language (EFL) learners in Singapore, who scored over 20% higher in Year 5 assessments than NSW students (Ferrari, 2006). In commenting on the Singapore results, the Chairman of the National Inquiry into the

Teaching of Literacy, Dr. Ken Rowe from the Australian Council for Educational Research, stated that direct and explicit instruction was the key to the Singaporean students' success (Ferrari, 2006).

In 2009, another document, *An Introduction to Quality Literacy Teaching* (NSW Department of Education and Training, 2009a) was issued. In the foreword, the then Deputy Director-General, Schools, Trevor Fletcher stated that: "The importance of explicit and systematic teaching of literacy through a rich and integrated program requires us to refocus our literacy practice" (p. 3). It stated that literacy teaching should be *explicit, systematic, balanced* and *integrated*. A series of seven guides accompanies the document and comprise: phonemic awareness, vocabulary knowledge, aspects of speaking, concepts about print, aspects of writing, comprehension, and reading texts. In defining explicit and systematic teaching, it says that teachers should not return to "drill and practice" (p. 17) such as in "authoritarian classrooms where teachers tell and test and where students memorise and regurgitate" (p. 17). It further states that teaching literacy includes "explanation and demonstration of new learning" (p. 17) and that students should not be left to work it out themselves. The longstanding debate surrounding phonics teaching is acknowledged in a companion document *Literacy Teaching Guide: Phonics* (NSW Department of Education and Training, 2009b). It states with so many different viewpoints, many fictitious stances are now believed correct. In the section, Exposing phonics myths, one such myth about developing phonic knowledge (in italics) and the 'debunk' statement (in bold) is explained in the following manner:

Myth: Phonics knowledge is caught not taught. Students will discover phonics knowledge simply by doing lots of hands on, fun activities such as: playing word games and doing letter/sound matching activities or cutting out pictures of things that start with particular sounds.

Letter-sound correspondences are arbitrary and therefore difficult to discover without explicit teaching. Left to chance or inference alone, many students would acquire phonics knowledge too slowly or fail to learn it at all. (NSW Department of Education and Training, 2009b, p. 9)

To better understand what is meant by teaching in an *explicit, systematic, balanced* and *integrated* approach, an explanation of the constructs associated with Balanced Literacy follows.

2.7 Balanced Literacy

It is claimed that balanced literacy (BL) instruction resulted as a response to the literacy wars and supported neither those concerned with solely a skills based approach or conversely, those favouring Whole Language, disregarding skills instruction (Pressley, Roehrig, Bogner, Raphael, & Dolezal, 2002). In 1998, the book *Reading Instruction that Works: The Case for Balanced Teaching* (Pressley, 1998) was published and covered a balance of teaching approaches considered to optimise initial reading and writing development. It contained the most effective methods that the author considered necessary for primary school children to become literate. It was a combination of balanced skills instruction including phonics and “holistic literacy opportunities” (Pressley et al., 2002, p. 1). This approach was particularly suitable for students experiencing difficulties in beginning to read and write. It included phonemic awareness, the alphabetic principle, phonics and word recognition, vocabulary, comprehension, developing prior knowledge and teaching students self-monitoring skills (Pressley et al., 2002).

According to Pressley, the BL phrase is catchy, and not all interpretations are consistent with his model (Pressley et al., 2002). In 2000, Moats provided a research report on balanced reading instruction claiming that the US Department of Education and school districts had adopted balanced reading programs comprising Whole Language and code-based approaches, integrating “an eclectic mix that should go down easily with teachers and kids” (Moats, 2000, p. 11). She further stated that those supporting BL do not understand important scientific research findings on reading development regarding the need for explicit and systematic phonics instruction. Whilst Moats also emphasised the need to utilise quality literature and provide ample reading opportunities to enhance vocabulary and fluency development, schools were adopting BL approaches that “did not include phonological skills, phonics or reading fluency” (Moats, 2007, p. 13). She likened it to Whole Language, saying schools have been “fooled” (p. 13) into programs under the banner of balanced literacy that are Whole Language derivatives. BL supporters challenge such a view, but do acknowledge that there are variations in what constitutes the ‘balance’ across different schools (Riddle, 2015).

In line with US federal and state recommendations or requirements, North American schools are expected to use curricula and pedagogy that are research-based (L. Robinson, Lambert, Towner, & Caros, 2016). In one rural district study, students K-6 (n = 811) from two elementary schools, participated in a three-year longitudinal evaluation study that compared Direct Instruction (DI) and BL reading approaches. The results would help inform district administrators on a reading instruction program that best suited students from the district. The BL approach (control school) comprised 120-minutes daily of flexible grouped guided reading using levelled books². The DI approach (experimental school) comprised 90-minutes daily of intensive reading utilising *Reading Mastery* and *Corrective Reading*. Results revealed that over the three-year period, students' reading growth in the DI experimental school consistently outperformed those in the BL control school (L. Robinson et al., 2016).

In the context of the current NSW policy document *An introduction to quality literacy teaching* (NSW Department of Education and Training, 2009a), the 'balanced approach' was developed to underpin and reflect current society's new literacy education requirements that have arisen, including technology. It was deemed to be particularly important for "disadvantaged and Aboriginal students" (p. 3). The first of a suit of resources was produced to support teachers deliver "explicit and systematic, balanced and integrated literacy teaching" (p. 5). According to this document, balanced and integrated literacy teaching when referred to in the context of this research is when

- literacy is developed "across all four literacy resources: (code-breaking, meaning-making, text-using, text-analysing" (p. 16);
- "no one aspect of literacy is given precedence over the others" (p. 16);
- links to "the four literacy resources" (p. 16) are made clear to students;
- literacy is developed within a meaningful context of students understanding the purpose and structures of texts; and
- new literacy knowledge is applied across key learning areas (KLAs) (NSW Department of Education and Training, 2009a, p. 16).

² See Glossary of terminology.

There is an emphasis on integrating the *Four Literacy Resources* model in lessons following the work of Luke and Freebody (1999) who emphasise a non-sequential but integrated approach. It comprises

- **code-breaking:** using the alphabet, sounds and spelling to decode written texts;
- **meaning-making:** understanding and creating various meaningful texts;
- **text-use:** using a variety of texts in and out of school; and
- **text-analysing:** analysing various texts, opinions and viewpoints (NSW Department of Education and Training, 2009a, p. 18).

An example lesson outlines the steps a teacher takes when code-breaking. “The teacher reminds students that they may need to decode (read) unfamiliar words on screen (code-breaking) and to monitor whether the text is making sense as they read (meaning-making)” (NSW Department of Education and Training, 2009a, p. 16). The document contains comments from teachers on what they include in their modelled, guided and independent literacy teaching repertoire. For example, a beginning years primary school teacher teaches students to use foundation skills such as vocabulary, phonics and phonemic awareness in their reading and writing of texts (p. 26). The teacher uses a variety of literary and factual texts such as picture books, stories, rhymes, poetry and websites in which to embed the phonics decoding.

The term *decode* is incorrectly defined in *The Australian Curriculum* (AC) Glossary as follows:

A process of working out a meaning of words in a text. In decoding, readers draw on contextual, vocabulary, grammatical and phonic knowledge. Readers who decode effectively combine these forms of knowledge fluently and automatically, and self-correct using meaning to recognise when they make an error. (<https://www.australiancurriculum.edu.au/f-10-curriculum/english/Glossary/?letter=D>)

This is in contrast to the accurate definition of *decode* in *The NSW English K-10 Syllabus* which states *decode* is: “The process in which knowledge of letter-sound relationships, including knowledge of letter patterns, is used to identify written words” (Board of Studies NSW, 2012a, p. 132). Providing inaccurate, confusing and conflicting definitions in curriculum documents is unhelpful.

Examples of other BL components that teachers use are reported in a US study, where 581 teachers were surveyed on their beliefs about, and application of, a BL program (Bingham & Hall-Kenyon, 2013). They were asked to rate the components of literacy skills (phonological awareness, concepts of print, the alphabetic principle, phonics, comprehension, vocabulary and fluency) from the least to the most important in developing students' reading and writing skills. The majority scored comprehension as the most important skill to develop, while developing the alphabetic principle scored the lowest of the seven components. There were also vast differences in how teachers implemented their BL program (Bingham & Hall-Kenyon, 2013).

In summary, the contemporary balanced literacy (BL) model is ill-defined (Riddle, 2015) and varies between the literature (Snow, 2017), schools and teachers. It usually includes various routines and activities such as small group and whole class guided reading, an interactive writing in a writer's workshop, where teachers and students negotiate on what they will write about, and the use of levelled books (Fountas & Pinnell, 1996). Phonics is embedded within the context of literature (L. Robinson et al., 2016). There are also conflicting and unclear messages in both policy, curriculum and literacy support documents and terms such as balanced literacy with varying definitions of what each precisely constitutes. This is not helpful for schools and teachers as it leads to confusion between the different techniques that fall under the umbrella of explicit instruction which were described in Part A of this literature view. Such confusion prolongs misunderstanding, disagreement, and resolution: this is examined in the following section.

2.8 Missing in action. Literacy wars remain unsolved: Interplay between policy and practice

Alarmed at the continuing poor literacy rates, the then Federal Member for Perth, Western Australia, The Honourable Alannah MacTiernan stated that it was "immoral to allow so many Australian children to be victims of a failed educational fad" (MacTiernan, 2013, p. 2). Arguing it leads to loss of confidence and dislike of school, MacTiernan quoted Rowe who had lamented there had been little change, despite overwhelming research to support the use of explicit instruction in reading and writing skills. "Higher-education providers of education and those who provide ongoing professional development of teachers, with few exceptions, are still

puddling around in post-modernist claptrap about how children learn to read” (MacTiernan, 2013, p. 2). It was time to bring a halt to low literacy levels in Australia and MacTiernan (2013) called for federal intervention.

In 2014 the then Minister for Education and Training, The Honourable Christopher Pyne, had a strong interest in the teaching of phonics for all students, including those in remote settings. In a radio interview on 5AA Adelaide Mornings, Pyne justified his government’s stance explaining that the Australian Council of Education Research (ACER) had reported that the Australian Institute of Teachers and School Leadership (AITSL) had found “phonics and Direct Instruction were the best way to give students a chance to learn to read early” (Pyne, 2014, line 1, para. 1). “I make no apology for being an unabashed enthusiast for phonics. It is the proven method of giving children a head start with their reading” (line 19 - 20, para. 1) . He called for implementation for Explicit Direct Instruction (EDI) in phonics as recommended by ACER as well as a review of *The Australian Curriculum* (AC).

2.8.1 Review of *The Australian Curriculum* (AC)

In 2014 a review of *The Australian Curriculum* (AC) (ACARA, 2014) was commissioned. The curriculum had its beginnings in 2008 with the establishment of the Australian Curriculum Assessment and Reporting Authority (ACARA). The review was part of the Government’s priority to foremost safeguard student outcomes and also evaluate the “development and implementation” (Donnelly & Wiltshire, 2014, p. 1) of the AC. Whilst the Reviewers acknowledged positive aspects of the AC, some findings were concerning:

The Reviewers accept that the Australian Curriculum is a general improvement on previous attempts to gain greater national consistency in determining what all students, regardless of where they go to school, should know, understand and be able to do... However, despite the considerable success in developing a documented ‘national curriculum’, its patchy implementation by state and territory education authorities and a number of significant flaws in its conceptualisation and design make claims that it is ‘world class’ or ‘best practice’ questionable. (Donnelly & Wiltshire, 2014, p. 7)

They reported that ACARA states its role is to specify what needs to be taught and that it is not involved with pedagogical approaches in teaching subject content. This was found to be a widespread view across state and territory education sectors. It

was grounded in the belief that pedagogical approaches are best left to schools and teachers. However, the Reviewers noted an imbalance in favour of constructivism and called for more emphasis on explicit teaching approaches:

As previously noted in this Report, effective teachers employ a range of often different models of teaching and learning, depending on what is being taught, the ability and motivation of students, the year level and the nature of the intended outcomes.

The difficulty arises when one particular approach is treated as the orthodoxy and privileged over other styles of teaching and learning. The imbalance towards constructivism is especially concerning given the weight of research arguing that explicit teaching, while not suitable for all occasions, is a more effective and efficient approach in terms of outcomes and use of resources and time. (Donnelly & Wiltshire, 2014, p. 246)

Effective and efficient approaches attributed to excellent teaching that produces high student performance are cited in two recent reports from the NSW Department of Education and Communities (NSW Government Office of Education, 2013; NSW Department of Education and Communities, 2015) as well as a research paper from the NSW Centre for Education Statistics and Evaluation (2017).

These reports state that “explicit teaching techniques” (NSW Government Office of Education, 2013, p. 6) are an essential component of an effective pedagogy repertoire. “Explicit teaching practices involve teachers clearly showing students what to do and how to do it, rather than having students discover or construct information for themselves” (NSW Department of Education and Communities, 2015, p. 8). These sentiments were reiterated in the research paper (NSW Centre for Education Statistics and Evaluation, 2017).

However, as reported in Part A of this literature review, there is teacher resistance to explicit instruction approaches. To illustrate, one university educator stated that using DI “deskills teachers by routinizing their work and down playing their professional capacity to vary instructional pace and curriculum content depending on the student cohort and content” (Luke, 2014a, para. 10). However, he acknowledged that DI can provide a useful construct for schools to increase staff continuity, collaborative planning, progress monitoring and professional learning. Luke stated he was “not ruling out ‘explicit instruction’ or ‘direct instruction’ or an emphasis on basic skills ...where they are part of a larger school-level approach and

broader expansion of teacher repertoire” (Luke, 2014a para. 19). It is precisely student basic skills outcomes that remained concerning.

Global measures indicate that outcomes in Australian schools including literacy are low and decreasing, despite governments increasing funding for education initiatives (Mueller & Donnelly, 2019). To illustrate, in 2016, a sample of 6,341 Year 4 students from 286 primary schools in Australia took part in the Progress in International Reading Study (PIRLS) assessment which occurs every five years. As illustrated in Table 2, of the 50 countries which took part, Australia ranked 21 and was out performed by the western English-speaking countries of Northern Ireland, England and the United States (Thomson, Hillman, Schmid, Rodrigues, & Fullarton, 2017).

Table 2. *Australia’s ranking and mean score compared to Northern Ireland, England and the United States in the 2016 PIRLS (extracted from Thomson et al. (2017, p. 5))*

Country	Ranking/50	Mean
Ireland	4	576
Northern Ireland	6	565
England	9	559
United States	15	549
Australia	21	544
Canada	22	543
New Zealand	33	523

There were differences between states and territories in students meeting international benchmarks in the jurisdictions comprising intermediate, high or advanced. These were: Victoria 86%, Australian Capital Territory 82%, New South Wales 81%, Western Australia 81%, Queensland and Tasmania both 78%, and South Australia and the Northern Territory both 75%. Overall, between 27% to 30% of all students were in the intermediate jurisdiction, 32% to 39% in the high jurisdiction and 11% to 20% in the advanced jurisdiction (Thomson et al., 2017). Whilst Australia’s ranking had increased from the 2011 PIRLS where it was 27, there was no change in the 20% of students who did not achieve benchmark and were low performing in 2011 to 2017. Year 4 students who did not meet the intermediate benchmark comprised: metropolitan 18%, provincial 22%, and remote 30% (Meeks & Stephenson, 2018). The then Federal Minister for Education, The

Honourable Simon Birmingham acknowledged that more needed to be done to increase literacy outcomes (N. Robinson & Griffiths, 2017). Advocates for identifying struggling readers earlier than Year 4 stated the PIRLS results demonstrated the need for a national phonics screening check for all students in Year 1 (N. Robinson & Griffiths, 2017).

Table 3. Comparison percentage of NSW Year 3 students from each geolocation in Bands 1 and 2 NAPLAN spelling results, 2013-2017 (ACARA, 2018)

Band	Test percentage by year NAPLAN cohort	Year 3 NSW NAPLAN spelling test percentages				
		2013	2014	2015	2016	2017
1	*Metropolitan Major cities	2.1	3.0	3.4	2.6	2.7
	**Provincial	5.2	7.6	7.6	-	-
	Inner Regional	-	-	-	5.7	6.0
	Outer regional	-	-	-	7.0	8.7
	Remote	15.1	15.6	15.5	11.4	11.7
	Very remote	7.3	17.0	9.5	13.5	14.0
2	*Metropolitan Major cities	6.2	6.9	7.3	6.0	6.3
	**Provincial	11.6	12.6	12.8	-	-
	Inner Regional	-	-	-	11.3	11.5
	Outer Regional	-	-	-	13.0	13.6
	Remote	19.8	18.2	16.7	15.5	16.9
	Very remote	19.6	11.8	20.9	18.3	13.9
*‘Metropolitan’ geolocation name changed to ‘major cities’ in 2016.						
**‘Provincial’ geolocation was divided into ‘inner regional’ and ‘outer regional’ in 2016.						

The common belief that schools in indigenous and remote regions are the only ones experiencing continuous poor outcomes is mistaken (Jensen & Sonnemann, 2014). Low literacy outcomes are widespread throughout Australia. To illustrate, Table 3 provides a comparison of Band 1 and Band 2 NAPLAN spelling results by geolocations for New South Wales (NSW) students between 2013 and 2017. Students in Band 1 are below the national minimum standards and at Band 2, are performing at the minimum standard. The National Assessment website states:

Students who are below the national minimum standard have not achieved the learning outcomes expected for their year level. They are at risk of being unable to progress satisfactorily at school without targeted intervention. It should be noted that students who are performing at the national minimum

standard may require additional assistance to enable them to achieve their potential. (ACARA, 2018)

During the five-year period, the percentage of students remaining in Bands 1 in metropolitan (major cities) locations was relatively static (2.1% to 2%). There was an increase of students in Band 1 from 5.2% to 8.7% in provincial or regional areas, a decrease in remote areas from 15.1% to 11.7%, and an increase in very remote areas from 7.3% to 14.0%. In Band 2, results for major cities remained static at 6.2% to 6.3%. There was an increase in regional areas from 11.6% to 13.6%, a decrease in remote areas from 19.8% to 16.9% and a decrease in very remote areas from 19.6% to 13.9%. Achievement of NSW Year 3 students in spelling was consistently the highest out of the five states and two territories, apart from 2015, when Victorian students achieved the highest score. The number of students in provincial, remote, and very remote areas achieving at the highest Year 3 band, Band 6 or above, was also poor. For example, in 2013, 27.4% of students in major cities achieved Band 6 or above compared to 13.9% of students in provincial areas, 6.7% of students in remote areas and 9.2% of students in very remote regions (ACARA, 2018). In 2017, 31.3% of students in major cities achieved Band 6 or above compared to 16% of students in inner regional areas, 13.2% of students in outer regional areas, 8.2% of students in remote areas and 6.6% of students in very remote regions (ACARA, 2018). As Westwood (2018) explained, the minimum spelling standards “are not particularly rigorous or challenging” (p. 9), therefore, the 2017 NAPLAN data that revealed many students across Australia did not even reach the minimum standard is alarming.

In view of the decline in student performance in international and Australian literacy and numeracy assessments, in 2016, the then Prime Minister, The Honourable Malcolm Turnbull, committed an extra \$1.2 billion from 2018 to 2020 for education reform in addition to the \$73.6 billion allocated to a student achievement plan (The Turnbull Government, 2016). The plan for improvement in literacy outcomes included the use of explicit instruction in literacy in all schools and the undertaking of a standardised assessment for Year 1 students to assess their numeracy, reading and phonics skills and to identify early those students who need extra assistance. Future funding was to be aimed at reforms “that evidence shows make the most difference for students” (Australian Government, 2016, p. 8).

Assessing Year 1 students in reading (decoding print) and phonemic awareness to identify students requiring targeted intervention before a gap occurs was proposed. While this current study is primarily about spelling, many reading precursors are shared between these two literacy processes as well as how to teach them. For this reason, an examination of the proposed assessment is important: it has the potential to identify students who may require assistance with phonemic awareness and phonic knowledge (Buckingham & Wheldall, 2018; Hammond, 2017) which also supports spelling development.

2.9 Phonics Screening Check (PSC)

In 2012, a Phonics Screening Check (PSC) was introduced to all Year 1 primary school students in England. Since its inception, the percentage of students attaining the Year 1 expected standard has increased annually, and students not attaining the accepted Year 2 reading level “has fallen by one third over the same period” (Buckingham, 2016, p. 1). Based on the PSC in England and the Australian government’s intention to introduce a similar check nationally, a research report was compiled. The report *Focus on Phonics: Why Australia should adopt the Year 1 Phonics Screening Check* (Buckingham, 2016) contains educational and cognitive scientific research data that provide support for the implementation of the PSC. For example, the 2011 Progress in Reading Literacy Study (PIRLS) bears out that NAPLAN reporting does not accurately reflect the degree of low literacy levels within Australian students. The 2016 PIRLS “results indicate that one in four Year 4 children did not meet the benchmark for an acceptable minimum standard of reading proficiency” (Buckingham, 2016, p. 4).

It is important to note that in 2015, a new document, *Phonics: A guide for teachers* (Board of Studies NSW, 2015), a guide of information and teaching strategies for developing a phonics program was produced. It provides teachers with suggestions on developing a phonics program that includes implementing a synthetic phonics instruction in a logical sequence.

The proposed introduction of a PSC for Year 1 students in Australian schools similar to that introduced in 2012 in England is controversial. Some see it as unnecessary and a waste of money, stating that teachers already know where the problems lie, therefore solutions to problems are what is required (Adoniou, 2016b). Others feel

it distracts from the emphasis of reading critically for meaning and connecting with words that are not easily decoded through the use of synthetic phonics (N. Robinson, 2017).

In a statement from a NSW Teachers' Federation official, Maurie Mulheron declared extremists were pushing synthetic phonics and "imposing it on the profession" (N. Robinson, 2017, p. 2). He stated that "teachers taught phonics in their classrooms every day... and the advice and expertise of teachers is being deliberately ignored" (p. 2). South Australia has supported the PSC trial, and Catholic Education Queensland are trialling it in 40 schools (Urban, 2018b).

Whilst, statements from professional literacy bodies appear to endorse explicit phonics instruction, they are also often distorted (Buckingham, 2016). To illustrate, a statement from the Australian Literacy Educators Association (ALEA) in 2015 said that: "There is a need for explicit instruction in letter sound connections (phonics) and word analysis skills: this should always occur within genuine literacy events and in context meaningful to the students" (Buckingham, 2016, p. 8). Buckingham states that the second clause negates the first, and that it reveals ALEA supports incidental instruction in phonics. Issue is also taken with a position paper statement from the Primary English Teaching Association Australia (PETAA) which reported: "phonics and phonemic awareness are only one tool that children use to make meaning from texts" (Buckingham, 2016, p. 9). In fact, phonics and phonemic awareness "are not skills for making meaning" (p. 8). They are skills which enable the precise identification of written words; meaning, in turn, comes from vocabulary knowledge of those words (Buckingham, 2016).

A summary of recommendations in the research report included Australia requesting permission to use England's PSC and conducting a pilot study before "national implementation" (Buckingham, 2016, p. 1). In 2017, the South Australian Government instigated a trial of the 2016 PSC that was utilised in England (UK Department of Education, 2016).

The Phonics Screening Check (PSC) pilot study

A volunteer sample comprising 56 schools and a total of 4,406 students took part in the trial. The PSC comprised 40 single words (20 real words and 20 pseudo words that can be decoded phonetically). "The pseudo words are included because they

can't be read from sight memory and are a purer test of phonics ability" (Buckingham & Wheldall, 2018, para. 1). Critics claim that when good readers read pseudo words they make errors, endeavouring to read them as a real word (Castles, Polito, Pritchard, Anandakumar, & Coltheart, 2018), for example, "reading *flarm* as *farm*" (p. 1). These researchers recently studied the errors in a sample of 64, Year 2 students and found that when students who were good readers did make errors they usually substituted the word with another comparable pseudo word, concluding that such tests "do not disadvantage children who are already reading words well" (p. 1).

In England a 'threshold score' of 32 out of 40 is used and "for the past two years, 81% of year one students in the UK achieved this score" (Buckingham & Wheldall, 2018, para. 6). In South Australia, just 15% of students in the trial attained the same score. Many were startled by these results when compared to student reading ability recorded through running records (Buckingham & Wheldall, 2018). These results suggested that current assessing methods were not giving a precise account of a student's ability to decode print.

Teachers and students involved in the trial were overwhelmingly supportive on all aspects of the assessment. This included the training they received prior to administering the PSC, the appropriate length (5-10 minutes), the ease of implementation, and student engagement, reporting the students enjoyed "the one-on-one time with the teacher" (Buckingham & Wheldall, 2018, para. 15).

Teachers saw the data gathered on student reading capabilities as "complementing rather than duplicating existing assessments" (para. 17). They commented it was useful to guide their instruction and identify those students needing assistance who may have gone unnoticed. Most of the teachers involved in the South Australian trial reported teaching either synthetic or analytic phonics. However, whether a systematic approach or explicit teaching method was used was not established.

Developing phonic skills early greatly assists students' reading and spelling. A uniform, appropriate measure is required in order to identify at risk students promptly and provide teachers with the evidence of what they need to reteach (Hammond, 2017). Other supporters of implementing the PSC include over 100 speech pathologists and reading researchers. Parent advocates have written to

each state education minister backing its implementation and an online petition has been established by some parents of students with learning difficulties (N. Robinson, 2017). In 2016, Bentleigh West Primary School in Victoria also introduced the PSC used in England (Neilson, 2017). This was the first school to implement the PSC in any Australian State and the process the staff followed is outlined in the next section.

2.10 Turning schools around

Bentleigh West Primary School

The Learning Support Leader (LSL) at the school reported that NAPLAN results from 2012 to 2015 were poor. “We consistently had over 20% of students functioning one year or more below the standard at Grade 5 in reading, and felt this was unacceptable” (Neilson, 2017, p. 14). Results in Year 5 spelling were similar, with little or no improvement seen from Year 3 to Year 5 in NAPLAN scores. An entire school transformation was required and the school adopted a proactive approach. Since 2013, the LSL has been working with class teachers P-6 as a coach and mentor, assisting with planning for all students, not only those with learning difficulties.

The approach saw the school introduce the following whole-school changes to optimise reading, spelling and writing instruction

- providing professional development P-6 to examine scientific evidence based research on effective teaching methods (Hempenstall & Buckingham, 2016), including the *National Inquiry into the Teaching of Reading* (Rowe, 2005), the Simple View of Reading (Rose, 2006), and pedagogical development in Explicit Direct Instruction (EDI) techniques (Hollingsworth & Ybarra, 2009);
- utilising a phonemic awareness diagnostic screening for all students on entry to school to identify potential issues;
- revisiting how to use the alphabetic code to teach more effectively;
- revamping the phonics program to include systematic synthetic phonics, phonemic awareness, fluency, vocabulary and comprehension, and the use of decodable readers;
- ensuring lessons were cumulative, based on learning from the previous day;

- teaching grapheme-phoneme correspondences, spelling rules, and the six syllables types including open and closed syllables early in the first year of school; and
- in 2016, introducing the Year 1 Phonics Screening Check (PSC) as used in England.

The success of implementing whole-school change became evident when in 2015 “all students who completed a full year at Bentleigh West Primary School reached the benchmark according to AusVELS levels for Foundation, which is F and many exceeded this by 6 or 12 months” (Neilson, 2017, p. 16). The whole-school approach to change is credited with lifting school performance and as a result, student outcomes.

School performance was the focus of the report, *Turning Around Schools: It Can Be Done* (Jensen & Sonnemann, 2014). Schools that are ‘low-performing’ are not only located in indigenous and remote locations, but also in provincial and city areas. The report provides details of four previously low-performing schools, two primary schools, one in Perth and one in Launceston, a secondary school in Sydney and also one in Melbourne. These schools drew on a school management program developed in Shanghai that includes continuous evaluation and accountability measures that “reinforce change in the school” (p. 1). Schools that have lifted their performance to a significant and sustained level consistently followed five common steps

- “strong leadership” where the Principal steers change;
- “effective teaching with teachers learning from each other” that includes data analysis and evaluation;
- “development and measurement of effective learning”;
- “development of a positive school culture” including an organised and structured environment; and
- “engagement of parents and the community” (Jensen & Sonnemann, 2014, p. 6).

To illustrate, in 2008, student Year 3 NAPLAN results at Ellenbrook Primary School, Perth, were substantially below the national average in all areas of literacy and numeracy. The school student population included many from low socio-economic

backgrounds, a large number requiring learning support, and 18% from a language background other than English (LBOTE). The Principal implemented a team leadership approach that consistently followed two tenets: “change must improve student learning *and* make teachers’ jobs easier” (Jensen & Sonnemann, 2014, p. 9). The five common steps described above were adopted. In addressing the low literacy and numeracy outcomes, explicit instruction techniques were embraced, with teachers volunteering to appraise various explicit approaches. Four years later in 2012, the Year 3 NAPLAN results revealed a substantial growth in reading outcomes, with students now equal to, and in some cases above, the national average.

Nine high performing primary schools in Western Australia were identified based on their positive NAPLAN scores 2010 to 2014 (Louden, 2015; Scant Return, 2017). They comprised a wide range of socio-economic situations and locations; seven were suburban, one rural and one was an outer metropolitan school. Students from LBOTE and EAL/D and indigenous backgrounds were in three of the schools. All schools shared the same three attributes: a) longstanding leadership; b) strong school development plan; and c) “explicit teaching of synthetic phonics in the early years” (Louden, 2015, p. 3).

To summarise, strong leadership, commitment to change and excellent whole-school instructional practices that included explicit instruction were some of the shared principles these schools adopted. Together these three attributes contributed to a substantial increase in student outcomes. The specific knowledge that teachers need to explicitly teach skills and components of the English language and optimise student outcomes is reviewed in the next section.

2.11 Teacher knowledge and confidence to teach spelling

The 2017 decline in NAPLAN literary scores, in particular writing, across Australia (Scant Return, 2017) brought, yet again, more public dismay. With the billions of dollars already spent on education, and \$23.5 billion under the Turnbull government, where and how it was being spent was questioned. The quality of classroom teaching has been consistently verified in educational research as having the “greatest influence on student achievement” (Scant Return, 2017 para. 3). The knowledge teachers require to deliver quality instruction comprises three areas:

subject content knowledge, subject pedagogical content knowledge and curriculum content knowledge (Shulman, 1986, 1987).

The findings of *The National Inquiry into the Teaching of Literacy* (Rowe, 2005) reported that “teachers are the most valuable resource available to schools” (p. 7) and, among other recommendations, the committee specified that teachers need “to be equipped with teaching strategies based on findings from rigorous, evidence-based research that are shown to be effective in enhancing the literacy development of all children” (p. 14) and that they “provide systematic direct and explicit phonics instruction so that children master the essential alphabetic code-breaking skills required for foundational reading proficiency” (Rowe, 2005, p. 14).

The Australian Curriculum: English (AC: E) (ACARA, 2013) Language Strand highlights the importance of developing student knowledge about language across all year levels including the sub-strand Spelling. It clearly states the skills that students at each Stage Level are expected to attain (Westwood, 2018). It is essential that teachers have the knowledge and confidence to effectively deliver this Language Strand, which includes developing student knowledge about language. However, this Language Strand is considered to be the least understood by teachers (Derewianka, 2012) with them being “unaware of or misinformed about the elements of language that they are expected to explicitly teach” (Moats, 2009b, p. 387). The importance of teacher knowledge to deliver “explicit and systematic teaching of spelling” (NSW Department of Education and Training, 1998a, p. 14) to underpin the growth of accurate spelling is also stated as a requirement in the NSW State Literacy Strategy *Focus on Literacy: Spelling* (NSW Department of Education and Training, 1998a). More recently, *Effective Reading Instruction in the Early Years of School* (NSW Centre for Education Statistics and Evaluation, 2017) has again cited strong evidence for the use of explicit instruction to develop literacy skills.

The last decade has seen concerning results of Australian research studies on teacher knowledge about, and confidence in, teaching literacy. Findings from a Queensland survey of 248 teachers (Fielding-Barnsley & Purdie, 2005) showed that many teachers had poor knowledge about the orthography, phonology and morphology of the English spelling system. A national survey on the preparedness

of 1,300 preservice teachers and senior teaching staff to teach literacy (Louden & Rohl, 2006) found that teachers, whilst confident in their own knowledge of curriculum documents and concepts of literacy, lacked both knowledge and confidence to teach specific areas of literacy including spelling, especially to at risk, indigenous and English as a second language (ESL) students. A similar result was revealed in a later survey of 43 preservice teachers in Western Australia (Meehan & Hammond, 2006), of 120 Victorian preservice and in-service teachers (Mahar & Richdale, 2008) and of 162 preservice teachers in Queensland (Fielding-Barnsley, 2010). In this latter study, many teachers felt that developing literacy through providing explicit instruction in code-based instruction (sound-symbol relationships) together with meaning based instruction (developing content, meaning and incidental sound-symbol opportunities) teaching was beneficial. However, in practice it appeared that fewer teachers employed explicit code-based strategies in their pedagogy, possibly owing to school policies and reading program choices.

In response to reports of low teacher knowledge, a number of researchers had recommended urgent explicit teacher training in the structure of English word knowledge. Mahar and Richdale (2008) agreed with Fielding-Barnsley (2010) who recommended “reforms in teachers’ professional development and for recognition of metalinguistic knowledge as a fundamental skill for early literacy teachers” (Fielding-Barnsley, 2010, p. 31). Metalinguistic knowledge is defined as “an acquired awareness of language structure and function that allows one to reflect on and consciously manipulate the language. It includes an awareness of phonemes, syllables, rhyme and morphology” (Fielding-Barnsley & Purdie, 2005, p. 65) and is crucial in learning to spell (Meehan & Hammond, 2006). Responding to these community concerns, in 2014 the Board of Studies NSW Teaching and Educational Standard, NSW (BOSTES) published a Blueprint for Action (Board of Studies NSW, 2014) in which it states that there are “significant concerns regarding the knowledge, understanding and skills for the explicit and systematic teaching of literacy” (p. 3) including spelling. Recommendations 16 and 17 in the Executive Summary that state:

16. Employing authorities should identify areas for improvement in the literacy teaching skills of current primary teachers and

should ensure teachers access continuing professional development to improve knowledge and skills.

17. Where gaps in the provision of continuing professional development for literacy in the early years exist, courses should be commissioned. (Board of Studies NSW, 2014, p. 3)

Washburn, Binks-Cantrell, Joshi, Martin-Chang, and Arrow (2016) surveyed 279 preservice early childhood and elementary teachers from Canada, England, New Zealand and the United States on their knowledge of basic language constructs. Data showed that most lacked a sound knowledge of phonological, phonic and morphological knowledge. "All group mean percent correct scores on the total survey fell below 70% and ranged between 49 and 67%..." (p. 19). Findings mostly reflected previous reports. The researchers concluded this may reflect the different philosophical beliefs underpinning reading development from teacher educators and the lack of assistance to utilising research-based reading development methods. This can have implications for struggling students. For example, Puliatte and Ehri (2018) examined the impact of Year 2 and Year 3 teachers' spelling approaches on their poorer spellers' outcomes over a year. They found that the teachers who had the greater linguist knowledge of spelling constructs and used research-based spelling methods had positive spelling gains with their weaker students compared to those who used rote learning methods of spelling lists.

In 2014, a national survey carried out in New Zealand comprising 405 teachers identified their pedagogical beliefs on teaching spelling, and their teaching approaches including assessing spelling in the primary sector (McNeill & Kirk, 2014). Of the 985 teachers invited to complete the on-line survey, 405 responded. Data collected showed there was a large disconnection between their beliefs and their practice of explicit instruction in elements such as phonological awareness and orthographic knowledge associated with their beliefs. The majority agreed teaching letter-sound relationships, phonological awareness, spelling patterns and rules was most important (92% to 97%) yet only 27% to 42% always, or usually, taught these essential skills (p. 544). This disconnection between beliefs and stated practice seemed to be twofold. Most participants stated they were unhappy with their preservice spelling training: many felt they required additional training on how to

implement explicit instruction in the components of spelling so students become accomplished spellers. Lack of time was also an issue.

Improving teacher knowledge in phonics, word structure and spelling is confronting for teachers (Moats, 2009b). In 2013, 43 tertiary institutions across Australia that offered early childhood or primary teacher training were sent a request for their final year students to participate in a national survey on their preparedness to teach reading (Meeks & Kemp, 2017). Consenting institutions forwarded the invitation via their student email system. With only 18 responses, the invitation was repeated in 2014. Sixteen universities endorsed the study. From the total number of 178 responses, 160 surveys met the analysis inclusion criteria.

The preservice teachers who responded mostly felt they were prepared to teach reading. “However, when questioned about their ability to teach the *content* of phonological awareness and phonics skills, up to 50% of preservice teachers indicated that they were not confident in their ability to teach these particular components of early literacy” (Meeks & Kemp, 2017, p. 8). These results revealed a considerable mismatch between their personal confidence to teach early literacy skills and their understanding of the essential components. To illustrate, almost 50% of respondents reported they felt they were “proficient” or had “minimal ability” (p. 8) to teach phonics and phonemic awareness. However, over 76% had “minimal to very poor” (p. 8) knowledge of these skills. From a list of five words, less than half correctly identified a word with two closed syllables (*napkin*) or selected the “definition for the term *phonemic awareness*” (p. 8). Where morphemic knowledge was concerned, in 58 of the surveys, the definition of a morpheme was left blank, resulting in this question being deleted. The conclusion was that very few had the necessary knowledge to competently “deliver early reading and spelling” (Meeks & Kemp, 2017, p. 11) instruction.

Stark, Snow, Eadie, and Goldfeld (2015) followed and surveyed 78 teachers of beginning school students (Prep) from 72 Victorian schools. The schools had over ten percent of students who were “developmentally vulnerable in language and cognitive domains” (p.32). Results mirrored other international and Australian studies, revealing that teacher knowledge about the language and literacy components required to teach reading was restricted and inconsistent. However,

the newly graduated teachers demonstrated a greater knowledge of phonological awareness than those of their “more experienced” (p. 13) colleagues. It seemed that practising “teachers did not appear to be strengthening their linguistic knowledge through experience in the classroom” (p. 40). These findings were similar to those from Tetley and Jones (2014) who also found that preservice teachers in their study had more knowledge than demonstrated in previous research findings on both practising and newly graduated teachers.

In New Zealand, a recent survey of 55 teachers involved in literacy professional development found that their knowledge of “basic language constructs” (Chapman et al., 2018, p. 93) was variable. For example, phonological and phonemic knowledge appeared to be good whilst their grasp of phonic and morphological aspects was limited. However, according to the responses from a survey involving 666 primary school teachers regarding their use of phonics in teaching literacy, it appeared that 90% use it, despite New Zealand adopting a mostly Whole Language approach (Chapman et al., 2018). Teachers who decided to use phonics in their teaching reported it helped their students’ confidence to read and write. These researchers supported the move in Australia to implement the Phonics Screening Check (PSC), stating that teachers need assistance to expand their knowledge in linguistic aspects to improve poor student literacy outcomes (Urban, 2018a).

As concluded by Stark et al. (2015), outcomes from these studies revealed that since the *National Inquiry into the Teaching of Literacy* (Rowe, 2005) recommendations, teachers have not been adequately provided with essential knowledge to ensure they can explicitly teach decoding skills and synthetic phonics in literacy education degrees. However, essential linguistic knowledge alone is not sufficient: teachers also require support in “how to use and apply careful and systematic integration of phonics instruction in which their knowledge is best applied” (Arrow, Braid, and Chapman, 2019, p. 13).

Some assistance has recently been offered to various NSW schools. In July, 2018 the NSW Department of Education notified all NSW public schools that funding will be provided to purchase decodable readers for all students commencing Kindergarten in 2019 (NSW Department of Education, 2018). In addition, a 2-day PD will be offered in locations across NSW on the teaching of systematic synthetic

phonics which reflects pedagogical content in the document *Effective Reading Instruction in the Early Years of School* (NSW Centre for Education Statistics and Evaluation, 2017).

The following section examines some issues concerning the literacy content in teacher education programs for prospective primary school teachers and their personal literacy standard requirements.

2.12 Initial Teacher Education (ITE) programs and undergraduate literacy standards

The accreditation of Initial Teacher Education (ITE) programs and school leadership is the responsibility of The Australian Institute for Teaching and School Leadership (AITSL) (AITSL, 2011). AITSL also oversees the maintenance of the Australian Professional Standards for Teachers which shapes what teachers “should know and be able to do” (Meeks & Stephenson, 2018, p. 3). There appear to be two main issues with regards to prospective teachers undertaking teacher training: 1) the content of preservice teacher education degrees; and 2) the literacy (and numeracy) standards of undergraduate students.

In a recent review of spelling research issues, Westwood (2018) cited studies that have found many Australian teacher education courses lack the necessary content required to teach spelling and other aspects of literacy explicitly. In one study, Meeks and Stephenson (2018) examined the content connected to teaching early reading in Australian early childhood and primary preservice teachers undergraduate and postgraduate education degrees. They collected data from 40 Australian tertiary institutions, comprising 104 courses. There were 18 early childhood courses and nine combined early childhood and primary courses. This implied 27, or 26% of the 104 courses examined would contain material directed at early literacy development. However, just one unit out of the 116 literacy units in the primary teaching degree was centred on reading instruction. In 39 units, early reading instruction was mentioned alongside other literacy content. The number of contact hours varied from between ten to 40 hours. Of the 116 units, “only one unit was specifically designed to teach early reading instruction, and less than 22% of the unit descriptions, and 15 of the 32 prescribed literacy textbooks, included any reference to early reading concepts” (Meeks & Stephenson, 2018, p. 18). This suggests that there is a dearth of instruction in teaching phonological awareness,

phonics and the alphabetic principle which was stated only three times: balanced literacy was identified in 20 of the units (Meeks & Stephenson, 2018). The study also examined the qualifications of unit coordinators in aspects of early reading. There were limited data available, but under half appeared to have qualifications in research connected to early reading (Meeks & Stephenson, 2018). Further, in a recent interview, newly graduated teachers complained that they had not been taught to teach literacy using the scientific methods of explicit phonics instruction in their preservice training (Hiatt, 2019). In an open letter to universities, one such teacher asked “What gives a university the right to deny children teachers who have been trained in the very best evidence-based practice?” (Snow, 2019, para. 8).

Researchers at The University of New England (UNE) in New South Wales (NSW) recognised the need to provide the elements of phonics teaching to preservice primary school teachers. They designed an electronic module for student teachers that included the elements of phonics and phonology in their teaching repertoire (Buckland & Fraser, 2008). The authors acknowledged the political turmoil that exists in relation to phonics teaching, stating that “the use of phonics is now mandated by official endorsement of ‘the balanced approach’ to literacy learning through State and Federal literacy policies ...” (p. 59) and that authorities recognised the “challenges” (p. 59) this poses for teacher education providers. The role of developing children’s phonemic awareness is accepted by Buckland and Fraser, stating that it is essential to the code-breaking component in the Four Literacy Resources Model (Luke & Freebody, 1999) that “underpins the teaching of reading in NSW Schools” (Buckland & Fraser, 2008, p. 60). The authors cite the NSW spelling document *Focus on Literacy: Spelling* clearly states that spelling be delivered in an “explicit and systematic way” (NSW Department of Education and Training, 1998a, p. 18) and teachers must know “how the spelling system works” (p. 19).

The UNE module Teaching Foundational Literacy comprising four lectures, is flexible, and can be combined into a face-to-face or online unit of study. The four lecture components are: literacy and spelling; phonemic awareness; towards phonics; and phonics and beyond. Theoretically, the module is seen as reinstating phonics into a balanced literacy program where meaning-based features are also

“strongly acknowledged” (Buckland & Fraser, 2008, p. 60). To illustrate, the literacy and spelling component is introductory and the authors state that:

spelling/decoding is not merely a mechanical skill but also crucially involves construction of meaning ... we hope this section will encourage a more **integrated** view of spelling and decoding skills working **cooperatively** with the broader interpretive skills in an efficient, goal directed construction of meaning. (Buckland & Fraser, 2008, p. 66)

The module is grounded in cognitive phonology which emphasises “concept formation rather than subconscious mental rules” (p. 60). The approach is seen as moving away from the whole-language or phonics stance to view phonics as simply one portion of literacy skills development. The authors are confident the module contributes to addressing the lack of explicit phonics and phonological content in preservice teacher education programs.

Before being accepted into an Australian undergraduate study, prospective students’ personal literacy and numeracy levels are assessed to determine if they have the skills to meet the required Australian Tertiary Admission Rank (ATAR). Some skills results appear concerning (Urban, 2018c). In 2017, of the 52 institutions offering initial teacher training, 19 reported a failure rate of over ten percent, with one Victorian university having a failure rate of 27% in literacy and 24% in numeracy components (Urban, 2018c). The assessment has been likened to a Year 9 level assessment of knowledge (Urban, 2018b). Some universities have been accepting students who score below the required pass rate and one institution offers a Bachelor of Education Studies degree that does not require an ATAR score. The previous Federal Minister for Education had deemed it unacceptable that some tertiary institutions are producing teachers with inadequate knowledge to teach literacy and numeracy skills to students and the Victorian Minister for Education stated the need for change (Urban, 2018). The importance of teachers being well prepared by teacher education institutions and the role personal beliefs play in classroom practice are reviewed in the following section.

2.13 Resistance to change: The interplay between beliefs and practice

In the US, approximately 50,000 people annually begin teaching with little preparation, and many are sent to the most disadvantaged schools (Darling-Hammond, 2006). Darling-Hammond (2006) called for the US government to heed

the importance of teacher preparedness and for well-trained educators, who are able to teach a diversity of students in a manner that prudently addresses learning. After their preservice training, many teachers either look for, or need extra tuition, ““dumb down” the curriculum to what can be easily managed” (p. 16) or leave the profession. Drawing on research from the previous two decades, Darling-Hammond and Richardson (2009) stated that teachers reported improved expertise and pedagogical change when professional development (PD) was directed on “content knowledge and active learning” (p. 47). Schools that approached PD as a clear component of “school reform effort” (p. 48), that connect “curriculum, assessment, standards and professional learning opportunities” (p. 48) and student learning had superior outcomes to the customary isolated tutorials (Darling-Hammond & Richardson, 2009).

Shulman (1987) identified the specific knowledge bases required to teach a subject effectively: subject content knowledge, pedagogical content knowledge and curriculum content knowledge. Preparedness to teach effectively is jeopardised when allegiance to a particular pedagogical approach is put before the needs of the student, and the teacher has insufficient subject content knowledge (Shulman, 1987). Research on teacher beliefs suggests that they also play a central role in their attitude to embracing classroom change (Moats, 2014; Pajares, 1992; Tschannen-Moran & Woolfolk-Hoy, 2001; Westwood, 2005; Westwood, Knight, & Redden, 2005).

Some teachers see their classroom practice as having a considerable effect on student outcomes. Others believe a student’s achievement or lack thereof is the result of their home background (Snow, 2016), motivation or aptitude (Westwood, 1995). Studies indicate that student achievement, motivation and personal sense of worth are aligned to teacher efficacy (Tschannen-Moran & Woolfolk-Hoy, 2001). Those teachers with a commitment to efficacy usually invest in thorough planning, are more receptive to new concepts and more enthusiastic about utilising other approaches to improve student outcomes. They are more tolerant of struggling students, preferring to work with them rather than referring them to a special educator (Tschannen-Moran & Woolfolk-Hoy, 2001). Pedagogical practice is developed based on beliefs and knowledge that are formed during a teaching

career. Those who have been teaching ten years or less are more likely to engage in PD than mid- or late-career teachers (Huberman, 1989). Teachers need opportunities to collaboratively build their expertise and work together as a “professional learning community” (Anwaruddin, 2015, p. 11).

2.13.1 Engagement with research-based data

A review of empirical research on the use of research-based data by primary school educators and factors influencing its use was conducted by Dagenais et al. (2012). They examined 24 empirical studies from several countries including Australia, Canada, the UK and the US. The results were synthesised into usage, purpose and attitude outcomes as follows.

- **Usage:** The extent of educators utilising research-based information was infrequent. They seldom drew on research findings whether it was from schools or universities. From the US data, 441 teachers thought research to be useful, but only accessed it about once every 12 months.
- **Purpose:** The purpose for using research-based information was seldom reported. Those who did use it did so to: a) experiment and reflect on their practice; b) improve their practice; or c) “learn from research materials” (Dagenais et al., 2012, p. 295).
- **Attitude:** The attitudes that educators brought to research-based information ranged from cynical, neutral, positive or motivated. Their attitude influenced their utilising such information.

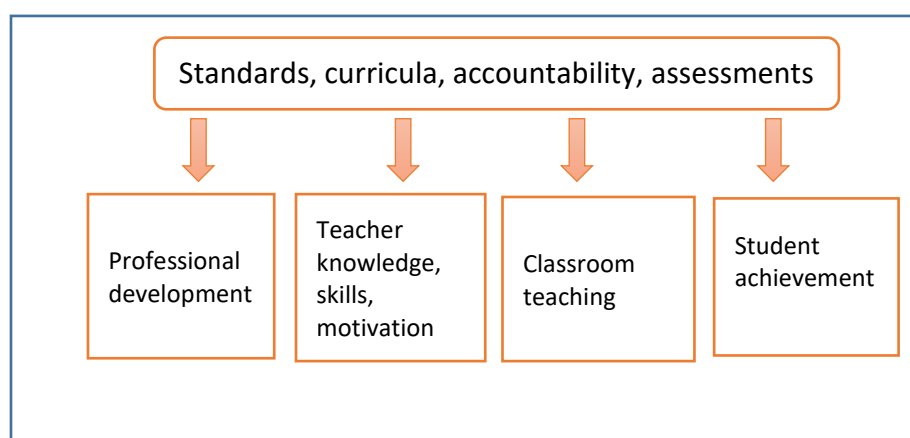


Figure 5. The connecting components affecting student achievements (Yoon, et al, 2008, p. 4).

According to Yoon, Duncan, Lee, Scarloss, and Shapley (2007), the motivation to change pedagogical practices and lift student outcomes occurs as a result of high quality PD of approximately 49 hours. It should comprise components that connect standards, curricula and accountability. The model in Figure 5 depicts the connecting components that affect student achievement.

However, Guskey (2002) found that teacher change occurs as a result of student learning and stated that most PD fails due to: a) lack of teacher motivation to connect with the PD; and b) the process commonly involved in change. He stated teachers are essentially pragmatic and want “practical ideas” (p. 382) they can

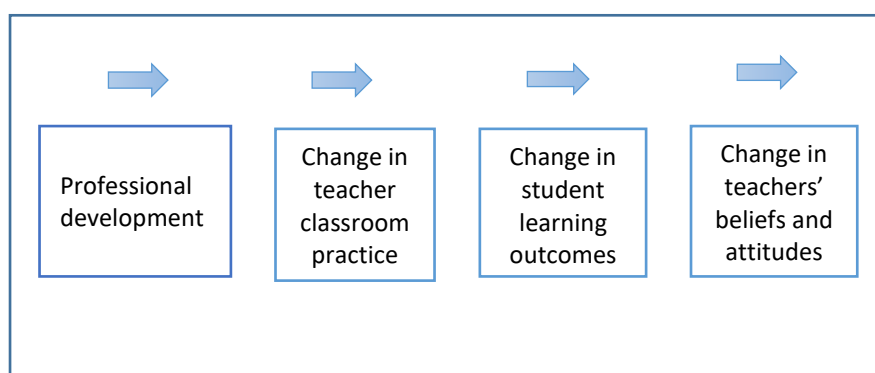


Figure 6. A model of teacher change (Guskey, 2002, p. 383).

utilise with their class. Without this the PD is likely to fail. Figure 6 provides an alternative model of change. In this model, substantial change only occurs once teachers have seen their students succeed. Guskey (2002) argued it is viewing student change that alters their attitude, not the PD itself. Increased student academic, attitudinal and behavioural outcomes due to a change to techniques that work are likely to be kept.

Recent findings from randomised controlled trials involving 13,323 English primary schools suggest that it is difficult to convince teachers to engage with research-based methods that improve student outcomes (Education Endowment Foundation, 2017) and that many teachers found it hard to decipher research findings. Furthermore, providing teachers with “light-touch support” (para. 1) such as workshops and resources in the efforts to connect them with research methods to support their teaching had little effect on teachers’ “engagement with research” (Education Endowment Foundation, 2017, para. 11) or lifting student outcomes.

Continuing PD for teachers throughout their career is now required across Australia (Australian Institute for Teaching and School Leadership (AITSL), 2011).

Nevertheless, there are concerns about the manner in which teachers access new knowledge. Drawing on a review concerned with teachers' engagement with professional literature, Carter and Wheldall (2008) found that "teachers engaged in little professional reading, particularly compared to other professional groups. In addition, much of this reading involved practically orientated periodicals as compared to research-based professional journals" (Carter & Wheldall, 2008, p. 9). Classroom and special education teachers also thought information from colleagues and workplace seminars was more user-friendly and "trustworthy than professional journals" (Carter & Wheldall, 2008, p. 9). Special education teachers felt it unnecessary to use research-based methods in their teaching approaches.

According to Carter and Wheldall (2008), three main factors contributed to failures in the school education system.

1. **Teacher training:** In the midst of 'reflective practices' in the main, teachers are guided by ideology and collegial opinion. They are not trained to use scientific educational research to inform and implement effective pedagogies that have been shown to work for typically developing and underachieving or students. "'Surfing the net' is commonly termed 'research', for example" (Carter & Wheldall, 2008, p. 5).
2. **Ideology in education institutions:** Education institutions appear to still be bound to constructivist teaching approaches, including discovery learning and associated literature fostering these approaches seems "more descriptive" than "evidence-based" (Carter & Wheldall, 2008, p. 17).
3. **Attitudes from government education bodies:** Government education bodies have at their disposal over 30 years of evidence-based research on how children learn to read and how it is best taught. When the final report of The National Inquiry into the Teaching of Literacy (NITL) (Department of Education Science and Training, 2005) was announced by The Honourable Brendan Nelson, then Minister for Education, Science and Training, he "strongly advocated an explicit, systematic phonics-based approach to reading instruction in our schools" (Carter & Wheldall, 2008, p. 18). In the main, the report was disregarded. Subsequent materials produced for

tutors to support reading development did not teach sound-symbol relationships line with the NITL recommendations, which “is extraordinary” (Carter & Wheldall, 2008, p. 19).

It would appear that many schools are being requested to implement literacy programs that are not based on the most appropriate pedagogies to suit subject content of literacy components. Recently a Principal’s dissatisfaction with the *Language Learning and Literacy* (L3) program was met with disapproval by NSW Education Department and Training officials (Singhal, 2018). Teachers likewise concerned about the L3 program also reported feeling unable to express their concerns (Singhal, 2018). This is a perplexing situation. It highlights the important role leadership and consultation plays in reviewing education programs, practice and related student outcomes.

2.13.2 The role of leadership

In endeavouring to lift student outcomes, Hattie (2015a), believes leaders continue to place importance on solutions that either solely or collectively will improve student performance. In his publication, *What Doesn’t Work in Education: The Politics of Distraction* Hattie (2015) listed the often touted solutions including reduced class size; more effective curricula; better prepared students; more money; and better trained teachers as being distractors that control debate about “improving schools, but they do not improve student learning in any major way” (Hattie, 2015a, p. 33). Instead, he claimed it is collaborative expertise that results in student progression.

Leadership, is critical: leaders require the skills and knowledge to empower teachers to work collaboratively and review their practices to lift student outcomes. A collaborative model Hattie called “the politics of collaborative expertise” (Hattie, 2015b, p. 1), should comprise school leaders, experienced teachers and support from the school community. The leader must provide teachers with discussion, opportunities and resources that provide: a) evidence each student achieves a year’s progress in a school year; and b) evidence of how such student’s progress is being achieved. A list of conditions for improved student learning include the following tasks

- collaboration (teachers, aides, parents, policy makers and students);

- agreement on what a year's growth for students looks like;
- expecting all students to achieve;
- developing "new assessment and evaluation tools to provide feedback to teachers" (Hattie, 2015b, p. 12);
- being accountable for the "impact" (p. 14) all school personnel have on student progress;
- developing teacher expertise in diagnosis and evaluation; and
- learning from effective teachers who achieve "a year of student progress" (Hattie, 2015b, p. 20).

In a meta-analysis of 27 studies Robinson, Lloyd, and Rowe (2008) compared the effect that transformational and instructional leadership had on student learning and the impact of each on student outcomes. Transformational leadership involves the ability of school leaders to engage with staff and work collaboratively "to overcome challenges and reach ambitious goals" (p. 639). Instructional leadership involves "strong leadership, including a learning climate free of disruption, a system of clear teaching objectives, and high teacher expectations for students" (Robinson et al., 2008, p. 638). Results revealed that instructional leadership had an effect that "was three to four times" (p. 635) greater on student outcomes than transformational leadership. Transformational leadership places more emphasises on the relationship between school leaders and backers than on "the educational work of school leadership" (p. 665). The researchers state these results were due not only to fostering a team of "loyal and cohesive staff and sharing an inspirational vision" (p. 655) that is associated with instructional leadership, but also to the emphasis it placed on explicit educational objectives including goal-setting, and supporting teacher professional development to lift student outcomes.

Schools that have lifted teacher pedagogical practices and student educational outcomes were highlighted in Section 2.10 of this review in the report by Jensen et al. (2014) *Turning schools around: It can be done*. Nevertheless, tension between the two instructional standpoints, meaning-based and explicit instruction, continues to play out in many Australian literacy education settings. Spelling instruction is not exempt from this scene. The following section provides an account of three different pedagogical approaches to teaching spelling in NSW.

2.14 Developing spelling skills: Three different pedagogical approaches

The AC: E (ACARA, 2013) and *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) documents state that spelling, including the phonological, morphological and orthographic aspects of word level spelling are to be taught K-6. Both documents describe the progression of spelling and related skills (including punctuation and handwriting) students are expected to attain during their primary schooling. How these skills are to be taught is left to the discretion of schools and teachers. Findings on teacher knowledge and confidence to teach spelling revealed that many teachers have poor knowledge of the components of the English spelling system and a lack of confidence to teach it explicitly (see Section 2.11). As Hammond (2004) stated, “It’s hard to teach spelling if you don’t know the rules about the English language yourself” (p. 16). Due to knowledge, confidence and time constraints, Australian schools and teachers often rely on a commercial spelling program to teach the spelling component (Mullock, 2012). Three different approaches to spelling instruction currently used in NSW are the early literacy development program *Language Learning and Literacy* (L3) (New South Wales Department (NSW) of Education and Communities, 2011), and two spelling programs *Sound Waves* (Murray & Watson, 2015) and *Spelling Mastery* (R. Dixon, Engelmann, Bauer, Steely, & Wells, 2007).

2.14.1 *Language, Learning and Literacy* (L3)

The *Language, Learning and Literacy* intervention project (L3) was developed with the intention of reducing the risk of poor literacy outcomes in students from low socio-economic backgrounds (NSW and Communities, 2011). It aims to address the differences between achieving and at risk students in their first year (Kindergarten) of early literacy development at school (NSW Department of Education and Communities, 2011) and was piloted in 2009 (Singhal, 2018). It draws on the document, *An Introduction to Quality Literacy Teaching* (NSW Department of Education and Training, 2009a) as well as the work of Phillips, McNaughton, and MacDonald (2004) and Clay (2001a). Both these authors have written extensively on children at risk of early literacy development issues. The NSW Department of Education developed the *Early Action for Success (EAFS)* (NSW Department of Education, 2014) strategy to underpin the implementation of an early literacy

initiative called *Best Start* and within this program, L3 is the early literacy component (Neilson & Howell, 2015).

The goal of the L3 program is to train teachers to bolster at risk students' linguistic skills which are required to build literacy development. There are claims that data gathered over four years revealed that most Kindergarten students had bettered the L3 goals by the end of their first schooling year. To achieve these goals, students must: a) read levelled texts at level 9 or above; and b) "compose and write two simple sentences demonstrating a range of ways to solve unknown words" (NSW Department of Education and Communities, 2011, p. 3)

An indication of the L3 classroom environment, the teaching practice, professional learning and student learning is outlined in the overview section of the *Language, Learning and Literacy Kindergarten* document. The environment reflects a 'print rich' community with classroom displays of many different writing styles. A variety of visual literacy art displays complements the printed form.

For the teachers, a feature of L3 is the extensive, collegial professional learning program. Over a two-year period, teachers develop a community of learning where they discuss their pedagogical ideologies and theories on how best to achieve literacy growth. Building confidence in their teaching practices is an integral part of the sessions. A feature of teacher practice is to teach students "how to support their own literacy development and how to become aware of their own literacy growth" (NSW Department of Education and Communities, 2011, p. 4).

For the students, L3 offers highly supportive small group teaching, called the 'engine room' in which student strengths and weakness are quickly identified. The independent work sees students apply their knowledge, and work cooperatively with peers while developing and increasing their literacy knowledge and skills (NSW Department of Education and Communities, 2011). During each literacy session, the focus is on teachers teaching and students learning reading and writing. In each lesson, which is "short and sharp" (p. 6), students centre on enjoyment and success in a highly supportive environment. The NSW Department of Education provides a description of the L3 program on its website as follows:

Language, Learning and Literacy (*L3*) is a research-based intervention program for kindergarten students, targeting reading and writing. It

complements the daily literacy program for Kindergarten students who do not bring a rich literacy background to their first year of school.

Students receive explicit instruction in reading and writing strategies in small groups in a daily literacy lesson. Students then rotate to independent or group tasks.

Teachers of *L3* complete professional learning throughout a school year including workshops, demonstration lessons, supervised practice and on-the-job support. (NSW Department of Education, 2016)

The terms 'research-based' and 'explicit instruction', are used and this implies techniques associated with Explicit Instruction (EI) delivery are used.

Writing and spelling in L3

In the section Writing Texts, learning to write is described as a “complex process” (NSW Department of Education and Communities, 2011, p. 16) requiring the ability to draw on oral language, concepts about print including grammar, spelling and units of sound that represent letters. It provides an outline of the importance of teaching correct letter formation, vocabulary, phonological and phonemic awareness, developing knowledge of phonics and letter-sound relationships, knowledge of orthographic features and morphological structures. The writing section comprises three components to writing instruction that underpin developing a skilled, independent writer.

1. **Guided writing:** The first short component is conducted in small groups (about three students) approximately three times weekly for ten minutes. It includes teaching students to move from oral language to written text, developing a good knowledge of the alphabet and letter formation, understanding how to record “some sounds in words” (NSW Department of Education and Communities, 2011, p. 18), having some high frequency words to use in their writing, and appreciating the reasons for self-monitoring writing. The pedagogy employed to deliver these components is not stated.
2. **Interactive writing:** The second short component is conducted initially with six to eight students and subsequently the whole class. Students reveal what they have learned in guided writing to the whole class. These run five times weekly for approximately six minutes. The pedagogical “content of

explicit teaching will be consistent with the emerging growth in student's writing ... and by what the teacher observes during student's independent writing" (NSW Department of Education and Communities, 2011, p. 18).

3. **Independent writing:** The third component involves the whole class and runs at least three times weekly for approximately half an hour. During this time 'short sharp' explicit instruction is delivered by the teacher on an as needs, independent basis.

An overview of a guided writing session states that this component is specifically designed for explicit and formal teaching and learning instruction, "more explicit and formal than one might expect" (NSW Department of Education and Communities, 2011, p. 19). This is so students avoid using their earlier approximate spellings and therefore, practising previous mistakes in their writing.

Some skills-building strategies teachers employ during a guided writing session include strengthening of alphabetic knowledge, forming letters correctly, focusing on hearing and writing sounds in words, and detecting and writing syllables in words. It is stated that

- "Guided Writing lessons will discontinue when students demonstrate that they:
- know how to move from talk to written language
 - have well developed alphabet knowledge and letter formation
 - understand what they need to do to hear and record some sounds in words
 - write left to right across the page, with correct spacing and control the return sweep
 - acquire a small writing vocabulary of words that are securely known
 - appreciate why they need to monitor their own writing." (NSW Department of Education and Communities, 2011, p. 19)

Composing the guided writing sentence in L3

Based on the group of students' prior learning, the aim of this activity is to have students write unknown words from a collaboratively constructed sentence.

Initially the teacher provides a box of everyday objects that form the basis of writing prompts. For example, the teacher may select a *dog* from the box and initiate a planned conversation about the item. Students are then provided with three different example sentences related to the item, and the lesson may proceed as follows.

Teacher: *I can walk the happy dog. I can love the happy dog. I can feed the happy dog.* Each student is then asked to provide their own sentence by changing, for example, the verb or adding to the sentence.

Student 1: *I can pat the happy dog.*

Student 2: *I can play with the happy dog.*

Student 3: *I can wash the happy dog.*

The teacher now selects one of the sentences for the writing task, for example “*I can play with the happy dog.*”

How each lesson component is precisely taught and the exact details of a lesson appear to be available only to participating schools (Neilson & Howell, 2015).

Learning spelling, writing and personal strategies in L3

Students are introduced to different ways to learn how to spell and write words.

This comprises writing a known word, utilising phonological information to hear and record sounds in words, syllabification, and learning how to spell a word.

During this process students are encouraged to check if the word “sounds right and looks right” (NSW Department of Education and Communities, 2011, pp. 25-26).

Students then record the sentence (*I can play with the happy dog.*) on a mini-whiteboard scaffolded by the teacher in the following manner. They write the known word, followed by the teacher segmenting the next word, *can* accepting sounds students can hear, such as initial /c/and final /n/. Spelling the word *play* would follow the same procedure except the teacher would scaffold writing by demonstrating how to spell and write *play*. Here students would focus on handwriting and the correct formation of each letter. The syllables in *hap-py* would be clapped and the two parts of the word identified before the teacher writes it on the board. The process continues until the sentence is completed, when the students read it with fluency before being again asked to see if it makes sense and looks right.

“Teachers do not teach strategies to students, they teach for strategic activity” (NSW Department of Education and Communities, 2011, p. 88). It is stated that each student has their own system of distinctive strategies which they learn and develop from different experiences. Either knowingly or unknowingly, they utilise these when working on texts.

Concerns have been raised as to the effectiveness of L3. The program is based on constructivist principles, where students focus on meaning in preference to code-based content (Neilson & Howell, 2015). It is an attractive, literature based program that offers continuous teacher support throughout. However, a critique of the L3 program by Neilson and Howell (2015) reported some of the following concerns.

- L3 guidelines clearly state no additional phonics, code-based instruction or decodable texts should be used. It is a stand-alone program.
- The L3 program accepts a “failure rate” of “20% only of all students reading at Level 5 or less, i.e. at or below minimum end-of year expectations for kindergarten ...” (p. 9) and 20% of students writing only five words or “more [sic]” (Neilson & Howell, 2015, p. 9). Such a rate of failure is viewed as astonishing and problematic (Neilson & Howell, 2015).
- The use of levelled books for the reading assessment whereby the teacher records the reading level is easily managed by the teacher, but insufficiently robust. Levelled books do not deliver reliable, continuous assessment of reading ability (Neilson & Howell, 2015, p. 9).
- The levelled texts used for assessments are picture books students have previously read, therefore they are familiar with the content. They may also rely on the pictures or learned sight words to guess the words and as a result, students experiencing reading difficulties may be missed.
- In the writing assessment of “writing five words or more” (Neilson & Howell, 2015, p. 9) there is no mention of the type of words or word structures being assessed or why five words were selected as the benchmark.

More recently, it was reported that in a survey conducted on the efficacy of L3, fewer than 50% of teachers who replied thought it was an effective program for all students (Singhal, 2018). The report issued by the Centre of Independent Studies (CIS) revealed that 56% of respondents said they added phonics to the program and 30% said they felt unable to discuss their concerns with the school (Buckingham, 2018). As stated previously in this review, one Principal reported being scrutinised

by NSW Education Department officials for some time when his school stopped using L3. He said:

We were able to show through results, and especially NAPLAN results, that students who were not in L3 performed significantly better than those in L3 and when we decided to stop using it and go back to phonics-based programs, our reading results improved almost immediately. (Singhal, 2018 para. 6)

The Principal reiterated the sentiments of Neilson and Howell (2015), saying as the 'levelled books' comprised many sight words, students repeatedly read the books before assessments, utilising recall in place of decoding skills; however, they frequently could not read unfamiliar texts "at the same level" (Singhal, 2018, p. 11).

Comments on L3

L3 is part of the *Early Action for Success (EaFS)* strategy and was implemented to reduce poor literacy outcomes in students from low socio-economic background. Research evidence so far for its efficacy is scant (Neilson & Howell, 2015). Furthermore, the Year 3, NAPLAN reading scores for 2012 and 2013 are concerning. For example, "77% of schools that joined EaFS in 2013 had either negligible or negative change in Year 3 NAPLAN reading scores" (Buckingham, 2018 para. 14). A NSW Department of Education official said the L3 program had not been formally appraised and that schools were no longer obligated to implement it (Singhal, 2018). However, a recent statement on the NSW Department of Education website states the L3 program is now being evaluated (Buckingham, 2018).

2.14.2 Sound Waves

The *Sound Waves* (Murray & Watson, 2012) spelling program is an Australian commercial phonics based word study program for students from Foundation to Year 6. The scope and sequence is based on the 26 letters of the alphabet and the various graphemes that represent each phoneme sound. There is a teacher book, student work book and blackline masters for photocopying. It was written by Australian teachers to reflect *The Australian Curriculum (AC)* requirements. The website Scope and Sequence statement says:

Sound Waves is a word study program designed to develop spelling, reading and writing skills using the phonemic approach. The phonemic approach is recognised as one of the most effective ways to teach spelling and reading skills. When you use *Sound Waves*, you're employing the most powerful

teaching pedagogies for the development of literacy. *Sound Waves* encourages students to learn to spell using the four areas of spelling knowledge: • phonological – using sound-letter relationships • visual – using memory of the visual features of a word • morphological – using parts of words to build word families • etymological – using word origins and derivations. (Murray & Watson, 2012, p. 2)

The Foundation Program for beginning students consists of two phases: exploring sounds in term one and discovering graphemes in terms two, three and four. From Year 1 to Year 6 the focus is on learning the same phoneme each week represented by different graphemes according to the level of difficulty. For example, for the phoneme /d/ (Term 1, Week 6), the focus for Year 1 students is on graphemes /d/, /dd/ and blends /dr/ and /nd/. In Year 2, students focus on /d/, /dd/, /dr/, /nd/, /ld/ and adding *-ed* endings, and in Year 6, /d/, /dd/, extra grapheme [sic] *-ed* and prefix *ad-*. Table 4 is extracted from the *Sound Waves* weekly overview of the Scope and Sequence for Year 2 students, Term 3.

Instruction techniques in *Sound Waves*

There is a whole-school term-sequence approach to the program. It provides a succinct glossary comprising six key terms: *phoneme*, *grapheme*, *phonological awareness*, *phonemic awareness* and *synthetic phonics*, and *segmenting sounds*. Each week there is a choice of games and activities to complement the lessons. The weekly program embraces the following steps.

1. **Step 1** (Monday): Students explore a sound. This comprises a warm up, sound identification, chant, brainstorm and exploring list words containing the target sound, and modelling then locating the sound on the teaching charts. Home study tasks (called Homefun) are introduced. These include typing words out using different coloured fonts, finding words within a word, splitting words into graphemes and using Look, Say, Cover, Write, Check (LSCWC) to learn new spelling.
2. **Step 2** (Tuesday-Thursday): Students complete spelling tasks (for example, fill in the gaps) in their Student Book. It is recommended that initially, the teacher discusses the activities with the students. Later in the term it is proposed that many students will be able to complete the tasks independently. The Working with Words tasks provide teachers with a suggested lesson focus including various teaching ideas and activities. For

example, tossing a ball in a circle and saying words with particular blends, segmenting words into individual sounds, or asking the students to read the instructions, explain the task then provide strategies they might use to accomplish the task.

Table 4. *Sound Waves Year 2 weekly scope and sequence, Term 3 (extracted from Murray and Watson (2012, pp. 9-11))*

Term 3 Week (unit)	Sound and grapheme representations ('Extra graphemes' are in bold)	Focus concepts
1 (19)	Graphemes: /oa/; /o_e/; /ow/; /o/ Patterns: oat, oad, low	Focus Concepts: prefixes: <i>un-</i> ; <i>over-</i> ; <i>pre-</i> ; <i>re-</i> ; compound words: overcoat, sailboat, notebook, sandstone, tightrope, snowball, backbone, postman
2 (20)	Graphemes: /p/; /pp/; /r/; /rr/; /wr/ Blends: spl, spr, pl; scr	Focus Concepts: Adding <i>-e</i> ; adding <i>-ing</i>
3 (21)	Graphemes: /ar/; /a/; Patterns: art, ass, ast, arge Extra grapheme: /are/	Focus Concept: Comparison
4 (22)	Graphemes: /s/; /ss/; /se/; /ce/; /x/(ks); /c/ Blends: sk, sl, pl, st, nt	Focus Concepts: Adding <i>-ed</i> ; <i>-ing</i> ; alphabetical order and compound words: skylight, something, sometimes, sleepwalk, horseshoe, crossroad, centrepiece, iceblock, somehow, houseboat, somewhere, surfboard
5 (23)	Graphemes: /ir/; /ur/; /or/; /er/ Extra graphemes: early, were	Focus Concept: Suffixes: <i>-er</i> ; <i>-less</i> ; <i>-ful</i>
6 (24)	Graphemes: /t/; /tt/ Blends: st, tr, str	Focus Concepts: Adding <i>-ing</i> ; contractions: weren't, wasn't, aren't, don't, didn't, antonyms: stand/sit, taking/giving, left/right, best/worst, first/last, fast/slow, synonyms: post/send, little/small, cost/price, start/begin, street/road, string/twine
7 (25)	Graphemes: /or/; /ore/; /a/; /aw/; /au/ Patterns: all, orn, ork Extra graphemes: your, walk, caught	Focus Concept: Comparison
8 (26)	Graphemes: /v/; /ve/; /w/; /wh/; /u/ Blends: qu, sw	Focus Concepts: Adding <i>-ed</i> ; Adding <i>-ing</i> ; Alphabetical order, correct word usage and vocabulary Contractions: you've, they've, I've, haven't
9 (27)	Graphemes: /oo/; /u/; Patterns: ook, ood Extra grapheme: would	Focus Concepts: Adding <i>-ing</i> ; Rhyming Homophones: would/wood, contractions: wouldn't, couldn't, shouldn't

Other activities may include discussing the meanings of homophones, adding affixes to base words, and playing word games to reinforce the weekly focus sound. For fast workers, challenge activities include choosing three to four words from the weekly list to write in their own sentence,

writing a rhyming word for selected words, making a list of homophones, or an art activity.

3. **Step 3** (Friday): The teacher marks, discusses and reviews the completed activities and weekly assessments.

Assessments in *Sound Waves*

The assessments in *Sound Waves* are conducted weekly. There is a Friday pre-test that contains the list words for the next weekly sound and a teacher choice of five topic or extension words. In the following week, the same word list is given to the students and compared with the pre-test results to measure their progress. The program also contains a spelling diagnostic test of 70 graded words and a spelling age tracking tool.

Comments on *Sound Waves*

- The *Sound Waves* word study program uses a grapheme-phoneme representation strategy and the focus concepts reflect the terminology associated with phonemic awareness, phonics, and morphology in the AC: E. The program is not “conceptually consistent with the available scientific research evidence” (Wheldall, 2007) to support the content. The selection of the weekly sound does not appear to follow a research-based progression of spelling development or an explicit phonics spelling instruction approach (Henry, 2010; Moats, 2010).
- There are inconsistencies that are misleading. For example, the Year 2 Student Book has the following confusing tasks.
 - Task 2: “Colour the picture e.g. tree if you hear ee e ea y ey in the word” (Murray & Watson, 2010, p. 34). The student reads 11 words, (*me, lady, eat, try, one, three, never, very, feet, before, each*) each of which is inside a picture of a tree. If the word has a long /e/ sound, students then colour the word. This is an unaided phonemic awareness task and relies on the students teaching themselves, first decoding then pronouncing each word correctly before selecting the correct words. There is no statement in the lesson steps overview in the Teacher Book that suggests the teacher should model the correct pronunciation of these words before the task.

- Task 6: “**Write y** in the spaces. **Circle** the words with **ee e ea y ey**.
an - man - tr- - ou earl- awa - quickl - sixt - We sometimes write **y** for **ee e y ey** as in **baby**” (Murray & Watson, 2010, p. 35). This task is not accompanied by an explanation that words ending with the long /e/sound are often spelled with a final /y/. Henry (2010) provided an example in the word *funny* and stated that “23% of words” (p. 90) ending in /y/ are pronounced in this manner. It difficult to see how students develop knowledge about the spelling system by asking them to simply write /y/ in the space to complete the word.
- In the same task, the example for the word *away* is incorrect as it is the grapheme /ay/ at the end of a word not /y/ which represents the sound.
- There is limited instruction in the rules to support the weekly spelling concepts. This is considered important to underpin student knowledge of the various grapheme representations they encounter (Henry, 2010; Moats, 2010).

2.14.3 Spelling Mastery

Spelling Mastery (R. Dixon et al., 2007) is a Direct Instruction (DI) six-level (A-F) spelling program chiefly for primary students in Years 1 to 6. DI is claimed to be effective for all students, that is typically developing, struggling and above average students, students from an EAL/D background as well as older students struggling with spelling (R. Dixon et al., 2007). It was developed in part, from an existing remedial spelling program *Morphographic Spelling* aimed at older students with poor spelling skills that emphasised the use of morphemes to improve their spelling skills (Hempenstall, 2015b). It is a fully-scripted, developmental program comprising four components: “a) sequenced lessons; b) cumulative review and distributed practice; c) high rate of student response; and d) systematic error correction” (Hempenstall, 2015b, p. 60). The program requires approximately 90% student mastery learning of a given skill, initially through class or group massed practice, that gradually moves to include more complex tasks (Hempenstall, 2015b). There are three interwoven approaches comprising phonemic, whole word, and morphemic strategies.

The program aims to teach spelling to mastery, and the “content is reviewed cumulatively to ensure long term retention and transfer to writing” (R. Dixon et al., 2007, p. 3). It includes writing game exercises to foster the use of taught spelling. An outline of the six levels, content and spelling strategies covered at each level extracted from *The Spelling Mastery Series Guide* (R. Dixon et al., 2007) is illustrated below in Table 5.

Instruction techniques in *Spelling Mastery*

The scripted lessons are designed to provide teachers with consistent instruction and steps relating to the concepts being taught. It should be delivered at a fast-pace to enable: a) optimal student attention and retention; b) greater coverage of content in a lesson; c) fewer management issues; and d) overall greater success. Once practised the oral sequence becomes automatic and little referral to the teacher book is required (Dixon et al., 2007). The simple layout may not appeal

Table 5. *Spelling Mastery content and spelling strategies (extracted from Spelling Mastery Series Guide (R. Dixon et al., 2007, p. viii))*

Level	Content	Spelling strategy
A	<ul style="list-style-type: none"> Teaches sound-symbol strategy for spelling simple, regular spelled words Teaches spelling of a set of high-frequency, irregularly spelled words 	Phonemic Whole word
B	<ul style="list-style-type: none"> Expands sound-symbol strategy to more difficult, regularly spelled words Increases the number of irregularly spelled words that students spell 	Phonemic Whole words
C	<ul style="list-style-type: none"> Makes transition from phonemic approach to morphographic approach 	Phonemic Morphographic Whole words
D	<ul style="list-style-type: none"> Expands morphographic strategies by introducing non-word bases Teaches an additional set of spelling rules that address multisyllabic words 	Phonemic Morphographic Whole word
E	<ul style="list-style-type: none"> Emphasises useful non-word bases Expands on morphographic principles taught in levels C and D 	Phonemic Morphographic Whole word
F	<ul style="list-style-type: none"> Presents information about international spellings and the history of unusual spellings Acquaints students with the interrelationships of spelling, vocabulary, etymology, usage and syntax 	Phonemic Morphographic Whole word

to those who prefer a presentation employing spelling containing words in pictures and student self-directed colouring activates. However, the uncluttered

presentation could be seen as advantageous, providing little distraction from the task at hand. Tasks include

- generalisations of spelling patterns;
- sentence dictations including taught concepts;
- support activities such as correct pronunciation to facilitate spelling including listening and identifying a spelled word; and
- worksheet tasks comprising writing a complete sentence with specified target words, proofreading, cartoon activities, and cloze exercises within continuous “cumulative spelling review” (R. Dixon, Engelmann, & Bauer, 1990, p. 2).

Lessons are short, lasting for between ten to 20 minutes depending on the level. Levels A and B comprise phonemic and whole word strategies and Levels C to F phonemic, whole word and morphographic components.

Phonemic strategies in *Spelling Mastery*

For beginning spelling, reading and writing, students need to learn the basic, regular code of the English language that is represented by the 26 letters of the alphabet and their corresponding sound that makes up regularly spelled words (Henry, 2010; Moats, 2010). Therefore, early spelling lessons highlight sound-symbol relationships for spelling simple, regular spelled words (R. Dixon et al., 2007; Hempenstall, 2015b). An example of a scripted phonemic component is provided in Table 6.

It is important that beginning spellers experience early success and the phonemic stage enables students to identify sounds that form words through practice, analysis and synthesis. The words “soon become cemented in the autonomous orthographic lexicon” (Hempenstall, 2015b, p. 63). As not all words are spelled in this regular manner, students are taught that some words, for example, multisyllabic words, particularly those with the unstressed vowel sound (the schwa, ə) cannot be taught in this way. The schwa is the neutral vowel sound in an unstressed syllable, and the grapheme representing this vowel is either an *a*, *e*, *i*, *o* or *u* and varies according to the spelling of the word. To illustrate, the unstressed syllable in the word *relative* is spelled with the schwa vowel sound /ə/ and in the word *actor*, it is spelled with the schwa vowel sound /o/.

Table 6. An example of a scripted phonemic segmentation component (extracted from Exercise 1, Lesson 18, *Spelling Mastery Level A* (R. Dixon et al., 2007, p. 43))

Exercise 1 Pronunciation and teacher script	
1.	Listen: Bats . Say it. <i>Signal</i> . Bats .
2.	What's the first sound in bat ? <i>Signal</i> . /b/ .
3.	Next sound? <i>Signal</i> . /a/ .
4.	Next sound? <i>Signal</i> . /t/ .
5.	Next sound? <i>Signal</i> . /ss/ .
6.	Repeat steps 1-5 for: these, ship, wish .
7.	Call on individual students to say the sounds in: wish, bats, ship, these .

Whole word strategies in *Spelling Mastery*

The whole word component of *Spelling Mastery* embraces memorising the spelling of irregular words such *many* and *friends*. In the example of the word *many*, students working at Level A are scaffolded by the presence of the unpredictable letters and draw on their knowledge of the predictable element, /m/ to complete the whole word (*_any*). The irregular words are then presented in a sentence, for example, *She has many friends*, and the student copies the sentence. In addition, families of irregular words, for example, *could, should, would* are taught together to limit the strain on memory and revisited frequently in subsequent lessons. "Such irregular words should be introduced together based on some similarity rather than simply because they appear in today's story" (Hempenstall, 2015b, p. 63).

As students progress through the *Spelling Mastery* levels, scaffolding diminishes and words are no longer presented in context. This is so students pay attention to the structure of the word as opposed to its meaning (Hempenstall, 2015). Table 7 provides an example of a scripted oral presentation exercise for whole words.

Table 7. Scripted oral presentation exercise for whole words (extracted from *Spelling Mastery, Level B* (R. Dixon et al., 1990, G12))

Whole word component and teacher script	
1.	<i>Model</i> : Listen f-r-i-e-n-d .
2.	<i>Lead</i> : With me. Spell friend . <i>Get ready</i> . <i>Signal and respond with students</i> . F-r-i-e-n-d .
3.	<i>Test</i> : Your turn. Spell friend . <i>Get ready</i> . <i>Signal</i> . F-r-i-e-n-d .
4.	<i>Delayed test</i> . Again, spell friend . <i>Get ready</i> . <i>Signal</i> . F-r-i-e-n-d .

Morphemic strategies in *Spelling Mastery*

The morphemic approach to spelling comprises teaching base words and affixes. The morphemic component teaches students that words are made up of units of meaning and that the term morphograph applies to the group of letters that represent that meaning. For example, *visit* contains two syllables, but one morphograph. By adding the morphograph, prefix *re-*, the word becomes *revisit* which contains three syllables and two morphographs.

The advantage of building morphemic knowledge using morphographs is that spelling multisyllabic words becomes easier. Whilst the phonemic approach is an excellent early teaching strategy, there are many words that do not lend themselves to such an approach and relying on whole word memorising is burdensome. “The memory load produced by the whole-word strategy can be markedly reduced when students appreciate the morphological component, that is, that roots and affixes often retain their spelling in related words” (Hempenstall, 2015b, p. 65). For example, as illustrated in Table 8, knowing just six morphographs would enable the spelling of 15 words.

It is suggested that by middle primary school, utilising phonological, morphological and orthographic knowledge greatly assists student to expand their strategic knowledge when confronted with the need to spell unknown words (Berninger et al., 2010; J. Bowers & Bowers, 2017; Henry, 2010; Moats, 2010; Nunes & Bryant, 2006).

Table 8. *Spelling with morphographs (adapted from Spelling Mastery (R. Dixon et al., 2007, p. 5))*

Morphographs		
Prefix morphograph	Base word morphograph	Suffix morphograph
un-	cover	ed
re-		able
dis-		
Words formed coverable, covered, discover, discoverable, discovered recover, recoverable, recovered, uncover, uncoverable, uncovered, undiscoverable, undiscovered, unrecoverable, unrecovered.		

Assessing in *Spelling Mastery*

Spelling tests differ from traditional weekly spelling assessments. They are not part of Levels A and B. However, there are cumulative optional ten-word spelling tests to ensure legitimate student outcomes and mastery of taught content. It is suggested that after the tenth lesson, assessment may be given at the end of every subsequent fifth lesson (R. Dixon et al., 2007).

Comments on *Spelling Mastery*

Emphasis on repetition and practice in DI fell out of favour with Whole Language approaches, and is often seen as unfashionable (Hempenstall, 2015b). Some are critical of a fully-scripted sequence (McMullen & Madelaine, 2014; Radosh, 2004), but it is also seen as beneficial to focus teaching of skills (Barbash, 2012; McMullen & Madelaine, 2014) with some teachers reporting it frees them up to do fun, supporting activities with their students (Barbash, 2012). Emphasis on repetition, reciting and drilling appears to be highly successful. DI also includes many aspects that are found in EI approaches, including the teacher presenting new skills, continuous student engagement, guided instruction, practising taught concepts, corrective feedback and teaching to mastery. In the evaluation of the program and its features, Hempenstall states that *Spelling Mastery* is “worthy of consideration by educators seeking to improve the spelling outcomes of their students.” (Hempenstall, 2015b, p. 73).

2.14.4 Summary of the three programs

Of the three programs reviewed, it appears that the *Language, Learning and Literacy* (L3) program (NSW Department of Education and Communities, 2011) draws on meaning-based approaches that are embedded in a rich literacy environment of which spelling is a part. It is part of the NSW Department of Education and Training *Early Action for Success (EAFS)* strategy and includes strategies from Phillips et al. (2004) and Clay, (2001a). It does not use explicit instruction in the phonological, morphological and orthographic components of words. Its success to date in delivering positive early literacy outcomes seems to be questionable.

The *Sound Waves* word study spelling program (Murray & Watson, 2012) aims to develop student phonological, visual, morphological and etymological spelling

knowledge whilst using some strategies associated with a phonics approach. A statement says it is aligned to *The Australian Curriculum* and associated documents. There is no research-based evidence cited that informed its development or the choice of the weekly spelling content. The principles of explicit instruction appear to be absent.

The *Spelling Mastery* program (R. Dixon et al., 2007) is a DI program that uses research-based instruction strategies to develop word level spelling and knowledge. It provides students with a developmentally sequenced program that includes the phonological, morphological and orthographic components of words in a scripted-instruction sequence. Each lesson reflects the principles of DI that incorporate revision of previously taught concepts, presentation of new material in manageable amounts, guided practice and student independent practice. It also includes a sentence dictation component. A meta-analysis of 50-years of research found that utilising DI for spelling instruction yielded strong, positive results (Stockard et al., 2018). Practising taught spelling through sentence dictation is also included in the program. The use of dictation to practise taught spelling was a major focus of this current research project. A review of research on the role dictation may have in supporting the development of spelling automaticity follows.

2.15 Dictation

In its traditional sense, dictation can be defined as taking down “a coherent text excerpt (e.g. a paragraph) composed of several sentences” (Allal, 1997, p. 138). For hundreds of years this long-standing method has been frequently used in both the French school system and the English as a Foreign Language (EFL) setting to provide practice in spelling skills. A history of dictation as employed in EFL teaching was presented by Stansfield (1985) who described its initial usage as an age-old method of “testing course content from master (teacher) to pupil in the first language classroom” (Stansfield, 1985, p. 121). It was then adopted as an important teaching and evaluating tool in EFL teaching situations during the 1940s where it remained until the 1960s.

During the 1960s, dictation fell out of favour with the introduction of new audio-lingual methods that supported the development of oral language skills above writing skills in EFL pedagogy. Critics now saw dictation as complicated, unrelated

to daily activities, a poor approach to language testing, unrelated to speaking and requiring different listening skills (Stansfield, 1985). However, during the late 1970s and 1980s it re-emerged as a valid and valuable teaching and assessing method and as a result, became widely used again in the EFL setting (Stansfield, 1985). It was included in the *Teaching Spelling K-6* (NSW Department of Education and Training, 1998b) in the section, Effective classroom practices, as a beneficial way to assess if previously presented words have been retained in memory and to provide students with “early feedback” (p. 94).

Supporters of the value of dictation such as Davis and Rinvoluceri (1988) were also quick to mention its limitations, citing the traditional approaches used in days gone by of teacher-directed text reading being delivered in a boring fashion and of the understandable student distaste for this approach (Chiang, 2004; Davis & Rinvoluceri, 1988). In addition, and more recently, within the classroom climate of a Whole Language philosophy and meaning based instruction, dictation could have been seen as contra to these pedagogic methods. This may be a reason why it is seldom used in the current Australian mainstream primary school setting.

However, since the 1980s new appealing methodologies created specifically for the modern classroom have been developed. Gibbons (2002) suggested dictation was a most useful tool to practise and integrate listening, speaking, writing and reading, not only in EFL situations but also in mainstream primary and secondary schools with a high EAL/D student population. When taught spelling is integrated into contextualised, connected sentences as opposed to writing out a word study list, it “move[s] away from writing words in isolation, which is a fairly artificial act” (Oakley & Fellowes, 2016, p. 108). Furthermore, sentence dictation activities are suitable for integration into both meaning-based and explicit instruction approaches (Allal, 1997).

In a 1999, a review of research evidence (Berninger, 1999), followed by two subsequent studies conducted with primary and secondary school students (Berninger et al. 2000) also suggested that dictation is an undervalued and underutilised but effective tool for practising spelling to enhance the likelihood of spelling becoming generalised in self-composition. As previously stated and illustrated in Figure 7, research by Berninger and Richards (2002) found that

developing student knowledge about the orthographical, phonological and morphological components of spelling played a central role in underpinning the writing (and reading) process. According to Berninger et al. (2000) the rationale for the benefits of sentence dictation were that taught words are:

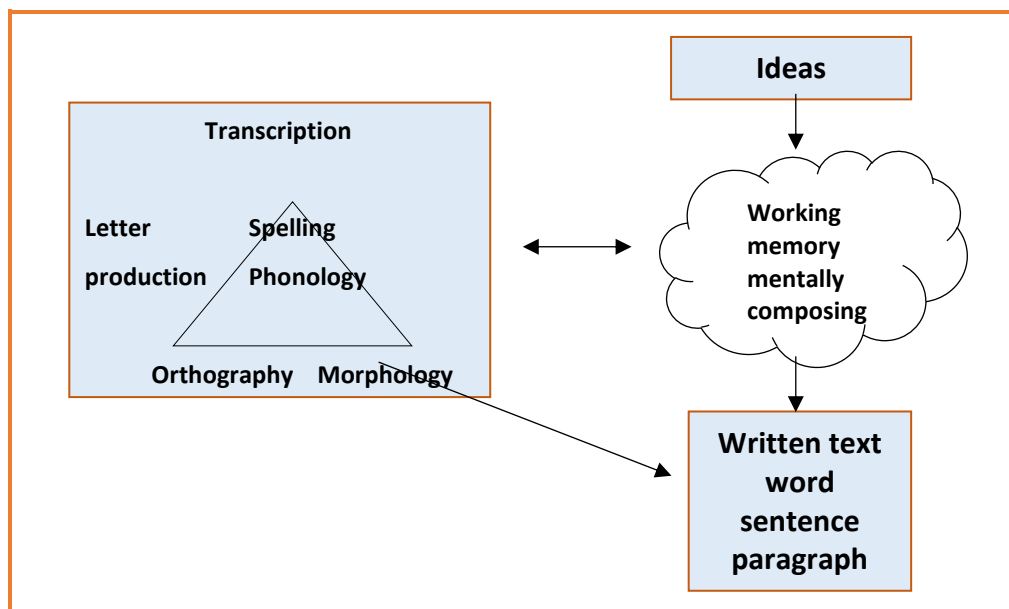


Figure 7. The role of spelling, including orthographical, phonological and morphological components in the writing process (adapted from Berninger and Richards (2002, p. 171)).

- a) retrieved in the context of meaningful sentences, with semantic as well as orthographic and phonological connections, and b) the working memory load for sentence dictation is more like that for composing than that for spelling single words from dictation. (Berninger et al., 2000, p. 124)

As a result, it was proposed that children would benefit from writing sentence dictation “so that they can use multiple cues in linguistic context, including semantics, to access the visual form of words in their mental dictionary” (Berninger, 1999, p. 110) and this may assist in developing spelling to automaticity. Berninger and Richards (2002) called for more research on this method.

Davis and Rinvulcri (1988) stated there were many sound reasons for using dictation including: a) decoding the sounds and recording them in writing which is a major task; b) combining oral and listening activities; c) activating student participation during the exercise; d) selecting teacher or student driven activities; e) differentiating mixed-ability groups as well as large groups; f) class calming; and g) providing flexibility of content.

As outlined below, there are numerous examples of dictation types depending on the language focus being practised, for example the spelling and pronunciation of past tense endings, silent letters or syllable structure (Brand, 1995; Chiang, 2004; Davis & Rinvolutri, 1988). Some examples follow.

- **Open dictation:** The teacher or student reads a short passage containing, for example, selected spellings for students to write.
- **Scaffolded dictation:** This is conducted as above, but with the passage partially written and spaces provided in which to spell the target words.
- **One-way listening:** The students work in pairs with a text divided in half for each to dictate.
- **Hold a sentence:** The teacher dictates a sentence containing only taught spelling.
- **Running dictation:** The students take turns in reading their own sentences whilst one transcribes it.
- **Dictogloss:** This is a supported dictation integrating listening, talking, reading and writing in a collaborative setting. It is a flexible activity and may, for example, comprise note taking, redrafting and oral presentation.

Dictation is also a favoured methodology in EFL settings in Hong Kong but according to Chiang (2004) is often delivered as a separate lesson reflecting the traditional, sometimes boring approach, unconnected to a meaningful context. However, in an action research project with 97 Year 4-6 students in Hong Kong, Chiang (2004) used dictation within a meaningful genre-based unit to reinforce taught spelling, grammar and composition concepts. It encompassed a variety of interesting activities comprising both teacher-directed and student-run group dictations as outlined above. Pre- and post-student interviews were used to gather qualitative and quantitative data on student perceptions of both dictation methods and work samples. Overall, post-research findings revealed a shift from students feeling stressed and threatened in the unconnected traditional dictations to feelings not only of enjoyment and motivation derived from the interesting dictation games but also to developing an appreciation of its role as a valuable tool to assist and support their learning.

As previously mentioned, the revised *National Curriculum for English* in England (UK Government Department of Education, 2013) has included dictation as a statutory requirement for five to seven-year-old children. It is suggested that writing simple dictated sentences would enable students to “apply and practise their spelling” (UK Government Department of Education, 2014, NC 2014 KS1). The statutory requirement for applying spelling rules in writing in this document states that students will “write from memory simple sentences dictated by the teacher that include words using GPCs [grapheme-phoneme correspondences] and common exception words taught so far” (UK Government Department of Education, 2013, p. 13). Therefore, it would appear that the purpose of dictation in this curriculum document is to put taught word spelling into contextualised meaningful sentences thereby providing practice of concepts previously taught for the student and assessment for the teacher. Contemporary approaches to the teaching and practising of spelling knowledge comprise the use of connected and meaningful writing activities (Oakley & Fellowes, 2016). This could include such activities as *Hold a Sentence* (previously outlined) where sentences containing only taught spelling words are dictated for students to transcribe.

It is suggested that dictation is a valuable tool by which to firstly, practise and subsequently, measure spelling proficiency. It incorporates listening skills, phonemic awareness, knowledge of morphology, spelling, punctuation and transcription skills. To illustrate, a beneficial lesson for all students would comprise practising the taught spelling to promote automatic recall through scaffolding and self-monitoring. The teacher provides proof reading, editing, and dictation tasks to support the generalisation of spelling into future written tasks (Moats, 2009c). However, there appears to be no identifiable contemporary research related to dictation use in the mainstream primary school setting. In designing this intervention, dictation was used to provide a foundation on which to practise, assess, and evaluate the taught word level spelling in a similar manner as suggested by previous researchers.

2.16 Summary of Literature Review Parts A and B

Part A of this literature review provided an overview of the evolution of the English spelling system (orthography) and the historical facts that shaped its development.

How students learn to spell the orthography was reviewed and research on opposing views of whether spelling is best taught or learned naturally was presented. In a summary of both standpoints, Treiman (2018) stated that to some degree, children may learn about spelling through reading. However, providing students with explicit instruction in the alphabetic code and the phonological, morphological and orthographic aspects of words has shown superior outcomes. To develop fluent spelling skills and knowledge of the English spelling system, the literature emphasised the need for students to learn the alphabetic principle through a developmentally sequenced progression of explicit synthetic phonics instruction. It emphasised that phonics alone does not provide a full picture of the English spelling system. A neglected component of student word knowledge has been the morphological aspects which literature has shown to be the glue that facilitates the integration of phonology and orthography. Researchers have suggested that developing students' knowledge about these three components greatly contributes to their literacy skills.

A four-year longitudinal study with students from Years 1 to 6 who were taught the phonological, morphological and orthographic components simultaneously revealed a considerable growth in these areas early in their spelling instruction. To evaluate the effectiveness of this approach, annual assessments over four years were conducted with Year 1 and Year 3 students from low, medium and high ability levels. The assessment tools consistently predicted the students fit into one of the three spelling ability levels that was maintained during the study.

The literature also explored two main pedagogical approaches currently used to teach spelling. Researchers found that whilst constructivism or the meaning-based approach is favoured in many schools, EI approaches have resulted in significantly better student spelling skills outcomes. The five main pedagogical approaches that comprise EI all share the same effective teaching principles: activating prior knowledge; introducing new material in small steps; checking for understanding; and guided and active student participation before independent practice (Rosenshine, 1997). DI (Engelmann & Carnine, 2016) differs to the other EI models in that the lesson content is scripted, an aspect which is controversial. However, a meta-analysis of studies from over 50-years that included spelling programs

showed DI delivered statistically significant results and that it is effective for students of all ability and age levels.

In the Australian *National Inquiry into the Teaching of Literacy*, Rowe (2005) drew on key findings from international researchers and reports to conclude that neither an explicit instruction or meaning-based instruction model alone is suitable to foster all aspects of learning. However, Rowe (2005) strongly argued that prior to students embarking on discovery learning through meaning-based approaches, they require explicit instruction in essential foundation skills such as learning the alphabetic principle.

Part B of this review comprised research that is pertinent to the Australian context in which this study was situated. The literature provided an historical overview of the varied spelling instruction approaches during the past four decades. During the 1980s and 1990s the constructivist approach was prevalent and generally little attention was given to formal spelling teaching. A decline in spelling standards saw an agreement between the Australian states and territories to include spelling in the curriculum and in 1998, the NSW Department of Education and Training published the document *Focus on Literacy: Spelling* (NSW Department of Education and Training, 1998a). It stated the importance of delivering explicit and systematic teaching to develop the phonological, visual, morphemic, and etymological components of word spelling knowledge from the beginning of literacy development.

Nevertheless, the overall decline in Australian literacy standards, including spelling, continued which led to the *National Inquiry into the Teaching Literacy* (Rowe, 2005) mentioned previously. Since 2009, the NSW Department of Education has produced a series of policy documents that emphasise the importance of explicit teaching of literacy skills in a systematic, balanced, and integrated approach. However, there are conflicting and unclear messages in curriculum, policy, and support documents. These include terms and approaches such as *balanced literacy* and *explicit teaching* with varying definitions of what each precisely constitutes.

Continuing poor national literacy rates prompted a review of *The Australian Curriculum* (ACARA, 2014) in 2014. The reviewers stated the curriculum was imbalanced in favour of constructivism and called for more emphasis on explicit

teaching approaches. As low student outcomes continued in national and international assessments, the Federal Government proposed students in Year 1 undertake a Phonics Screening Check (PSC). Similar to the check introduced in England to assess reading and phonics skills, the PSC will identify students who may require early assistance in these skills. This has been met with opposition from some teaching sectors but support from others, including speech pathologists, reading researchers and many parents. A subsequent pilot study of the PSC revealed overwhelming support from the teachers involved. They found it useful to guide their instruction as it identified those students needing assistance who otherwise may have gone unnoticed.

In the quest to improve student spelling outcomes, the literature has emphasised the need for whole-school instructional practices that include explicit instruction in synthetic phonics in the lower primary school. Strong school leadership is seen as essential when committing to implementing whole-school change.

In examining teacher knowledge and confidence to explicitly teach phonics and other spelling components, research from Australia, Canada, England, New Zealand and the United States has shown that teachers have limited knowledge of the language constructs required to teach spelling explicitly. Stark et al. (2015) concluded that since the *National Inquiry into the Teaching Literacy* (Rowe, 2005) teachers have not been adequately provided with this essential knowledge. Therefore, establishing pre- and post-teacher knowledge about the components of English spelling was one focus of this research.

Literature on resistance to change and the interplay between beliefs and practice showed the effects this may have on the content of preservice teacher training programs. It further showed how practising teachers' beliefs can affect their engagement with research-based professional development. Researchers have also questioned ideology in education institutions and attitudes from government education bodies on implementing evidence-based recommendations. A review by researchers on the content in a NSW Department of Education early literacy program currently in use in many NSW schools and in which spelling is a component, disclosed questionable student outcomes. The content and

effectiveness of two commercial spelling programs used throughout Australia was also explored.

A main focus of this research study was to evaluate the effect that utilising sentence dictation had on student spelling outcomes. There is some literature from previous researchers that suggests dictation may be a beneficial tool to use to practise taught spelling and foster automaticity and they called for more research in this area. This study aimed to increase spelling outcomes for Year 2 students through Explicit Instruction in the phonological and morphological aspects of words and sentence dictation. It included professional development and collaboration with the teachers involved who selected the theme in which the intervention took place. The Researcher designed the intervention which was called *The Spelling Detective Project*. The Conceptual Framework on which the study is based is provided in the following chapter.

Chapter 3 Conceptual framework and methodology

3.1 Paradigm

This study reflects the philosophical worldview (Creswell, 2014) of pragmatism and the concepts that were derived from the earlier work of Peirce, James, Mead and Dewey (Cherryholmes, 1992). Whilst pragmatism provides a philosophical foundation for research by focusing on finding solutions to a research problem especially within the social sciences, it is not bound to any single tenet of philosophy and reality (Creswell, 2014). To illustrate, pragmatism: a) rejects the obligatory polarised choices of constructivism and post positivism; and b) embraces the search for workable solutions to issues identified by the researcher (Teddlie & Tashakkori, 2009). In drawing on the work of Johnson and Onwuegbuzie (2004), Teddlie and Tashakkori (2009) state that “pragmatism views inquiry as occurring similarly in research and day-to-day life. Researchers and people test their beliefs and theories through experience and experimenting, checking to see what works, what solves problems, what answers questions” (p. 74). The major elements of pragmatism can be defined as follows

- real-world practice orientated;
- multiple methods utilised;
- problem centred; and
- consequences of actions examined (Creswell, 2014).

The benefit of utilising the pragmatic paradigm was that it facilitated a pluralistic approach to the research, enabling the Researcher to select data collection and analysis that were “most likely to provide insights into the question with no philosophical loyalty to any alternative paradigm” (Mackenzie & Knipe, 2006, p. 195). Therefore, where a targeted solution to a problem needs to be found, it provides a sound framework for conducting mixed methods methodology. Figure 8 provides a conceptual map of the research design and methodology components for the research.

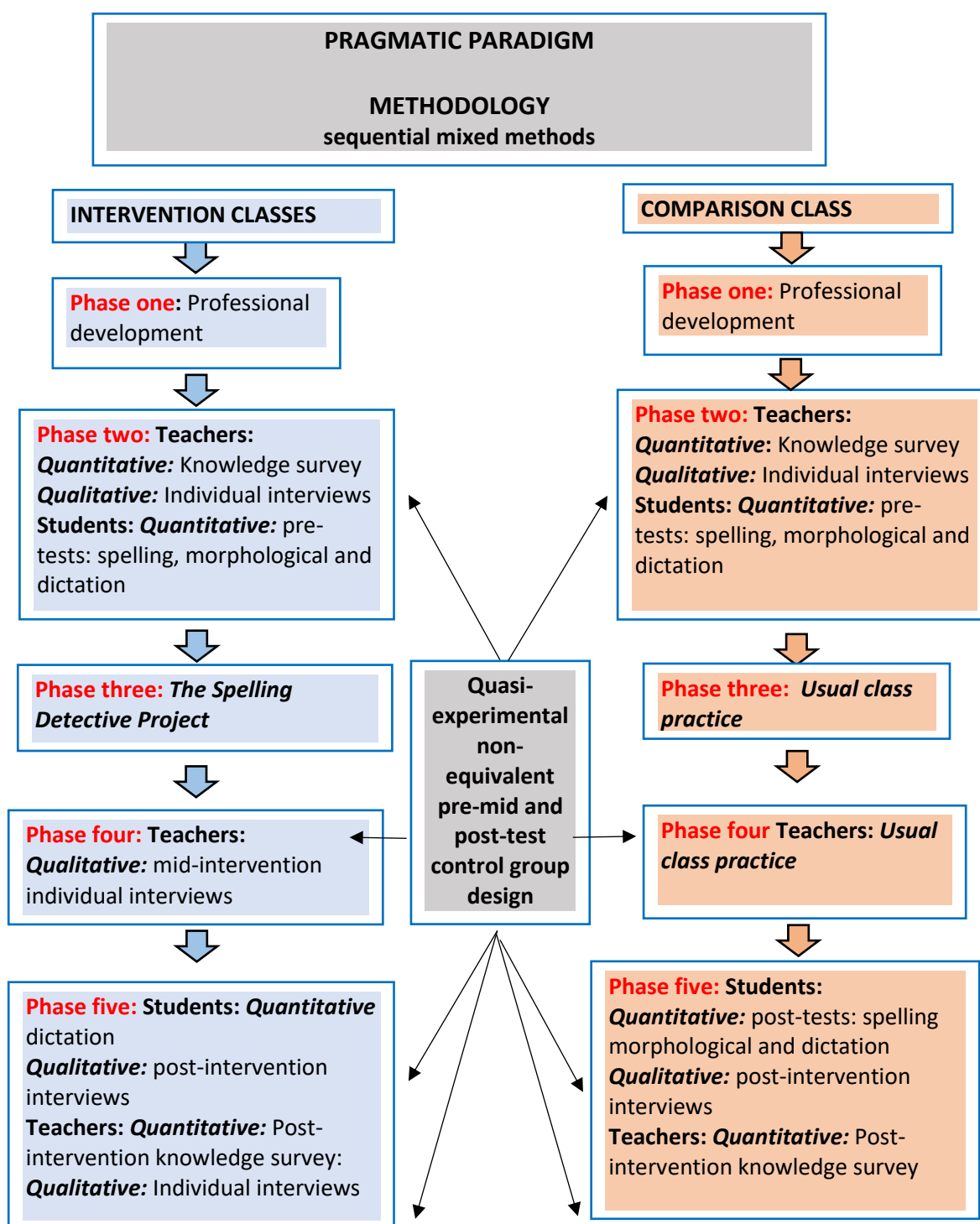


Figure 8. Conceptual design of research paradigm and methodology.

3.2 Methodology

The pragmatic approach requires that the research must provide constructive answers to the research questions and consequently the research methods are determined by those questions. As this study contained teacher and Researcher collaborative aspects designed to facilitate education practice, it could appear that it reflected designer-based research (DBR) (Anderson & Shattuck, 2013). Whilst it embraced many principles of DBR, including collaboration, the use of mixed methods and a variety of tools, it did not involve the sharing of any quantitative or qualitative results with the teachers and consequential iterative refinement during the implementation phases that are a hallmark of DBR (Anderson & Shattuck, 2013).

Mixed methods is known as the third research community (Teddlie & Tashakkori, 2009) or movement in the social and behavioural sciences. It provides an alternative to the traditional quantitative movement which primarily operates within the post-positivist paradigm and is concerned with numerical data and the qualitative movement, operating within the constructivist paradigm employing narrative data collection and analysis. The mixed methods alternative combines both numerical and narrative data and analysis within the pragmatic paradigm. It provides the researcher with the opportunity to utilise the most suitable tools to answer the research questions, integrating the findings from statistical and thematic data then presenting them in both numerical and narrative form (Teddlie & Tashakkori, 2009).

This methodology enabled the Researcher to employ methods that enhance the quality of research by providing narrative through qualitative data, explaining the statistics from quantitative data and delivering convergent validity and rigor to the research. As illustrated in Figure 8, there were five methodology phases which utilised the major elements of pragmatism and, while separate, interplayed with each other. These were

- phase one, the professional development session for teachers in the intervention and comparison schools occurred in real-world practice;

- phase two, the pre-intervention quantitative student and teacher data collection and the qualitative individual teacher interviews utilised multiple data collection methods;
- phase three, the nine-week *Spelling Detective Project* in the intervention school addressed a problem through real world practice (the comparison school continued usual class practice);
- phase four, the mid-intervention qualitative teacher interviews gathered data to examine the consequences of implementing specific teaching approaches in real word practice; and
- phase five, the post-intervention, quantitative student and teacher data collection and the qualitative teacher and student interviews again gathered data through multiple methods and facilitated a deeper examination of the consequences of the intervention implementation.

3.3 Methods

As previously stated, the rationale for employing mixed methods was that it utilised both numerical and narrative methods, facilitating a more robust analysis, as “neither quantitative nor qualitative methods are sufficient by themselves, to capture the trends and details of a situation” (Ivankova, Creswell, & Stick, 2006, p. 3). Using exploratory sequential mixed methods provided an interface with the research questions and the pragmatic elements within the real world settings of the participants (Teddlie & Tashakkori, 2009). This provided the framework to either support or refute the evidence on the efficacy of: a) employing explicit instruction methods to increase the spelling and contextualised sentence dictation outcomes; and b) exploring other influences that may enhance or detract from this development. The pluralistic nature of this research comprised quantitative data (teacher knowledge surveys and student assessments) and qualitative data (individual teacher and student interviews) and enabled meanings in data to be explored and triangulated.

In this sequential mixed method design, quantitative and qualitative data collection occurred chronologically in the intervention school and in the comparison school (Teddlie & Tashakkori, 2009). In phases two and five, quantitative data was

collected before the qualitative. Data across the intervention and comparison schools was collected concurrently.

The Ivankova et al. (2006) model was utilised and drew on the quantitative strands to identify teacher knowledge of word level of spelling outcomes. The qualitative strands explored important aspects regarding the Year 2 teachers' views, practices and reflections on teaching spelling as well as students' feelings about spelling, enabling exploration of what could possibly have contributed to both the teacher and student outcomes. This part of the study also utilised quasi-experimental non-equivalent pre-test and post-test control group concepts to structure both the teacher and student qualitative data gathering process in the school. The approach drew on Cohen, Manion, and Morrison (2011) and Creswell (2014) which was used to accommodate the sample selection and is presented in the case studies section. The following sections explain how the qualitative and quantitative components were situated in each phase of the conceptual design as illustrated in Figure 8 and how they connect to the research questions.

3.3.1 Qualitative and quantitative components

Phase one

Intervention school

Two Year 2 classroom teachers, the learning support teacher (LST) who works with students experiencing learning difficulties, the Principal and Assistant Principal in the intervention school received professional development in delivering explicit instruction in the phonological and morphological aspects of spelling to optimise delivery of *The Spelling Detective Project*. The Assistant Principal was included in the session as he would be the Acting Principal for the greater duration of the Project.

Comparison school

Two Year 2 teachers in the comparison school received professional development in fostering spelling and writing strategies through a meaning-based approach.

Phase two

Intervention and comparison schools

Both quantitative and qualitative methods were employed in phase two. Creswell (2014) states that "in quantitative research some historical precedent exists for

viewing a theory as a scientific prediction or explanation for what the researcher expects to find” (p. 53). In this mixed methods design, quantitative analysis was used to provide possible answers to the theory that explicit instruction would improve student outcomes in spelling (**Research Question 3**) and subsequent scaffolded sentence dictation (**Research Question 4a**).

The conceptual design illustrated in Figure 8 utilised a set of interrelated variables, the independent variable (the treatment, explicit instruction in spelling and dictation) to explain the outcomes (the spelling and dictation results) of the dependent variables, which “are outcomes or results of the influence of the independent variables” (Creswell, 2014, p. 52). The intervention classes were compared with a comparison class, which was the independent control variable that a researcher measures as this theoretically affects the dependent variable (Creswell, 2014). Schools were aligned as closely as possible to limit variables of socio-economic and educational community advantage as measured by the Index of Community Socio-Educational Advantage (ICSEA) (ACARA, 2010). There were 30 teachers across both schools; one had been teaching for four years; seven from between five to 20 years; and, 22 who had been teaching between 20 to 34 years. Teacher and student data collection methods follow.

Teachers

First, all teachers in both the intervention and comparison school completed a multiple choice teacher knowledge survey about the structure of English including the phonological and morphological components (**Research Question 1a**). After completing Phase One of the data collection, results of the pre-intervention knowledge survey (TKS) were given to each teacher in both schools in a confidential letter. The rationale for this approach was to enable them to see where their knowledge strengths and weaknesses lay. It was hoped that all teachers in both the intervention and comparison schools would be curious about their results and want to address knowledge gaps connected to word level, syllable and morpheme components in the TKS.

To safeguard the validity of the survey an adapted questionnaire on spelling (Mahar & Richdale, 2008), syllable and morpheme knowledge (Moats, 1994) was utilised. Quantitative analysis was utilised to identify strengths and gaps in teacher knowledge. Analysis using a two-tailed t-test identified possible differences in teacher scores on the tests.

Next, the Year 2 teachers, LST and the Assistant Principal in the intervention school were interviewed to explore their professional beliefs and current classroom practices on the teaching of spelling through open-ended questions (**Research Question 1b**). The interviews were recorded, responses to the questions clustered into topics, coded then grouped into related categories, and used as major findings (Creswell, 2014). The thematic qualitative analysis was based on an inductive process which was used to explain attitudes and behaviours that would support or refute “generalisations or theories from past experiences and literature” (Creswell, 2014, p. 66) and triangulate with the preceding teacher knowledge survey quantitative outcomes. This is described in Chapter 6, Results. Year 2 teachers in the comparison school were given the same Researcher-designed individual interview.

Students

Year 2 students in the intervention and comparison schools were assessed using the standardised Schonell Spelling Test A (Schonell, 1932) and a Researcher-adapted morphological spelling assessment (National Institute for Direct Instruction, (NIFDI), 2016) (**Research Questions 3**). Two specifically adapted dictation passages from decodable readers (B. Dixon, 2013, 2014) measured their pre-intervention sentence dictation skills (**Research Question 4a**). An experienced literacy researcher was nominated and agreed to provide an interrater reliability check on the quantitative data from the scored tests. Random selection numbers were selected using a formula from a random number generator site to select pre- and post-assessment papers. An interrater reliability score for all pre- and post-assessments resulted in a 98.9% agreement using a method described in the previous chapter.

Inferential statistical testing was applied to the data using a Univariate procedure and a two-tailed t-test for the pre- and post-data in the statistical software package

SPSS. Where there were large differences between schools or classes in pre-test results, a Univariate analysis was conducted to determine the overall potential for significance. Statistical significance was interpreted using an alpha level of .05 and effect size expressed as Cohen's *d* (see Chapter 6, Results).

Phase three

Intervention school

The Year 2 teachers implemented the nine-week *Spelling Detective Project* (called The Project) utilising explicit teaching of spelling and scaffolded sentence dictation. Each 40-minute lesson took place in the usual literacy block four days a week (see Appendix A for a complete lesson plan). Details of The Project are in Chapter 5, Developing *The Spelling Detective Project*.

Comparison school

The Year 2 teachers continued with their usual class spelling and writing practice.

Phase four

Intervention school

The Year 2 teachers and the Learning Support Teacher (LST) were interviewed to explore any changes in their beliefs about explicitly teaching the phonological aspects of spelling as in the Project (**Research Question 2b**). The interview again comprised open-ended questions similar to the pre-individual interview and was recorded, grouped into themes and coded for qualitative analysis. This is described in Chapter 5, Data collection and analysis.

Comparison school

The Year 2 teachers continued with their usual class spelling and writing practice.

Phase five

Intervention and comparison schools

Students

In the final phase, the same Year 2 students in both schools were assessed using the parallel Schonell Spelling Test B (Schonell, 1932), a parallel Researcher adapted morphological spelling assessment (NIFDI, 2016) (**Research Question 3**) and the same two dictation passages (B. Dixon, 2013, 2014) that measured their post-

intervention sentence dictation performance (**Research Questions 4a**). A qualitative, post-student survey was given to randomly selected students to gauge their feelings about the strategies used to teach spelling in their classroom (**Research question 4b**). The surveys were coded in the same manner as the individual teacher surveys.

Teachers

Post-intervention, all teachers in both the intervention and comparison school completed a parallel multiple-choice teacher knowledge survey about the structure of English, including the phonological and morphological components. Quantitative analysis was again utilised to identify possible areas of growth in teacher knowledge about the structure of the English language (**Research Question 2a**). Analysis of the data followed the same procedure that was used for analysing the quantitative student data.

Two Year 2 teachers, the LST and the Acting Principal in the intervention school undertook a post-intervention Researcher-designed individual interview to further explore possible changes in their beliefs on the explicit teaching the phonological and morphological aspects of spelling in the Project (**Research Question 2b**) and how well the intervention was taken up by the teachers and Principal (**Research Question 5**). The interviews were coded in the same manner as the pre- and mid-intervention interviews.

The recorded qualitative data was analysed thematically to establish if there was any relationship between the teachers' experiences with the Project, their opinions on teaching spelling and their understanding of the structure of the English language. It was analysed using a categorical strategy, cross-analysed to establish fidelity to the method, then presented in narrative form. Case studies were then developed to provide a link to the qualitative and quantitative data teacher and student outcomes (see Chapter 7, Case studies).

Case studies

Forming case studies enabled the main themes from the qualitative data to be interpreted and framed within the context of each teachers' engagement with professional development, their professional viewpoints, classroom experience,

and role during the intervention. In this research, the case studies delivered concurrent validity by employing several tools to address the research questions, triangulate the data and obtain convergent validity (Cohen et al., 2011). Hence, the case studies connected the quantitative and qualitative data from the five research phases and are presented in the discussion and recommendation sections.

3.4 Schools and participants

This section describes the processes involved in conforming to the ethical guidelines and in recruiting schools, teachers and students for the research project.

3.4.1 Research ethics

It was important that the four moral principles of autonomy, non-maleficence, beneficence and justice as cited by Beauchamp and Childers (2001) in Coughlan, Cronin, and Ryan (2007) be adhered to so that the students and their parents or guardians, schools, teachers, and principals were not compromised during the project. Therefore, the following processes were implemented.

First, the school Principals were provided with an explanation of the purpose, benefits and limitations of the research and asked to discuss the proposed research with the relevant teaching staff. Second, the Researcher met with the teachers who agreed to participate in the research. An explanation of the purpose, benefit and limitations of the research and their roles during the collaborative process was provided. Third, the Principals and teachers involved were asked to sign a consent form. They were informed that they could withdraw at any time during the research without question or repercussion. Finally, all data were coded to safeguard confidentiality and pseudonyms have been used throughout this thesis.

Ethics approval was obtained from the Human Ethics Committee of Edith Cowan University (Project Number 17128) and then the relevant Catholic dioceses in Catholic Education, NSW so the research could be conducted in the participating schools. A summary of the research findings will be provided to the pertinent Catholic dioceses and, on request, to the participating schools after completion of the research.

3.4.2 Participants

The research was positioned in Year 2 for the following reasons: a) the Year 3 NAPLAN spelling results (2012-2016) in NSW rural schools have been concerning, with results at or below the minimum Band 2 standard being almost double that of metropolitan students (ACARA, 2016); and b) targeting Year 2 students would provide an opportunity to grow spelling skills and optimise outcomes well in advance of the Year 3 NAPLAN assessments. The schools approached were non-composite Year level rural schools that met the following criteria.

- The schools were representative of an average level of socio-economic and educational community advantage as measured by the Index of Community Socio-Educational Advantage (ICSEA) (ACARA, 2010). This was considered an important measure of equivalence as an ICSEA value provides an indication of the level of a community's educational advantage and includes information about parent education and occupation, geographical location and cultural background. The average level of educational advantage is set at a value of 1,000.
- The students achieved lower than average spelling outcomes in Year 3 as measured by the National Assessment Program, Literacy and Numeracy (ACARA, 2016).

Despite the call for teachers to have access to ongoing professional development to enable them to employ effective evidence-based teaching techniques (Board of Studies NSW, 2014; Rowe, 2005), it proved difficult to recruit candidates who were prepared to fit additional tasks into their already overburdened agenda. Five schools were approached and when the schools registered interest, a meeting was arranged with the Principal to outline the aims and commitment involved in implementing the research. As a result, two schools from those contacted were available for recruitment and matched as closely as possible on physical location and ICSEA data. The intervention school had an ICSEA value of 1025 and the comparison school had an ICSEA value of 1042. Both were representative of an average level. To protect all the participants, and so schools cannot be identified, the following pseudonyms have been used: CPS1 for the intervention school,

comprising two classes, CPS1A and CPS1B; and CPS2 for the comparison school and class.

The intervention school

The Principal of CPS1 was concerned about the school’s NAPLAN literacy outcomes, particularly spelling. To illustrate, in 2016 the percentage of Year 3 students who performed at the minimum level of Band 2 was 23% (NSW state average was 7.5%), and the percentage of Year 3 students who performed below the minimum level of Band 1 was 4% (NSW state average was 3.5%). Table 9 summaries the Year 3 spelling NAPLAN data for both the intervention and comparison school against the NSW State average. The school drew on an Australian commercial spelling program, *Sound Waves* K-6 to teach spelling. However, they were not entirely happy with the program or student spelling outcomes, and teachers tended to make their own decisions on how spelling was taught. The Principal welcomed a fresh approach using explicit instruction in spelling and scaffolded writing within their literacy unit. The Researcher explained how the Year 2 research could be positioned in the usual literacy block and be linked to another key learning area (KLA) of their choice. Training would be provided to upskill the knowledge of participating teachers and the executive, and it was emphasised that support and feedback would be provided where required. It was further explained that each teacher would be required to adhere to the project format and that a fidelity checklist would need to be completed by the teachers and Researcher on alternate weeks.

Table 9. Comparison of Bands 1 and 2 NAPLAN Year 3 spelling result percentages minimum standard and below for Year 3 in the intervention and comparison schools with the New South Wales average (Source: (ACARA, 2016))

Band	Test percentage by year NAPLAN cohort	Year 3 NAPLAN spelling test percentages				
		2012	2013	2014	2015	2016
1	NSW state average	2.7	2.9	4.1	4.5	3.5
	Intervention school	10	6	3	0	4
	Comparison school	3	0	0	0	0
2	NSW state average	7.3	7.5	8.2	8.6	7.5
	Intervention school	8	3	29	18	23
	Comparison school	3	0	7	4	10

The two Year 2 teachers (classes CPS1A and CPS1B) in the school implemented the Project during their literacy block. The Learning Support Teacher (LST) also agreed to be involved to support those students at the lower end of literacy development. The teachers collaborated with the Researcher by choosing a science KLA theme of study to incorporate into their literacy program. They all received a full day of interactive professional development on the explicit instruction of spelling and scaffolded dictation within the chosen theme. The Principal and Assistant Principal also attended where time permitted. Details of the session are presented Chapter 4, *Developing The Spelling Detective Project*.

There were 19 students in class CPS1A, comprising 10 boys and nine girls (average age 7.7 years), and 18 students in class CPS1B, comprising 10 boys and eight girls (average age 7.5 years). All of the 37 students in the two Year 2 classes returned signed permission forms. Two students experiencing ongoing literacy difficulties had recently undergone a range of standardised tests and a clinical review. Whilst it is assumed the clinician was appropriately qualified, the actual details were unavailable. Each student was diagnosed with a specific learning difficulty and at the request of the class teacher and LST, excluded from The Project. One student was from an EAL/D background but received no specific support. Two students with identified low literacy levels were supported by the LST in the first two weeks of the Project, but at the request of their class teacher, were subsequently withdrawn by the LST during this period. As a result, 35 students participated in the pre- and post-assessments apart from the two withdrawn students who were excluded from the pre- and post-dictation (2) assessments and subsequently at the request of the teacher, from the post-morphological knowledge test. This is explained in Chapter 7, *Case studies*.

The comparison school

The Principal of CPS2 had not articulated particular concern about their Year 3 NAPLAN literacy outcomes although upskilling the teachers to improve spelling and writing outcomes overall was welcomed. They also utilised the *Sound Waves K-6* spelling program and were happy with the content. The Principal was committed to a meaning-based approach to literacy development favouring it to any memorisation or repetitive spelling routines. Consequently, CPS2 was offered

professional development for the Year 2 teachers comprising meaning-based spelling and writing development to support the Principal's stance. It became the comparison school. There was one Year 2 class (CPS2) taught by two teachers in Term 3; a relief teacher (Weeks 1 to 5) then the usual class teacher (Weeks 5 to 10). Both teachers attended the professional development session on fostering spelling and writing strategies through a meaning-based approach.

At the outset, there were 26 students in the class comprising 13 boys and 13 girls (ages were not provided). No students with a specific learning difficulty were identified and none were from an EAL/D background. All students returned signed permission forms. One student left mid-term. Therefore, a total of 25 students participated in all pre- and post-assessments.

3.5 Selecting and developing the assessment tools

This section presents a description of the assessment instruments and methods used to collect both quantitative and qualitative teacher and student data.

3.5.1 Teacher knowledge surveys and individual interviews

Teacher knowledge survey (TKS) A and parallel survey B measured the teacher knowledge of the language components needed to teach spelling explicitly. The adapted surveys gathered background information on teacher knowledge of phonemic awareness and phonics (Mahar & Richdale, 2008), as well as syllables and morphemes (Moats, 1994) (quantitative data). Survey A was given pre-intervention and the parallel survey B post-intervention. Survey A also collected data about the teachers' qualifications and experience and where they gained their knowledge about language (quantitative data). This initial survey identified strengths and gaps in teacher knowledge and also provided valuable data for developing spelling concept knowledge and teaching strategies in the professional development training. The TKS A and TKS B are located in Appendix B.

This was followed by a pre-intervention individual semi-structured teacher interview which was conducted with the two Year 2 classroom teachers involved in the intervention, the LST, and the subsequent Acting Principal in the intervention school and with the two Year 2 teachers in the comparison school. The rationale for using the guide questions in the pre- mid- and post- semi-structured interviews was

to provide a set of open-ended questions for each of the interviews to gather data around each teacher's current thoughts on, and approaches to, teaching spelling. Interviews were again conducted both mid- and post-intervention in the intervention school to ascertain if there had been any changes in their thought processes about spelling concepts or on strategies for teaching spelling during the term. The guide questions for the teacher interviews are in Appendix C.

3.5.2 Teacher fidelity protocol checklists

To maximise high fidelity and validity of the intervention, a checklist of fidelity protocols was developed for the teachers and the Researcher to complete on alternate weeks. The protocols were utilised to confirm that the spelling instruction, editing tasks (Editor's Desk) and dictation components were implemented according to the guidelines modelled and discussed during the collaboration process and the professional development training. There was a check box (tick or cross) next to the observation elements in each of the components and a section for comments from the observer. There were between 10 to 13 observation elements in each component that included

- number of weekly lessons;
- duration of each lesson;
- introduction to each component;
- adherence to the learning activities;
- student engagement and responses; and
- classroom climate.

To monitor teacher fidelity to the intervention, the Researcher also completed the checklist on alternative weeks throughout the Project. The fidelity checklist and extracts from the completed checklists are in Appendix D.

3.5.3 Student spelling assessments

The selection of spelling assessments was problematic because tests needed to assess three areas of spelling fluency. These were first, word level spelling of base words, second, base words with a morpheme affix, and third, connected text fluency.

The first objective was to determine the word level spelling performance of the Year 2 students in the two intervention classes and one comparison class and to view the spread of ability within each of these classes. In a study with Year 2 to 5 Australian students (n=93), Westwood (1999) explored the interrelationships between a series of different spelling assessments and the students' spelling ability in an unaided writing task. Results supported the outcomes from earlier findings (Mosely, 1997; Westwood, 1999) that commonly utilised standardised spelling assessments have a high correlation (Westwood, 1999) and "can provide valuable diagnostic information to help identify a specific child's development stage in spelling" (Westwood, 1999, p. 35). Westwood also stated that results from standardised norm-referenced spelling tests such as The South Australian Spelling Test (SAST), in combination with other formats like dictated passages of texts, also "tend[s] to be fairly highly correlated with the children's spelling accuracy when writing a story" (Westwood, 2005, p. 62). However, as both the schools use the SAST (Westwood, 2005) regularly, the Researcher felt it would provide a better picture of their spelling ability if an unfamiliar test was utilised. As the intervention was also targeting morphological development, a specific focus on affix morpheme content was needed, and this is limited in the first 37 words of the SAST.

A new non-linear spelling tool, Components of Spelling Test (CoST), (Daffern, 2016) reflecting the principles of Triple Word Form Theory (TWFT) (Garcia et al., 2010) was recently developed (Daffern, 2016; Daffern et al., 2015) to measure the phonological, orthographic and morphological "linguistic components of the Standard English spelling system." (Daffern, 2016, p. 1). The tool design is based upon "current literature on spelling development and assessment" (Daffern et al., 2015, p. 75), drawing on frequently used spelling assessment tools such as the SAST, the common spelling errors students make in the NAPLAN language conventions test as well as high frequency and difficult words. Each word was then aligned to the phonological, orthographic and morphological components that support TWFT. Thus, the tool appeared to be an excellent choice to assess these three components that are employed in the intervention. However, the CoST is recommended for use with mid- and upper-primary students in Years 3 to 5 and to ensure integrity to validity, re-testing should not occur within a year (Daffern, 2016). Due to these constraints, the CoST tool could not be used. Therefore, in

order to collect pre- and post-intervention quantitative data on: a) word level spelling, b) morphological spelling knowledge; and c) dictated connected text fluency, the following three tests were given

- a) the standardised Schonell Spelling Test (Schonell, 1932);
- b) an adapted morphological knowledge test (NIFDI, 2016); and
- c) two adapted connected text dictations (B. Dixon, 2013, 2014).

Word level spelling

The Schonell Spelling Test is an established parallel Australian standardised norm-referenced spelling test in a single word dictation format that is typically used in schools and is located in Appendix E. It includes a table of norms to utilise when comparing a student's spelling performance with that of average students of the same age. The spelling age is calculated from the raw score. While the test was developed in 1932 (Schonell, 1932), the words are still current, but due to its age it is relatively unknown and therefore, was likely to be unfamiliar to the students.

Morphological knowledge test (MKT)

As stated in the literature review, developing student knowledge about morphemes is considered essential in learning to spell and read, providing connections between vocabulary and word structure or grammar development, and as a result, the learning of new words (Apel & Werfel, 2014; Henry, 2010; Joshi et al., 2008; Moats, 2010; Nunes & Bryant, 2006). Therefore, developing students' morphemic knowledge was an important part of this intervention. In order to assess student morphological knowledge a specifically designed morphological knowledge test and was devised from *Spelling through Morphographs* (NIFDI, 2016). It included seven common morphemes that reflected *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) Stage 1 content. The morphemes (also known as morphographs) assessed were *un-*, *re-*, *dis-*, *-ing*, *-ly*, *-ed*, and *-ful*. The MKT was given both pre- and post-intervention and is provided in Appendix F. To avoid 'teaching to the test' not all these morphemes were taught during the intervention.

Dictation

The third pre- and post-assessment comprised two dictated passages of connected narrative text. As discussed in the literature review it is suggested that administering a connected text writing task that focusses on taught spelling structures and commonly occurring words is more aligned to assessing students' independent writing abilities than purely testing single word spelling (Davis & Rinvoluceri, 1988). This may facilitate developing spelling automaticity, a skill that will in turn support future independent writing tasks for all students (UK Government Department of Education, 2014) including those with learning difficulties (Berninger, 1999; Berninger et al., 2000).

The narrative passage for Dictation 1 was extracted from a phonics reader by B. Dixon (2013) and contained 33 words. Eighteen percent of the words were changed to contain more words including split vowel digraphs and consonant digraphs as well as words with common sound-letter relationship that reflected the Early Stage 1 (Board of Studies NSW, 2012a) content. The following words *Tim, bucket, stick, rocks, Tim, snack*, were replaced by *Len, kite, spade, shells, Len*, and *lunch* respectively. It assessed the automaticity of cvc, cvcc and split vowel digraphs and vowel sound-spelling correspondences. It included common function words (for example, *the, and*).

The Dictation 2 passage was modified from a more advanced phonics reader by the same author (B. Dixon, 2014) and contained 42 words. Of these, 40% were changed to contain words a student working in Stage 1 (Board of Studies NSW, 2012a) could be expected to have mastered. The following words (including a sentence containing direct speech) *Tim, long, it's, like, a, jungle, in, here, was, on, swing, in* were replaced with *Len, swaying, then, a, frog, jumped, side, of, their, wow, sprang*, and *up* respectively. It assessed the automaticity of more complex spelling patterns, such as common function words (*then, their, were*) and two syllable words containing digraph /ay/ and morphemes *-ing* and *-ed*. Both dictations were given pre- and post-intervention and are provided in Appendix G. It should be noted that neither the teachers nor students involved in the intervention had access to either of these dictations during the research project.

3.5.4 Post-intervention student interviews

Nine randomly stratified students from the intervention and comparison classes were interviewed post-intervention from each of the following classifications: a) three below average achieving students; b) three average achieving students; and c) three above average achieving students. The interview sought students' feelings on spelling, the strategies they employ when spelling, and their opinions on the spelling activities used in their classroom during the term. It also provided insight into the relationship between how the students felt about spelling and their spelling ability (see Appendix H for the Student consent form and interview guide questions.)

In summary, the use of the three quantitative assessment tools measured overall pre- and post-spelling achievement levels within each Year 2 class and provided a "detailed picture of an individual student's existing spelling knowledge" (Westwood, 2005, p. 63). The qualitative post intervention interviews provided valuable insight into students' feelings about spelling and possible enlightenment on their spelling performance. A detailed discussion of the data analysis is provided in Chapter 5, Data collection and analysis.

Chapter 4 Developing *The Spelling Detective Project*

A critical component of this research was the spelling intervention that the Year 2 teachers were asked to take up in the intervention school to address long-term poor spelling outcomes. A number of factors influenced the design of *The Spelling Detective Project* (known as The Project). Some were fundamental to the school while others were set by the diocese in which the school was located.

The school, in which this research was conducted, had a fixed morning literacy routine and established pedagogy. In consultation with the Principal, it was decided that the Researcher would design a bespoke Explicit Instruction (EI) spelling program that integrated a Key Learning Area (KLA) to both complement and strengthen the school's pedagogical practices. The Researcher collaborated with the Year 2 teachers on their choice of theme, accompanying literacy materials and the use of contextualised dictations to practise taught spelling concepts. A professional development day to explain the content, structure and delivery components of The Project to the school executive and intervention teachers was arranged.

An explanation of the spelling intervention called The Project, in particular the process followed by the Researcher to prepare the lessons and assessment tools, follows. The chapter comprises the following sections

- curriculum requirements;
- dioceses initiatives within the school;
- the school context;
- collaboration;
- selecting The Project structure and content; and
- teacher professional development.

4.1 Curriculum requirements

The English sequence of content for the *Australian Curriculum: English* (AC: E) (ACARA, 2013) Year 2 strand *Language*, sub-strand *Phonics and words knowledge*: English: Sequence of content F-6 (ACARA, 2015a) states that students will develop phonological and phonemic awareness and “orally manipulate more complex sounds in spoken words through knowledge of blending and segmenting sounds,

phoneme deletion and substitution in combination with use of letters in reading and writing (ACELA1474)” (ACARA, 2015a, p. 6). The sub-strand comprises phonological and phonemic awareness, alphabet and phonic knowledge and spelling strands. Sub-strand *Spelling* states students will develop knowledge about how letter patterns represent phonemes in words and that morphemes are “meaning units” within words (ACARA, 2015a, p. 7). An extract from the AC: E Year 2 sequence of content in these sub-strands is provided in Table 10.

Table 10. *Australian Curriculum: English (AC: E) sequence of content, strand language, Year 2 (ACARA, 2015a, pp 6-7)*

Phonics and word knowledge sub-strand	
Sub-strand	Year 2
Phonological and phonemic awareness of the ability to identify the discrete sounds in speech (phonemes), and to reproduce and manipulate them orally	Orally manipulate more complex sounds in spoken words through knowledge of blending and segmenting sounds, phoneme deletion and substitution in combination with use of letters in reading and writing (ACELA1474)
Alphabet and phonic knowledge The relationship between sounds and letters (graphemes) and how these are combined when reading and writing	Use most letter-sound matches including vowel digraphs, less common long vowel patterns, letter clusters and silent letters when reading and writing words of one or more syllable (ACELA1824) Understand that a sound can be represented by various letter combinations (ACELA1825)
Spelling Knowledge about how sounds (phonemes) of words are represented by letters or letter patterns, knowledge of meaning units within words (morphemes) and word origins	Understand how to use knowledge of digraphs, long vowels, blends and silent letters to spell one and two syllable words including some compound words (ACELA1471) Use knowledge of letter patterns and morphemes to read and write high-frequency words and words whose spelling is not predictable from their sounds (ACELA1823) Build morphemic word families using knowledge of prefixes and suffixes (ACELA1472)

The NSW English K-10 Syllabus “includes all the Australian Curriculum content descriptions for English” (Board of Studies NSW, 2012a, p. 11). The accompanying syllabus scope and sequence of phonological and graphological processing skills specifies the stages at which key skills should be introduced, reviewed and consolidated: outcome codes indicate the subject, stage, outcome number and objective respectively. The Overview of phonological and graphological processing skills K-6 (Board of Studies NSW, 2012b) is provided in Appendix I. Requirements for developing these skills, including morphological skills and high frequency word knowledge during Stages 1 and 2 are explained in the following sections.

Phonological and graphophonic processing skills: Developing phonological knowledge of syllables and sounds (EN1-1A, EN1-6B) and knowledge of one-syllable words (EN1-5A) should be introduced in Stage 1. In late Stage 1 single sounds should be blended to form spoken words, for example consonant-consonant-vowel-consonant (ccvc) words such as *slip* and consonant-consonant-vowel-consonant-consonant (ccvcc) words such as *tramp*. This should be revised and consolidated in Stage 2.

Developing graphological awareness about letter-sound matches (EN14A) in Stage 1 introduces students to “understand that letter names remain constant but the sounds they represent may vary” (Board of Studies NSW, 2012b, p. 3) and recognise common vowel digraphs, for example, /ea/, /ay/ and long vowel sounds (silent /e/ split digraph). The recognition of common prefixes and suffixes is introduced (EN1-5A) and includes building skills to recognise how affixes change the meaning of a word and that a common suffix can have different sounds in different words, for example, *-ed* as heard in the words *walked*, *rested*, and *rubbed*. In Stage 1, students are introduced to the identification of “sounds of known letter clusters, syllables or rimes in unknown words” (Board of Studies NSW, 2012b, p. 3). In Stage 2, students are consolidating these skills while building fluency and automaticity. At this Stage, students are introduced to “identifying syllables in multisyllabic words” (Board of Studies NSW, 2012b, p. 3).

Spelling one syllable words: In Stage 1, to develop spelling-sound relationships skills in one syllable words, it is specified that sound-letter relationships be introduced and that students write “cv, vc and cvc words that contain known letter-sound relationships” (Board of Studies NSW, 2012b, p. 4). Further sound-letter relationship development sees students introduced to spelling “words using consonant blends, digraphs and long vowel sounds...” (Board of Studies NSW, 2012b, p. 4). At Stage 2 (EN2-5A) students are “becoming familiar with the various ways of representing a particular sound in writing for example, *meat* and *meet*” (Board of Studies NSW, 2012b, p. 4).

Morphological knowledge: From a very early age, students are exposed to morphemic patterns in both the oral and written forms of the English language. For example, through compound words such as *sandcastle* and *seaside*, simple prefixes

such as *un-* and *re-* in *undo* and *return*, and affixes such as *-ing* in *riding* and *-ed* in *wanted* (Henry, 2010). “Children are more likely to spell the irregular past tense correctly if they understand the morpheme spelled /ed/ corresponds to /t/ or /d/ or (schwa) /ed/” (Garcia et al., 2010, p. 65). Knowing these common morphemic structures is of benefit to developing a student’s vocabulary, decoding and spelling skills (Henry, 2010; Joshi et al., 2008). In Stage 1 of the Scope and Sequence of Overview of phonological and graphological processing skills K-6, spelling, segmenting to spell (EN1-5A) specifies that students are introduced to “breaking simple words into morphemes to aid in spelling” (Board of Studies NSW, 2012b, p. 5) and use their knowledge of the “familiar letter patterns” (Board of Studies NSW, 2012b, p. 5) of *-ing* and *-ed* to spell words.

High-frequency sight words: *The NSW English K-10 Syllabus* defines a high frequency word as “common or high-frequency words in English [that] are not able to be decoded using sound-letter correspondence because they do not use regular or common letter patterns” (Board of Studies NSW, 2012a, p. 136). The syllabus spelling outcomes content regularly interchanges between the terms high frequency, sight words and irregular words. For example, Stage 1 students are introduced to spelling “high-frequency and common sight words accurately” (Board of Studies NSW, 2012b, p. 5). This is confusing and consequently may have implications for teaching and learning. The glossary developed by Henry (2010) defines a sight word as “a word that students know by sight without having to analyse it to pronounce it. ... they may have regular (e.g. *jump, stop*) or irregular (e.g. *where, only*) spelling. Also called high-frequency word.” (Henry, 2010, p. 313). Kilpatrick (2015) concurs, stating the terms related to word level reading are inconsistent. He defines a sight word as one “that is instantly recognized from memory, regardless of whether the word is phonically regular or irregular. This term overlaps with word recognition because sight words are the type of words that are instantly recognized” (Kilpatrick, 2015, p. 60). To avoid confusion, commonly occurring irregular and high frequency words were called *Tricky Words* in The Project and two strategies were used to teach them. For example, the word *friend* was taught combining both phoneme-grapheme knowledge for the initial letters of *f-r* and *e-n-d* and mnemonics (*I am your fr-i-end to the end*). The words *would, should* and *could* were grouped on the basis of spelling and pronunciation

(Moats, 2006, p. 17) and taught by recognising the word as a whole, then spelling it.

The importance of teachers integrating syllabus and curriculum content is emphasised in the overview of the Department of Education and Communities' *Literacy Continuum K-10* (NSW Department of Education and Communities, 2013), which links to the *NSW Literacy and Numeracy Strategy (LNAP) 2017-2020* (NSW Department of Education and Communities, 2017b). The diocese in which the intervention school was situated had instigated a literacy focus that included certain LNAP requirements as well as an inquiry learning focus. A description of these initiatives follows.

4.2 Diocese initiatives within the school

The school took part in a diocese initiative that reflected a commitment to the *NSW Literacy and Numeracy Strategy (LNAP) 2017-2020* (NSW Department of Education and Communities, 2017b) targeting all school sectors (government, Catholic and independent) that aims to increase student achievement in the top two NAPLAN bands by 2019. The LNAP is an extension of the *Best Start* initiative and links to the *DET Literacy Continuum K-10* (NSW Department of Education and Communities, 2017a). Descriptions of two critical syllabus aspects included in the framework for the continuum are stated as follows.

- **“Phonics** – involves making the connection between sounds and letters when reading and spelling.
- **Phonemic awareness** – involves hearing and manipulating sounds in spoken language” (NSW Department of Education and Communities, 2013, p. 3).

The framework states that these skills are to be “taught early and explicitly, and need to be mastered quickly” (NSW Department of Education and Communities, 2013, p. 3). In the LNAP opening message, the then NSW Minister for Education, The Honourable Adrian Piccoli states that “teachers and schools can expect more support, guidance and professional learning in explicit teaching, assessment and points of intervention” (NSW Department of Education and Communities, 2017, p. 2). Whilst the words ‘explicitly’ and ‘explicit teaching’ appear to reflect explicit instruction (EI), the teaching and learning approach does not utilise the elements

and isolated strategies contained in an EI pedagogical approach, and explained in section 4.5.2, The elements of explicit instruction pedagogy in the lesson design. During 2017, the school also implemented the diocese instigated whole-school inquiry teaching and learning focus called *The Learning Pit*. The program, developed by Nottingham, “is used to promote challenge, dialogue and a growth mindset” (Nottingham, 2018, para. 1). Students explore a known concept or phenomenon, create conflict and a resulting dilemma in their minds then explain possible causes by constructing their own meanings of the dilemma. “Such learning situations are meant to be open-ended in that they do not aim to achieve a single “right” answer for a particular question being addressed ...” (Hattie, 2009, p. 209), building on innate curiosity rather than absorbing understanding. A description of the Year 2 literacy routine within the intervention school and NAPLAN spelling outcomes is provided in the following section.

4.3 The school context

The school had adopted a constructivist approach to teaching literacy that reflected the diocese commitment to the *NSW Literacy and Numeracy Strategy (LNAP) 2017-2020* described in the previous section. The morning literacy routine of one and a half hours comprised 20 minutes of silent reading, 20 minutes of sustained silent writing and 50 minutes of reading and writing activities including publishing written work and rotating reading groups. During this period a ratio of 1-1 student-teacher writing and reading conferencing and data collection (running records) were conducted.

Typically, teachers following this approach offer flexible seating for students to choose from and create brightly coloured displays to support the literacy and numeracy routine. However, some teachers retain traditional student seating of u-shaped rows and displays of commercial literacy and numeracy posters. Common in most classrooms, including the intervention and comparison schools, are quiet corners to facilitate student inquiry and reflection. This research was predicated on working collaboratively with teachers in schools and given this, it was important to be mindful of the constructivist and inquiry learning focuses already in place when developing The Project content and structure.

Over the past five years, the intervention school had consistently experienced low Year 3 NAPLAN spelling outcomes. For example, in 2016, 23% of students scored in the national minimum standard of Band 2 (NSW state average was 7.5%) and 4% scored in Band 1 (NSW state average was 3.5%) which is below the minimum standard. This is concerning not only for these students' current spelling outcomes, but for their long-term literacy development. To illustrate the potential seriousness of these low outcomes, it is stated in the NAPLAN Standards Results and Reports (ACARA, 2018) that, those students performing at Band 2, the national minimum standard, are likely to require additional assistance in order to reach their potential. Those students "who are below the national minimum standard have not achieved the learning outcomes expected for their year level. They are at risk of being unable to progress satisfactorily at school without targeted intervention" (ACARA, 2018, para. 5). The aim of the school executive was to address this issue, commencing with collaboration to implement the research intervention Project.

4.3.1 Collaboration

Collaboration with the school Principal and Year 2 teachers took place prior to the intervention and a suitable 10-week instruction period was allocated for The Project. This was subsequently reduced to nine-weeks instruction and one week of post-assessments to accommodate the whole-school cultural and religious programs in Week 10 of Term 3. It is important to note that whilst a bespoke program was designed for this school, The Project could be used in any school to optimise word spelling development for students of all ability levels. To facilitate established constructivist approaches, it was pertinent to collaborate with the Year 2 teachers and select a theme in which to link the English KLA and embed The Project. They chose the Term 3 science key learning theme, *Insects* and together with the Researcher, selected five picture story books that provided the *insect* focus for their class reading to link the meaning-based approach.

The teachers were familiar with, and usually incorporated, a balanced literacy approach (a program that uses both Whole Language and some phonics) but were unfamiliar with the EI structure and terminology utilised throughout The Project. Therefore, it was important to provide a framework for the intervention that they would feel comfortable utilising. Discussion began by tapping into the more familiar

format of scaffolding a lesson comprising an introduction and 'we are learning to' (WALT), the teaching of new content, a student application and finally a conclusion. This format was repackaged to reflect the principles of the EI model encompassing, the daily review, introduction of new skills, guided practice of new skills, independent student practice, and a final review.

The Learning Support Teacher (LST) also agreed to participate in The Project and support the students with below average spelling ability. Each teacher would be provided with a sequenced and structured learning progression that reflected the curriculum requirements and the elements of EI. A professional development day was set aside to upskill the three teachers in 'fully guided instruction' (Kirschner, Sweller & Clarke, 2006), another term for explicit instruction, that utilises teacher-directed approaches to facilitate implementation of the spelling curriculum content. Effective instructional practices that optimise outcomes for all student abilities are provided in the next section.

4.4 The weekly cycle structure and instructional sequence

Carnine, Silbert, Kame'enui, Tarver, and Jungjohann (2006) summarised the literature on effective instructional strategies by emphasising the need for teachers, to: firstly, understand how children learn; secondly, ensure they accurately dissect the skill or other relevant content to be taught into a teaching sequence for each lesson; and finally, interact connectedly with students in the course of the lessons. The weekly cycle structure and sequence was developed around the six major principles of effective instructional strategies for diverse learners (Carnine et al., 2006). These principles provided the framework for the instructional design and student skills development. They were incorporated into the weekly cycle and followed the following recommendations proposed by Coyne, Kame'enui, and Carnine (2011).

Big Ideas: Carefully selected concepts, rules and strategies "that facilitate the most efficient and broadest acquisition of knowledge" (Coyne et al., 2011, p. 14) were utilised. The Big Idea content was linking phonological, morphological and orthographic spelling elements, related rules and dictation to optimise word spelling development.

Conspicuous strategies: A well-sequenced explicit teaching and learning sequence incorporating the Big Ideas was developed. This was presented in a fully prepared suite of PowerPoint® slides with a semi-scripted teaching sequence that provided clear teacher instructional approaches and transparent student learning outcomes (WALT and WILF). Related student worksheets and activity props including a syllables drum, coloured hoops and a policeman’s hat were also provided.

Mediated scaffolding: Instructional scaffolding supported students to link familiar, well established concepts with unfamiliar, new complex concepts. The daily review of previously taught concepts and skills, repeated through mediated scaffolding, provided a link to new skills introduced. These preceded students independently applying familiar concepts and practising more complex new concepts.

Strategic integration: Base word spelling concepts were scaffolded through guided instruction that included associated spelling rules and continuous formative assessment. This formed the foundation on which to build and integrate word building with morphological content. Without first developing solid foundational knowledge of the base word, integrating the new morphological affix content would be unlikely to lead to development and subsequent automaticity of the new skill. Each of the phonological, morphological and orthographic elements was integrated during guided practice of word level spelling, editing and independent dictation.

Primed background knowledge: This is “the related knowledge students must know in order to learn a new concept, strategy ... or big idea.” (Coyne et al., 2011, p. 8). The Year 2 teachers had not previously included specific phonological, morphological and orthographic skills in spelling instruction. To optimise development of these three skills, it was important that students were primed in revised or learned foundational knowledge *before* the new content was introduced. This was addressed through the ‘concepts to review’ content of The Project.

Judicious review: Continuous systematic review provided students with a repertoire of sequenced tasks to apply, practise and develop their new knowledge and skills. In tandem with explicit instruction it offered a progression of opportunities to promote mastery learning (Hollingsworth & Ybarra, 2018) incorporating the phonological, morphological and orthographic components to

optimising spelling development (the Big Idea). The varied Editor's Desk tasks and independent dictations gave students the opportunities to apply and practise their new cumulative knowledge that was integrated into these more complex tasks.

Spelling researchers (Henry, 2010; Joshi et al., 2008; Moats, 2010; Treiman, 2017a, 2018) concur that students of all ability levels need a program of well-sequenced linguistic spelling instruction based on a word level spelling development progression. Spelling is a visual depiction of spoken word level language (Garcia et al., 2010) and “draws on multiple knowledge sources including the phonological sounds patterns in spoken words, orthographic letter patterns in written words, and morphological word form patterns (base words and affixes) in spoken and written words” (Garcia et al., 2010, p. 63). Berninger et al. (2010) emphasised that these three kinds of linguistic awareness grow the most during the primary school years and as a result, made the case that “all three kinds of linguistic awareness that are growing during the primary grades need to be coordinated and applied to literacy learning” (Berninger et al., 2010, p. 141). The aim, therefore, was to develop three kinds of linguistic awareness simultaneously and grow students' understanding of the spelling system and its relationship between speech and the printed word. The following section describes the components that supported the structure and content of The Project.

4.5 Selecting The Project structure and content

The Project comprised two main components. These were: a) a word level spelling progression that aligned with the AC: E and *NSW English K-10 Syllabus* (Board of Studies, 2012a) requirements that formed the spelling content; and b) the explicit instruction (EI) teaching approach reflecting scientific evidence based practices that best support student outcomes that formed the pedagogical structure.

Learning to spell is a linguistic undertaking (Joshi et al., 2008), not a rote task of memorising letters and words (Moats, 2010). “It requires students to develop the knowledge about oral sounds and written patterns in language” (Joshi et al., 2008, p. 7) and develop knowledge about the alphabetic principle and combinations of the 26 letters. Decades of scientific research reveals that students need a progression of well-sequenced linguistically explicit spelling instruction. Such a

progression is seen as vital, with each step a building block for the next. Researchers (Berninger & Richards, 2002; Henry, 2010; Joshi et al., 2008; Moats, 2010) stress that without such an approach, students can be at risk of marginalising their word level spelling developmental progression which is necessary to support the more complex aspects of English spelling in the middle and upper primary grades. Table 11 summarises the recommended progression when introducing the various word level spelling patterns to students from Kindergarten to Year 6 (Moats, 2010). This word level spelling instruction progression aligns with the AC: E sub-strand spelling (ACARA, 2015a), *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) and the Overview of phonological and graphological processing skills K-6 (Board of Studies NSW, 2012b) documents that identify the Stage at which literacy skills should be introduced.

During the planning stage of The Project, both Year 2 intervention teachers reported that many of their students lacked progress in spelling development and consequently the outcomes expected at Year 2 level. In order to optimise the students' word level spelling development, it was important The Project design included strategies to revise regular consonant and vowel letter-sound correspondences knowledge and common digraphs, for example /ai/, /ay/ (vowel digraphs) and /th/ /sh/ (consonant digraphs) that underpin much of the more

Table 11. *A spelling progression of instruction K-6 in the primary school aligned to the NSW English K-6 Syllabus Stages 1-3 (extracted from (Moats, 2010, p. 209))*

NSW Stage level	Year level	Word structure emphasis/knowledge
Early Stage 1	Kindergarten	Phonemic awareness, segmenting, letter sounds and letter names
Stage 1	Year 1	Anglo-Saxon words, regular consonant and vowel sound-letter correspondences
	Year 2	More complex Anglo-Saxon letter patterns, inflectional endings, compound words
Stage 2	Year 3	Multi-syllabic words and most common prefixes and suffixes
	Year 4	Latin-based prefixes, suffixes and roots
Stage 3	Year 5	Common Latin and Greek base words, prefixes and suffixes
	Year 6	More complex Latin and Greek base words, prefixes and suffixes

complex Anglo-Saxon letter patterns *before* attending to the Year 2 content including inflectional morphemes, for example, *-ing, -ed*.

It was also important that students learned the organisation of the conventional English spelling system (orthography) and its relationship between print and speech to optimise spelling, reading and writing skills (Henry, 2010; Moats, 2010). Moats (2010) outlines the significance of understanding the orthographic system and provides an overview of content knowledge for students at Year levels. Therefore, the Researcher included the following orthographic content knowledge when developing the scope and sequence

- phoneme-grapheme correspondences: for example, consonant blends (*speak*); consonant digraphs (*chips*);
- syllable patterns: for example, vowel teams including discrimination, such as digraphs (*rain, play*) and quadgraphs (*would, should, could*); breaking words into syllables;
- inflectional morphemes (indicating tense, and number): for example, plurals and tense (*snails, walked, swayed, feasted*);
- orthographic rules and syllable juncture: for example, /f/, /l/, /s/ and /z/; doubling rule (*off, pill, moss, buzz*); dropping the silent /e/ (*baking, hoping*); and
- homophones: for example, *their, there* (Moats, 2010).

Research findings that reveal best spelling outcomes are achieved for all student abilities by learning phonological, graphological and morphemic elements of word structure simultaneously, or conjointly, rather than sequentially were appraised. Berninger and Richards (2002) asserted that learning to spell and read encompasses storing and analysing in memory the phonological, orthographic and morphological word forms and their parts. Therefore, Triple Word Form Theory (TWFT) based on Conjoint Theory was utilised to optimise the intervention students' word level spelling development (Berninger et al., 2010; Garcia et al., 2010). As both the Year 2 teachers reported their classes comprised mainly below average and average spellers, with some above average spellers, it was envisaged that utilising TWFT would optimise all students' "ability to coordinate the three kinds of awareness in learning to spell" (Garcia et al., 2010, p. 91) and grow spelling

outcomes. TWFT aligned well to *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) phonological, orthographical and morphological skills developmental requirements. Explicit Instruction (EI) pedagogy based on well-established scientific research by these researchers that consistently produced positive student learning outcomes was implemented in The Project teaching and learning sequence.

4.5.1 Pedagogical and literacy components

The nine-week learning sequence comprised 35 lessons to optimise the development of word spelling automaticity and increase the likelihood of generalising the taught spelling into editing tasks (called The Editor's Desk) and subsequent connected sentence dictations of poetic prose. Each lesson took place in the regular literacy block and where appropriate, integrated the term science theme of *Insects*. Lessons were accompanied by a series of PowerPoint® slides with a semi-scripted teaching sequence, providing teachers with a consistent pedagogical delivery approach. Lessons comprised four pedagogical and literacy components based on work from scientific evidence-based researchers and current curriculum and syllabus documents. These were

- research on explicit instruction by Rosenshine (1997, 2012), Clark et al. (2012), and the Explicit Direct Instruction (EDI) of Hollingsworth and Ybarra (2009, 2018);
- research on Triple Word Form Theory (TWFT) instruction methods of Berninger, Abbott, Nagy and Carlisle (2010), effective explicit spelling instruction research methods of Joshi, Treiman, Carreker and Moats (2008), Moats (2006, 2010), and Henry (2010), *The Foundation to year 10 Australian Curriculum: English (AC: E)* (ACARA, 2015b) and *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a);
- the work of researchers concerned with developing student morphemic knowledge to enhance word spelling, in particular Nunes and Bryant (2006), Bowers and Kirby (2010), Carlisle (2010), and Apel and Werfel (2014), the AC: E (2015b) *Foundation to year 10*, and *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) morpheme content;
- research conducted by Berninger (1999), Berninger et al. (2000), and Davis and Rinvolutri (1988) on the benefits of utilising dictation to practise taught

word spelling, and the dictation content in *The National Curriculum for English in England* (2013).

4.5.2 Elements of explicit instruction in the lesson design

The value and validity of EI is supported by three different fields of education research: a) cognitive science; b) classroom practice of master teachers; and (c) research on cognitive support (Rosenshine, 2012). The aim of utilising EI was to commit the learned spelling skills to long-term memory: “if nothing has been added to long-term memory, nothing has been learned” (Clark et al., 2012, p. 9).

An overview of the principle elements in each lesson is summarised in Figure 9.

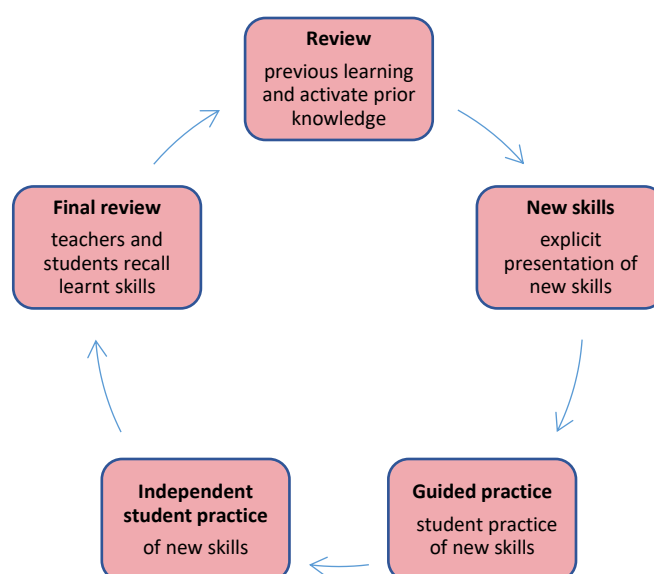


Figure 9. An overview of teaching and learning principle elements in *The Spelling Detective Project*.

Effective elements of an EI lesson that maximise student learning outcomes are well established (Archer & Hughes, 2011; Clark et al., 2012; Rosenshine, 1997, 2012). A hybrid version of EI was developed to accommodate the learning objectives WALT (we are learning to) and WILF (what I am looking for) that the teachers often used. As illustrated in Table 12, each lesson commenced with a review of previous learning that was always revised to activate prior knowledge before introducing new content.

The instruction method comprised modelling of the new skill by the teacher (I do), student guided practice (we do) before independent practice (you do) (Wheldall et al., 2014). All new skills in the learning objective (WALT and WILF) element were presented in small, tightly scaffolded steps, with the teacher using ‘think alouds’

(verbalising thoughts) when modelling the steps. This was followed by guided student practice of the new skills that progressed from simpler to more difficult examples and were differentiated for weaker and more able students, whilst consistently checking for student understanding (CFU). A high degree of success in scaffolded, guided practice leads to greater success in future individual application in that skill. Rosenshine calls this teaching for “mastery learning” (Rosenhine, 2012, p. 17) stating that “unless all students have mastered the first set of lessons,

Table 12. *Explicit instruction lesson elements in The Spelling Detective Project based on Rosenshine’s Principles of Instruction (Rosenhine, 2012)*

Lesson elements	Instruction Principles
Student preparation	<ul style="list-style-type: none"> • Students are sitting, looking and listening attentively
Daily review	<ul style="list-style-type: none"> • Fast-paced review of previously learned material • Knowledge, skills and processes required for today’s lesson
Learning objective	<ul style="list-style-type: none"> • WALT: Teacher provides a statement of the learning objective • WILF: Teacher provides a statement of what the student will be able to do at the end of the lesson
Activate prior knowledge Check for understanding (CFU)	<ul style="list-style-type: none"> • Review previous learning that supports the learning of new concepts • Check for understanding • Call on random non-volunteers
Explicit presentation of new material Concept and skill development (I do)	<ul style="list-style-type: none"> • Explain the concept to be taught • Model the steps and make them explicit • Use ‘think alouds’ when modelling skills
Student guided practice (We do) CFU	<ul style="list-style-type: none"> • Guided practice of the skills presented • All students provide oral response in unison • Progress from simpler to more difficult examples • Differentiate for weaker and more able students • CFU
Student independent practice (You do) CFU	<ul style="list-style-type: none"> • Students practise taught examples independently • A high degree of autonomy and accuracy is sought (80% or higher)
Final review	<ul style="list-style-type: none"> • Teacher and students recall what was learned • Students state whether the learning objective was achieved or not

there is a danger that the slower students will fall further behind when the next set of lessons is taught” (Rosenshine, 2012, p. 17). Learning a skill to mastery facilitates automatic retrieval of the skill (Berninger & Richards, 2002).

Guided practice was followed by recurrent student independent practice to foster automaticity in the new skill and facilitate easy retrieval. This, in turn, frees up working memory to attend to other facets of task application, such as comprehension (Rosenshine, 2012). Independent practice was closely monitored and a high degree of accuracy (80% or higher) sought (Rosenshine, 2012). Each lesson concluded with a final review, recapping on the learnt skills to see if the learning objective had been met. An explanation of lesson delivery components and the delivery techniques follows.

4.5.3 Lesson components and delivery techniques

The Explicit and Direct Instruction (EDI) lesson delivery and questioning techniques comprised two key lesson delivery strategies: a) TAPPLE; and b) Student Engagement Norms (Hollingsworth & Ybarra, 2009, 2018). TAPPLE is the acronym used by Hollingsworth and Ybarra (2009, 2018) for the steps teachers use to continuously check for understanding (CFU) while they are teaching.

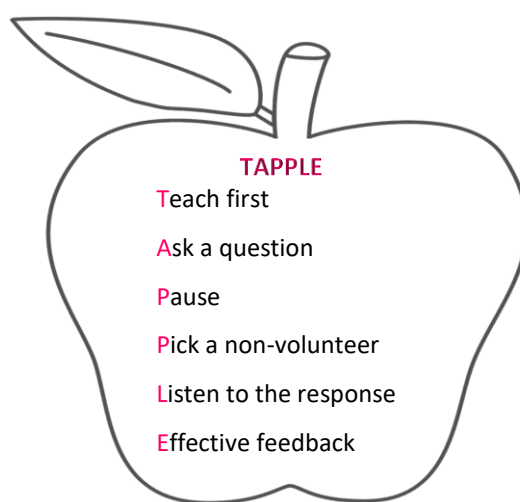


Figure 10: The TAPPLE steps to check for understanding (CFU) (Hollingsworth & Ybarra, 2009, p. 22).

Figure 10 outlines clear steps that continuously check for understanding (CFU), incorporating strategies that maximise engagement and involvement of all students and eliminate off-task behaviours. The TAPPLE steps enables teachers to “stop and ask questions every few minutes” (Hollingsworth & Ybarra, 2018, p. 18) to confirm the students, “are learning what you are teaching while you are teaching”

(Hollingsworth & Ybarra, 2018, p. 18). An explanation of how each step was applied in The Project follows. An example taken directly from the materials given to teachers illustrates these lesson delivery components.

Teach first: This was central to each lesson. Each component was explicitly presented before checking for understanding (CFU) to verify the students understood the content just taught. Gestures were used to assist students remember a difficult concept quickly (Hollingsworth & Ybarra, 2009, 2018). For example, when teaching the spelling of homophones *their* and *there*, the teacher and students pointed to a partner to reinforce *their* then raised a hand and pointed outside the classroom to illustrate *there*.

Ask a question: Explicit questions were asked about what was just taught. For example, as no English words ends in /v/, the teacher asked “Why do we need to put an /e/ on the end of the word *love*?” Asking if a student or the class ‘understands’ can result in inaccuracies about what they have in fact learned (Hollingsworth & Ybarra, 2009, 2018).

Pause and pair-share: In this interactive and powerful strategy, students shared their answers to a posed question with their partner, an important and valuable cognitive strategy. For example, it provided all students with pause time to think about their answer before they said it to their partner. It exercised student listening and speaking skills and their use of target “academic vocabulary” (Hollingsworth & Ybarra, 2018, p. 49), enabling demonstration of conceptual understanding. It was also used to check for student understanding about spelling knowledge or a rule.

Pick a non-volunteer: To check for understanding (CFU) at least three non-volunteers were randomly selected. Choosing non-volunteers facilitated a more a more realistic picture of overall comprehension than asking for volunteers, where the most proficient usually respond. Hollingsworth and Ybarra state that if no fewer than three “random students can respond correctly, it’s likely that all students are understanding” (Hollingsworth & Ybarra, 2018, p. 55).

Listen to the response: It was important to listen carefully to the response to establish the degree of understanding (right, partially right or wrong) that related to the next step, feedback.

Effective feedback: Three types of effective feedback were provided.

1. *Echo*: When the student provided the correct answer, it was repeated verbatim to confirm, for example, “That’s right Mae, the digraph /ai/ goes at the beginning or in the middle of a word.”
2. *Elaborate*: When a partially correct answer was given, elaboration provided the correct answer, for example, “Yes Hugh, the digraph /ai/ goes in the middle of a word” (*teacher now turns to the class, adding*) “and also at the beginning of a word.”
3. *Explain*: When a student could not answer a CFU question (this is called ‘a red alert’) another student was selected. If they provided the correct answer, the question was again put to the first student who should answer correctly. Where there were two sequential incorrect answers the concept was retaught (Hollingsworth & Ybarra, 2018).

To support skills development, CFU and effective feedback within the TAPPLE steps, the following selection of Student Engagement Norms (Hollingsworth & Ybarra, 2009, 2018) were used.

Mini-whiteboards: Students used a mini-whiteboard regularly throughout each lesson. Its use enabled immediate practice of the skills presented, ensured student participation and allowed the teacher to formatively assess student learning during the lesson. When the teacher saw an incorrect answer, the student was asked to rub it out and write it correctly. Immediate feedback and correction by the student is a powerful teaching and learning tool (Hollingsworth & Ybarra, 2009, 2018). The lightweight plastic sheet-protector style of white-board was selected. As many students had poor or illegible handwriting and lacked automatic letter formation, the Learning Support Teacher (LST) promoted using a lined handwriting template to guide correct letter formation. There is evidence that fluent automatic handwriting combined with explicit spelling instruction aids spelling development, whilst poor handwriting combined with poor spelling can contribute to disability in written expression (Schlagal, 2013, p. 276). Using upper and lower case letters appropriately in Stage 1 and developing handwriting “fluency and automaticity” (Board of Studies NSW, 2012a, p. 84) in Stage 2 is a requirement in *The NSW English K-10 Syllabus*. The accompanying scope and sequence, Overview of phonological and graphological processing skills K-6 states “learning to form letters

correctly links closely with learning about letters, letter sequences and words” (Board of Studies NSW, 2012b, p. 6). For these reasons, although not a primary objective, correct letter formation was emphasised during each lesson.

3, 2, 1 Chin-it: This was a prompt for all students to put their white-boards under their chin after the target spelling had been written. Teachers could quickly see if all students were learning (Hollingsworth & Ybarra, 2018).

Repeat with me: Students repeated a concept with the teacher three to five times to reinforce conceptual understanding, for example, “syllables are beats in a word.”

Gesture with me: Gesture was used to assist memorising new concepts (Hollingsworth & Ybarra, 2009). For example, when alphabet spelling the tricky words of *come*, *some* and *done*, both hands formed an ‘O’ when the /o/ was spelled in each word.

Pop sticks: A jar containing student names on wooden pop sticks was provided so teachers could implement random student selection.

‘Think alouds’ and pair-share: Teachers used ‘think alouds’ to verbalise the skill being assessed before asking students for feedback. It was routinely applied in guided editing to facilitate editing an incorrect sentence. During this procedure, students used pair-share to discuss their answer with a partner. An example of a ‘think aloud’ and pair-share routine is illustrated in The Editor’s Desk tasks.

To enable the teachers to adhere to the principles of EI pedagogy and the TAPPLE (Hollingsworth & Ybarra, 2009, 2018) steps, it was important to develop and provide teachers with a suite of teaching resources they would feel comfortable using. A description of the content and structure of these resources is described in the next section.

4.5.4 Developing the teaching resources: Content and structure

An important part of The Project was that each lesson be delivered in a manner consistent with the fast-pace accompanying EI, an approach that the teachers were not familiar with. Developing and preparing materials is daunting and time consuming for teachers especially when they are unfamiliar with the structure of EI. In order to support them use this approach, the Researcher wrote and provided a suite of 1141 fully pre-prepared PowerPoint® semi-scripted slides for the 35

lessons. Each 40-minute lesson took place in the usual literacy block four days a week.

PowerPoint® slides and script

Each slide was designed to be simple and student-friendly. Slides were uncluttered so as not to distract from the concept being taught and comprised clip art depicting the target spelling (see section 4.5.6 for details). For example, for the syllabification of the word *dragonfly* a clear coloured picture of a single dragonfly was displayed. Each slide contained a semi-scripted sequence of teaching steps. Presenting fully prepared lessons in a semi-scripted format equipped the teachers with EI delivery consistency and a platform for important continuous formative assessment. The script also gave the teachers a sequence in which to implement tightly scaffolded, fast-paced lesson delivery through enjoyable activities as well as providing a consistent check for student understanding (CFU) during each lesson. The key elements that are considered essential to developing word spelling skills and the teaching methods employed in each lesson are described in the next section.

Spelling elements and teaching strategies

The orthographic, phonological and morphological elements of the English spelling system were incorporated into each lesson to enhance student word level spelling development and depth of linguistic knowledge. It was important to provide the teachers with engaging and enjoyable student activities that optimise students' skills and knowledge growth in these three elements. The detective theme was adopted from a study conducted by Bowers et al. (2010, p. 172) to enhance motivation and foster problem-solving spelling strategies.

The following linguistic spelling elements and accompanying teaching strategies provided students with a mentally stimulating and physically active lesson sequence. It must be emphasised that the teacher always modelled any new material or strategy *before* student guided practice took place. A description of the spelling elements and related teaching strategies employed follows.

Syllables

During collaboration, the Year 2 teachers were confident they knew how to syllabify a word themselves, but had not seen developing syllabification strategies

with their students as contributing to growing spelling knowledge. Knowing syllables assists in recognition and recall of longer printed words. *The NSW English K-10 Syllabus* defines a syllable as “a unit of sound within a word containing a single vowel sound, for example *won-der-ful, sing-ly*” (Board of Studies NSW, 2012a, p. 149). Locating the number of vowels in a given word indicates the total number of syllable chunks in that word. Breaking words into syllable chunks greatly assists students with spelling patterns, providing them with “a tool for attacking longer unknown words” (Moats, 2010, p. 103).

There are six spelling patterns for syllables in English that are organised around the vowel in the centre of the syllable. These are closed, open, vowel-consonant-*e*, vowel team, vowel-*r*, and consonant-*le* syllables (Moats, 2010). The most common spelling unit is the closed syllable and contains a short vowel spelled with one letter followed by one or more consonants. Therefore, it was important to develop a solid base of syllables to enhance spelling knowledge. The following learning progression was used to

- develop students’ syllable knowledge in regular consonant and vowel sound-letter correspondences in Anglo-Saxon words, and comprised
 - closed vowels (a syllable with a short vowel followed by one or more consonants);
 - vowel-consonant-*e* (a syllable with a long vowel sound followed by one consonant and a final silent *e*);
 - vowel teams (digraphs /ai/, /ea/, /oo/, /ay/, /ee/);
 - syllables with a long or short vowel sound comprising a spelling combination of letters; and
 - vowel *r* digraph /ar/.
- support and develop more complex Anglo-Saxon letter patterns including inflectional morpheme endings, and comprised
 - derivational morpheme, separate syllables (*un-*, and *re-*);
 - inflectional morpheme, separate syllables (*-ing*, *-ed*); and
 - inflectional morphemes (*-s*, unaccented *-ed* /t/ and /d/ endings).

At the start of every lesson one of the following two activities was used to grow syllable knowledge through active participation whilst moving the children around the room.

- **Robot Walking:** In this strategy, the teacher and students clapped the syllables in five different teacher-given words before Robot Walking each syllable. To illustrate, when syllabifying the word, *dra-gon-fly*, everyone marched forward one pace for each syllable (three paces) then back three paces, repeating each of the syllable segments. At the end of each iteration, teacher and students repeated in unison “every syllable contains a vowel or a vowel sound.”
- **Syllables Drum:** A more challenging strategy was added in Week 4 so students could independently demonstrate their syllable knowledge. First, the teacher stated the definition for syllable, then the students repeated this in unison and pair-shared the definition with a partner. The teacher then pulled two pop sticks and asked the students “what is a syllable?” The teacher then explained, “we will beat out the syllables of words on a drum.” The teacher said a word, for example, *cent-i-pede* and beat the three syllables out on the drum. Next a student was chosen, the drum passed to the child who then selected their own word, for example, *spi-der*. They said *spi-der* then beat out the two syllables on the drum whilst saying each syllable and finally stating *spider* has two syllables.

Phonics: The following activities addressed developing students’ phonics knowledge.

- **Long and Short Vowel Game:** As vowel sounds “are the most difficult patterns for many students to learn” (Henry, 2010, p. 89) they were not introduced in alphabetical order (Henry, 2010). Initially only sounds were isolated, for example, long vowel sounds (ū and ō) and short vowel sounds (ă, ĭ and ŭ) to provide practice in, and assess student phonemic (sound) awareness of, their ability to discriminate between long and short vowel sounds. As the teacher said long and short vowel sounds in random order, children bobbed down for short vowels and stretched

with their hands above their head for long vowels, for example five vowels ů, ǎ, ō, ĭ, and ē were practised.

Challenge tasks were introduced from Week 3 onwards. The teacher said the word for pictures on the slide containing random short and long vowel sounds, for example, *crate* (long vowel sound) and *flash* (short vowel sound). The students needed to identify the vowel embedded in the word and bob or stretch accordingly. Discriminating between long and short vowel sounds greatly influences spelling choices (Henry, 2010).

- **Consonants:** Whilst matching the consonant grapheme to the corresponding phoneme is generally not particularly difficult for most children, discriminating some sound pairs can be problematic (Henry, 2010). For example, discriminating between single consonants such as those in *bill* (voiced /b/) and *pill* (unvoiced /p/) and the consonant digraphs in *that* (voiced /th/) and *thin* (unvoiced /th/). Practice in matching single graphemes to their corresponding phoneme was provided in Weeks 1 to 3. As the teacher said the name of the consonant, students uttered the corresponding sound. From Weeks 4 to 9, a random mix of single consonants and initial and final position consonant digraphs (voiced and unvoiced /th/, unvoiced /sh/ and unvoiced /ch/) were revised. To illustrate, correct pronunciation of the consonant digraphs /th/ was fostered by students placing a hand on their throat and saying the words *this*, *that*, *them* and *then* before being asked what they felt (a vibration of voiced /th/) and repeating the /th/ sound three times. Unvoiced /sh/ words *shop*, *shed*, *shut*, *crush* practised in a similar manner are not vibrated.

The following activities addressed developing students' phonological awareness.

Phoneme segmentation: Find the Rime: Onset and rime are “the phonological units of a spoken syllable” (Board of Studies NSW, 2012a, p. 142). Onset is the initial consonant or consonant blend that come before the vowel. Rime is the vowel or vowel digraph and final consonant(s). For example, the word *each* has no onset: the rime is *each*. In the word *peach*, *p* is the onset and *-each* the rime. Words may

not have onset, but always have rime and the structure of the word varies according to “the phonemes and their sequences” (Moats, 2010, p. 52).

Knowledge of letters and their corresponding sounds including onset and rime are important to underpin students’ ability to spell unknown words (ACARA, 2015b; Board of Studies NSW, 2012a). In this strategy, emphasis was placed on the *sound* at the phoneme level. Students practised segmenting words into phonemes then adding or deleting nominated phonemes in a sequenced learning progression. For example, in the Week 2 lesson, the teacher guided students who manipulated both onset and rime in the following words, *rap, trap, traps; pin, spin; spine, pine, pines* in this sequence.

Teacher: Children, say *rap*.

Children: (respond in unison) *rap*.

Teacher: Tell me the first sound in *rap*. Children say /r/ next sound, /a/, next sound, /p/.

Teacher: Let’s check the spelling (a slide appears with the word *rap*).

Teacher: Now say the word *trap*.

Children: (respond in unison) *trap*.

Teacher: Show me your Phoneme Fingers and tap out the sounds (t-r-a-p).

Teacher: What sound do we need to add to make *trap*?

Children: (respond in unison) /t/.

Teacher: Let’s check. Teacher clicks on a slide to reveal the spelling of *trap*.

Teacher: What sound do we need to add to make *traps*?

Children: (respond in unison) /s/.

Teacher: Let’s check. Teacher clicks on a slide to reveal the spelling of *traps*.

Teacher: Children, say *pin*.

Children: (respond in unison) *pin*.

Teacher: Tell me the first sound in *pin*. Children say /p/ next sound, /i/ next sound, /n/.

Teacher: Let’s check the spelling (a slide appears with the word *pin*).

Teacher: Children, say *spin*.

Children: (respond in unison) *spin*.

Teacher: Tap out the sounds on your Phoneme Fingers (s-p-i-n).

Teacher: What sound do we need to add to make *spin*?

Children: (respond in unison) sss.

Teacher: Children, say the word *spine*.

Children: (respond in unison) *spine*.

Teacher: Tap out the sounds in *spine* (s-p-i-ne).

Teacher: What letter do we need to add to make the long /i/ sound in *spine*? Show me your Phoneme Fingers (s-p-i-ne).

Children: (respond in unison) add an /e/.

Teacher: Let's check the spelling (a slide appears with the word *spine*).

Teacher: Children say the word *pine*.

Children: (respond in unison) *pine*.

Teacher: Tap out the sounds on your Phoneme Fingers (p-i-n-e).

Students: Tap out p-i-n-e.

Teacher: What sound did we need to take away to make *pine*?

Children: sss.

Teacher: Let's check (a slide appears with the word *pine*).

Teacher: Children say the word *pin*.

Children: (respond in unison) *pin*.

Teacher: Tap out the sounds with your Phoneme Fingers.

Children: Tap out (p-i-n-e-s).

Teacher: What sound do we need to add to make *pin*?

Children: sss.

Teacher: Show me your fingers and tap out *pin*.

Children: Tap out p-i-n-e-s.

Teacher: Let's check (a slide appears with the word *pin*).

The segment continued in the same manner for each phoneme that was added or changed. The Project nine-week scope and sequence lesson content reflecting taught spelling patterns is provided in Appendix J. (Please note, to assist the teachers, a familiar and visually simple representation of linguistic symbols was used in the scope and sequence. For example, the conventional symbol for digraph /th/ is represented in this case by 'th'.)

Week 1: *fit, flit, fat, flat; tap, trap;*

Week 2: (illustrated above);

Week 3: *eat, heat, unheat; sell, shell, unshell;*

Week 4: *ark, hark, sharp; pay, stray;*

Week 5: *chat, chip; eat, cheat; such, much;*

Week 6: *hook, shook, look, looking; bake, baking;*

Week 7: *say, stay, staying; wish, wished, crashed;*

Week 8: *ray; rail, trail, paint, painted, fainted.*

Phonological awareness: Phoneme awareness and segmentation: Phonemes (speech sounds) are fundamental in learning to speak, spell and read. Moats (2010) defines phonemes as “the basic building blocks of words, the smallest units that make one word different from another” (p. 26). Three oral strategies were used to isolate, verbalise and count the number of phonemes in a word.

- **Hoop Stepping:** A set of six hoops was provided for students to step into each hoop as they verbalised the phonemes in a word. The teacher put out

a row of hoops in front of the class who were seated on the mat. After the teacher modelled what to do, a student was then randomly selected to step out and verbalise each phoneme in a separate hoop in a given word. For example, the word *heating* has five phonemes, h-ea-t-i-ng, so five hoops were used.

- **Phoneme Fingers:** The teacher and students used their hands to touch and tap out each phoneme in a word. For example, in the word *peach*, one finger was touched to tap the sound /p/, one to represent the single sound of digraph /ea/ and one for the digraph /ch/ (3 sounds). Teaching letter (grapheme) sound (phoneme) relationships is a vital part of learning the English spelling system and to support reading and writing development (Henry, 2010; Joshi et al., 2008; Moats, 2010).
- **Kung Fu:** The teacher said a word, for example, *frayed*, and placed both hands together as if praying, bowed and then repeated the word. Both teacher and students punched f-r-ay-ed with alternative arms then said *frayed* again.

These three oral exercises engaged the students, fostering their awareness of the phonemes that make up spoken words.

Phonics spelling: Developing student phonic knowledge and skills enables them to see the relationship between the sounds of speech and apply the written letters that represent those sounds. “Researchers have estimated that the spellings of nearly 50% of English words are predictable based on sound-letter correspondences that can be taught” (Joshi et al., 2008, p. 8). Phonics spelling was applied utilising the following three strategies.

- **Phoneme Fingers:** The teacher and students also used their fingers for phonics spelling to tap out each sound in a word and apply a taught spelling rule. After tapping out the phonemes, as explained in the phonemic awareness strategy, students then spelled the word on their mini-whiteboard, thus employing and reinforcing the spelling rule.
- **Hoop Stepping:** Students also used the Hoop Stepping strategy to first step out and verbalising the phonemes in a word before spelling it on their mini-whiteboard.

- **Words in the Air:** The teacher and students pretended to put the word in the air by holding their hand above their head. They then verbalised and ‘pulled down each sound’ (e.g. h-ea-t-i-ng, five sounds) before the students wrote the word on their mini-whiteboards.

The following strategies addressed students’ developing knowledge of spelling tricky words.

Spelling commonly occurring irregular words: Tricky Words: Whilst regular words have a consistent phoneme and grapheme relationship, irregular words usually contain “only one irregular grapheme-phoneme connection” (Kilpatrick, 2015, p. 105). To avoid confusion these were called Tricky Words in The Project. They were presented using the following strategies.

- Part phonics decoding plus a mnemonic was used. For example, the word *friend* was taught by saying “I am your friend to the *end*”. The students sounded out the /f/ and /r/ then added /i/ plus *end*.
- A whole word visual memorising strategy for specific spelling patterns was also used. For example, the words *should*, *could* and *would* were taught by the teacher saying the word with the student, then the letter names three times. Students looked at the word again, exercised visual memory, then wrote it. This approach is seen as an important strategy for learning to spell irregular words (Westwood, 2014).

The following strategies provided students with activities in which to verbalise spelling mistakes.

- **Policeman’s Hat:** This student activity was a strategy that assessed a student’s ability to apply and demonstrate their understanding of a spelling rule or a Tricky Word. Two spellings of the same word, one correct and one spelled incorrectly, were put on a slide. A randomly selected student donned the hat, nominated the incorrect word, stated why it was incorrect or did not follow the ‘rule’ and sent it to jail. For example, the word *piling* and *pileing* (rule: drop the /e/ before adding *-ing*); the word *could* and *cood*, *should* and *shood* (Tricky Words: visual memory).

Table 13. *The Editor's Desk: Sentence editing Weeks 1-9*

Week: Lesson	Sentence editing	Correct sentence
1: 3	ther is the fat lizard with a fril. It likes the moz in the gardn	There is the fat lizard with a frill. It likes the moss in the garden.
2:2	thes snails and frog in the garden lov the rain Birds' wing shin in the sun	These snails and frogs in the garden love the rain. Birds' wings shine in the sun.
2:4	Thes quail are cute they hav just lay egg inside the garden sed	These quails are cute. They have just laid eggs, inside the garden shed.
3:2	we udo each box the behives were in. the bee wil luv thm	We undo each box the beehives were in. The bees will love them!
4:4	pat of the grden is umad mrk works with dad and thay ley steps	Part of the garden is unmade. Mark works with dad and they lay steps.
5:2	Cum see what we hav dun on the farm. Goin fushng is so mach fun	Come, see what we have done on the farm! Going fishing is so much fun.
6:2	We wer rideing by th broke then the wind shok the tres hart	We were riding by the brook. Then the wind shook the trees hard.
7:2	In maye we give haye for foot there is no good grass to eet	In May we give hay for food. There is no good grass to eat.
8:2	similling frogs eet along the creec thay are hoping for an isect mele	Smiling frogs eat along the creek. They are hoping for an insect meal.
9:4	Lock at the bul rushes swaing in the wind the qeen bees allways cum here	Look at the bull rushes swaying in the wind! The queen bees always come here.

The Editor's Desk: Reviewed and introduced concepts were strategically integrated in editing tasks throughout the Project. Two Editor's Desks tasks described below presented students with opportunities to identify and edit mistakes in: a) sentence editing; and b) Word Sorts. The suite of sentence editing tasks is provided in Table 13 and Word Sorts in Table 14.

Sentence editing: Twice weekly, the students and teacher took on the role of an editorial team and focused on editing taught spelling and incidental punctuation errors found in sentences. The first segment provided students with guided practice to learn and consolidate newly acquired and previously learned concepts. This was applied through a scaffolded teacher and student 'think aloud' editing task. It preceded the student independent segment of writing the sentences correctly. An example from Lesson 3 in Week 1 that illustrates the 'think aloud' questioning technique in the teachers' scripted guide and editing process follows.

Incorrect sentence displayed for editing task: *ther is the fat lizard with a fril. It likes the moz in the gardn*

Teacher: We are going to read the sentences and find the mistakes. What are we going to do?

Students: Read the sentences and find the mistakes.

Teacher reads the passage. Students listen.

Teacher ‘Thinks aloud’: Sentences start with a capital letter. Does my first sentence have a capital letter?

Students: No. Change it to a capital letter.

Teacher points to the word ‘ther’, asking students: What do you need to do?

Students pair-share and discuss: Add /e/ to the end.

Teacher points to the word ‘fril’: This is another error. Whisper to your partner what is wrong with word. What’s the rule? Teacher provides the Doubling Four Rule: when a short vowel is followed by /f/, /l/, /s/ or /z/ at the end of a one syllable word, then double that consonant. The teacher then asks students if *frill* has one syllable, a short vowel and ends with f, l, s, z?

Students: Yes, so we add another /l/.

Teacher points to ‘liks’: Whisper to your partner what is wrong with the word. What’s the rule? A long vowel sound spelled with one letter needs an /e/ at the end of a word to make the vowel in the middle say its long sound. The /e/ remains silent.

Students: Put an /e/ after the /k/.

Teacher points to the word ‘moz’: Whisper to your partner what is wrong with this word. Listen, the word is *moss*. What do we need to do?

Students: Change the /z/ to /ss/.

Teacher: Here is another error, ‘*gardn*’. Let’s clap the syllables, gar-den. There are two syllables in gar-den. What’s the rule?

Students pair-share with partner: Every syllable has a vowel or a vowel sound. We add an /e/ to the second syllable to make *garden*.

Table 14. *The Editor’s Desk: Word Sorts Weeks 4-9*

Week: Lesson	Task: Help The Editor to:	Words
4:2	Syllable sorting: Help The Editor sort these words into one, two and three syllable words.	pins, unable, teapot, uncut, arm, unwell
5:4	Adding morpheme <i>-ing</i> to base words with and without bossy ‘e’, ending: Help The Editor spell then sort these words into the correct spelling column.	dream, wait, save, cool, like, spell + <i>-ing</i>
6:4	Adding morpheme <i>-ed</i> to base words: Help The Editor sort these words into the correct spelling column.	like, clean, save, hook, bake + <i>-ed</i>
7:2	Syllable sorting of words with morpheme <i>re-</i> , <i>un-</i> , <i>-ing</i> and <i>-ed</i> . Help The Editor sort these words into one and two syllable words.	react, sprayed, speaking, buzzing, wood, undo
8:4	Syllable sorting of words with <i>-ed</i> and <i>-ing</i> endings: Help The Editor sort these words into one and two syllable words.	waited, faded, cooked, singing, leaked, dressed.
9:4	Word building from base word <i>roll</i> : Help The Editor choose the correct word (rolling, unroll, rolls, rolled) to fill in the blanks in each of these sentences.	<ul style="list-style-type: none"> • We enjoy _____ down the hill. • Jack will _____ his sleeping bag tonight. • Emma likes _____ with salad. • Yesterday we _____ the dice and played the game.

Teacher: Tell your partner what is missing from the end of the sentence.

Students: There must be a full stop at the end of the sentence.

The teacher then wrote the correct version on the whiteboard and the students read the two sentences before being erased. Students were given a printed sheet with the incorrect sentence to edit and write out correctly. The weekly content reflecting The Editor's Desk sentence editing is provided in Table 13.

Word Sorts: In a second editing approach, teachers provided the same 'think aloud' guided instruction for students to practise sorting words into syllables, or building words by adding morpheme *-ing* and morpheme *-ed* to base words. The weekly content reflecting Word Sorts is provided in Table 14.

The guided editing tasks were followed by student independent sentence dictation. An explanation of the dictation procedure is provided in the next section.

Dictation

Dictation has been recommended by some researchers past and present as a beneficial tool to practise taught word spelling in connected text (Allal, 1997; Berninger, 1999; Berninger et al., 2000; Berninger & Richards, 2002; Chiang, 2004; Davis & Rinvolduceri, 1988; Oakley & Fellowes, 2016; UK Government Department of Education, 2014). Berninger (1999) suggests its value is underestimated as a strategy for students to practise taught word spelling in connected text, foster automaticity and generalise in student self-composition (Berninger et al., 2000). At the planning meeting, the Year 2 intervention teachers in The Project indicated that they were familiar with sentence dictation. One provided weekly sentence dictation practice in her spelling lessons. She would compose a sentence containing a target word from the weekly spelling list. The second teacher reported her students struggled with memorising more than two words simultaneously. They lacked fluid, automatic transcription skills, resulting in a laboured single word dictation activity. This teacher did not have a specific spelling lesson block, but did occasional sentence dictation within a meaningful context when the need arose. She stated her students experienced the same transcription difficulties.

Daily sentence dictation was advocated as a strategy in The Project to practise and assess reviewed and taught word level spelling. This was the independent student

practice component in which students utilised their listening, phonemic awareness and spelling skills to apply: a) revised and taught word spelling components; b) introduced morpheme components; and c) reinforce punctuation and transcriptions skills. In each lesson, teachers dictated one or two sentences of meaningful prose that provided a scaffold for students to apply their hand-written word spelling. Free from the demands of composing, the student could concentrate on producing the correct word spelling and developing this skill to automaticity (Berninger, 1999; Berninger et al., 2000).

The topic of *Insects* provided the focus for the dictated poetic prose in each lesson. Poetry was chosen for the following reasons

- a) it is a stimulating and motivating genre, enabling students to explore language devices such as rhythmic sound and word patterns used in poetry (prosody) (ACARA, 2015a); and
- b) it provided scaffolded, integrated practice in the taught spelling concepts through meaningful prose related to the current topic of study.

The teachers and the Researcher collaborated to select five picture story books to read to the students during the term and many of the word level spelling choices in each lesson reflected the topic. This situated the student guided editing tasks and the independent dictations into a meaningful context. The books were presented in the following order.

1. *Islands in my garden* (Howes & Harvey, 1998).
2. *The ant army* (James & Sofilas, 1997).
3. *The very busy spider* (Carle, 2011).
4. *Fuzzy Doodle* (Szymanik & Bixley, 2016).
5. *Poppy's gift* (Kuchling, 2006).

Five poems were composed, one around each book. The poems comprised examples of word spelling that reflected the reviewed and introduced concepts and sentence punctuation conventions (capital letters and full stops) that had been applied during guided practice in preceding Editor's Desk tasks. The teachers dictated one or two sentences of the current poem to the students daily in a quiet and settled atmosphere. The poems increased in difficulty, reflecting the learning progression in The Project nine-week scope and sequence (see Appendix J). The

following four poems provide examples of the progression from Weeks 1-2, Weeks 3-4, Weeks 5-6, and Weeks 7-9. The complete set of five poems is provided in Appendix K.

The first poem entitled *The garden*, was based around the book *Islands in my garden* (Howes & Harvey, 1998). It contained examples of words reviewed and words taught in Weeks 1-2 and was the simplest of the five poems.

The garden

A bee will buzz yet a frog will hop.
And the bugs like fun up in the sun.
Snakes and moths like to sit and look at the bees that love to flit.
Snails have no pain in the rain.
And lay a fresh (straight) trail in this fine bed chain.

A dictated sentence strategy that the Researcher called Sentence Memory was utilised. Each day two short sentences, or one longer sentence was dictated. Before each dictation, teachers informed the students they were going to use Sentence Memory, that is, hear a sentence of the poem to keep in their mind. Optimum delivery “relies heavily on teacher guidance, especially by think aloud modelling of the reasoning to be carried out when transcribing dictation and when re-reading the dictated text” (Allal, 1997, p. 142). It proceeded in the following manner.

- Asking students to listen carefully, keeping it in their mind and remembering basic sentence structure (capital letters and full stops), the teacher dictated the first sentence from the poem at the pace of usual speech.
- The teacher read the sentence a second time.
- The sentence was then read phrase by phrase. For example, the students transcribed ‘*a bee will buzz*’ then the teacher read ‘*yet a frog will hop*’ and the students finalised the transcription.
- The sentence and poem so far was read aloud by the whole class before one or two students read it independently.
- This component took approximately five minutes depending on the length of the sentence and the poem.

The words dictated to the children were controlled and included revised closed syllable short vowel words, vowel-consonant-e words, revised letter combinations /zz/, /ai/ and the introduced Doubling Four Rule and word building with

morphemes -s. Reviews of previously introduced and new content comprised the majority of words in the sentence. For this poem, the content comprised a ratio of 6:21 introduced to reviewed word content and a ratio of 6:10 introduced to high frequency word content (see Table 15).

Table 15. Content introduced and reviewed Weeks 1-2: The Garden

Content introduced	Content reviewed (cumulative)	High frequency (Regular and Irregular words)	Ratio of introduced to reviewed content	Ratio of introduced to high frequency content
bugs, snakes, bees, moths, snails, straight*	bee, will, buzz yet, frog, hop, fun, sun, like, sit, flit, pain, rain, lay, fresh, fine, bed, trail, chain, this, fresh	a, and, the, up, in, to, look, love, have, no		
6	21	10	6:21	6:10
*challenge word for above average spellers				

- Content reviewed
 - common high frequency words (and, up, in, look, no) and common irregular words (a, the, have, love);
 - cvc, ccvc, ccvcc words reviewed (yet, sun, frog, flit, fresh);
 - split vowel digraph or bossy 'e' words (fine, snake); and
 - digraph /ai/ (pain, rain, trail, snails, chain); challenge for above average spellers (straight).
- Content introduced
 - Doubling Four Rule: when a short vowel is followed by /f/, /l/, /s/ or /z/ at the end of a one syllable word, then double that consonant (buzz, will); and
 - morpheme -s to form the plural (bugs, moths, snakes, snails, bees).

The second poem, entitled *Ants* was based around the book *The ant army* (James & Sofilas, 1997). It contained examples of words reviewed and taught in Weeks 3 and 4 and content from previous weeks.

Ants

I say are not these ants unreal!
 What will ants do to get a meal?
 Up a stem and onto a leaf
 They go to get a fresh, fat peach.
 Then we see them on the run
 These ants they do have so much fun!
 Up on a jar and a fresh teacup
 And a box of buns yet to eat up.
 Undo the lid and what do we see?

Teams of ants in the ant army!

The poem comprised reviewed words with digraph letter combinations /ea/, /sh/ and /ar/, the introduced digraphs spelling rules, and morpheme content, prefix *un-*. The content comprised a ratio of 2:26 introduced to cumulative reviewed word content and a ratio of 2:24 introduced to cumulative high frequency word content (see Table 16). To illustrate, the content introduced in previous lessons now formed part of the content reviewed, and is shown in **bold italics** in this and subsequent tables. Common irregular words are shown in italics.

- Content reviewed
 - common high frequency words (I, say, are, not, do, to, up, onto, go, we, see, so, on, a, and, of, in); and common irregular words (they, have, what, the);
 - cvc, ccvc, ccvcc words (get, fat, run, fun, yet, lid, box; stem, then, them; fresh);
 - Doubling Four Rule word (will);
 - consonant digraphs /sh/ (fresh) and /ch/ (much);
 - morpheme -s for the plural (ants, buns);
 - split vowel digraph or bossy e words (these);
 - digraph /ea/ (meal, real, leaf, peach, teacup, eat); and
 - vowel r /ar/ (jar, army).

Table 16. Content introduced and reviewed Weeks 3-4: Ants

Content introduced	Content reviewed (cumulative)*	High frequency* (Regular and Irregular words)	Ratio of introduced to reviewed content	Ratio of introduced to high frequency content
unreal, undo	these, <i>ants</i> , will, get (2), stem, they, fresh (2), fat, then, them, run, much, fun, box, <i>buns</i> , yet, lid, meal, real, leaf, peach, teacup, eat, <i>teams</i> , jar, army	I, say, are, not, what, do, <i>to, up</i> , onto, <i>they</i> , go, we (2), see, <i>have</i> (2), so, on, <i>a</i> , and, of, <i>what</i> , <i>the, in</i>		
2	26	24	2:26	2:24
*Content reviewed is cumulative: content that was <i>introduced</i> in previous lessons is shown in bold italics				

- Content introduced
 - rules: long digraph /ea/ goes at the beginning or in the middle of a word (aim, peach); vowel r digraph /ar/ at the beginning or in the middle of a word mostly makes the long /ar/ sound (ark, star); and

- morpheme *un-* means not or opposite (unreal).

The third poem, entitled *The farm spider*, was based around the book *The very busy spider* (Carle, 2011). It contained examples of words reviewed and taught in Weeks 5 and 6 and content from previous weeks. Introduced content comprised digraph spelling rules and word building with morpheme content, adding *-ing* to base words ending in /e/.

The farm spider

Pigs are grunting.
Bees are buzzing.
Frogs are leaping.
But the spider is not speaking.

Bugs buzz and the fly flits.
Insects chat and eat bit by bit.
But the spider she will spin and sit.

The frog rests on a leaf in the sun.
Then the hen comes home to her farm shed run.
The cat looks sharp and the farm dog barks
But the spider, she ... is EATING!

The content comprised a ratio of 5:30 introduced to cumulative reviewed word content and a ratio of 5:14 of introduced to cumulative high frequency word content (see Table 17).

- Content reviewed
 - common high frequency words (but, is, not, and, by, on, a, in, then, to, her); and common irregular words (are, a, the, comes);
 - cvc words (bit, sit, sun, hen, run, cat), morpheme -s with cvc (pigs, bugs), ccvc (frogs), cvvc (bees) words;
 - vvc, cvccc, ccvc, words reviewed (eat; rests; chat, frog, spin, flit);
 - two syllables (spider, insects);
 - long vowel digraph /ea/ (leaf) and vowel r digraph /ar/ (farm, sharp, barks); consonant digraph /ch/ (chat); consonant digraph /sh/ (shed, fresh);
 - split vowel digraph or bossy e words (home); and
 - Doubling Four Rule (will).
- Content introduced
 - rules: unvoiced digraph /ch/ that makes the sound of a steam train (chat); short digraph /oo/ (look); and

- morpheme *-ing* an action or process, including double /zz/, and /ea/ digraph (grunting, buzzing, leaping, speaking, eating).

Table 17. *Content introduced and reviewed Weeks 5-6: The farm spider*

Content introduced	Content reviewed (cumulative)*	High frequency* (Regular and Irregular words)	Ratio of introduced to reviewed content	Ratio of introduced to high frequency content
grunting, buzzing, leaping, speaking, eating	farm, pigs, bees, frogs, bugs, spider (2), buzz, fly, flits, insects, chat, eat, bit, will, spin, sit, rests, leaf, sun, hen, home, farm, she, run, cat, sharp, dog, barks, chat, looks	are, but, the, is, not, and, by, on, a, in, then, comes, to, her		
5	30	14	5:30	5:14
*Content reviewed is cumulative: content that was <i>introduced</i> in previous lessons is shown bold italics .				

The final poem, entitled *Oswin sings*, was based around the book *Poppy's gift* (Kuchling, 2006). It contained examples of words reviewed and taught in Week 7 and 8, including discrimination between /ai/ and /ay/. Spelling rule for /ai/ and /ay/ and word building with separate syllable morpheme *-ed* was introduced. The poem was finalised in Week 9 in which all previous skills development content was consolidated.

Oswin sings

Oswin started singing his tune
 After it had rained in the dunes.
 Each insect loved this time of day
 When the hills were dressed in fine sun rays.
 Each leaf was cleaned from the rain.
 Each bud was a shade of red.
 And the insects always waited
 Until his fine tune had faded.
 Before they went to bed.

The content comprised a ratio of 7:23 introduced to cumulative reviewed word content and a ratio of 7:16 introduced to cumulative high frequency word content (see Table 18).

Table 18. Content introduced and reviewed Weeks 7-8: Oswin sings

Content introduced	Content reviewed (cumulative)*	High frequency* High frequency (Regular and Irregular words)	Ratio of introduced to reviewed content	Ratio of introduced to high frequency content
started, singing, rained, loved, dressed, waited, faded	Oswin, tune, dunes, each, insect, this, time, day, hills, were, fine, sun, rays, leaf, rain, bud, shade, red, insects, always, until, they, bed	his, after , it, had, in (2), the (2) , of, when, were, was (2), from, and, his, before, they, went		
7	23	16	7:23	7:16
* Content reviewed is cumulative: content that was <i>introduced</i> in previous lessons is shown in bold italics .				

- Content reviewed
 - common high frequency words (his, after, it, had, in, the, of, when, were, the, in, from, and, his, before, they, went); common irregular words (after, the, were, was, before, they);
 - cvc (sun, bud, red, bed);
 - two syllables (Oswin, insects);
 - long vowel digraph /ay/ (rays); /ai/ (rain); /ea/ (each, leaf); consonant digraph /sh/ (fresh);
 - split vowel digraph or bossy e words (tune, fine, shade); with morpheme -s (dunes);
 - Doubling Four Rule with morpheme -s (hills); and
 - tricky words (were, was, always, until).
- Content introduced
 - rule: long digraph /ai/ goes at the beginning or in the middle of a word and long digraph /ay/ at the end of a word (waited, rays); and
 - morpheme *-ing* an action or process (singing); morpheme *-ed* with /ai/ and double /ss/ (rained, dressed); *-ed* separate syllable with /ar/, /ai/ and split vowel digraph (started, waited, faded).

Decisions about the content of The Project were determined by *The NSW English K-6 Syllabus* (Board of Studies NSW, 2012a) content and work from key spelling researchers who are listed in Section 4.5.1. Given the focus of task analysis, incorporating teaching the precursor skills first was applied to the order of the instruction. Activities designed to teach and review spelling knowledge were developed after collaboration with staff who selected the theme. Activities included the use of Explicit Instruction (EI), a fully guided approach. An explanation

of the broader principles underpinning the effective teaching model, of which EI parallels, now follows.

4.5.5 The weekly lesson sequence

An important step in EI is reviewing previously taught concepts to activate prior learning and identify any gaps that require re-teaching. To optimise student word

Table 19. Overview of the weekly language skills development strategies and teaching activities: Concepts to review and concepts to introduce

Concepts	Weekly skills development strategies and teaching activities
Concepts to review	<ul style="list-style-type: none"> • Syllable counting: Students identified syllables in one, two and three syllable words. • Alphabet: Letter sounds were reviewed. • Long and short vowels: Students identified long and short vowel sounds in words. • Tricky words: Students used mnemonics and visual strategies to spell tricky words using a personal mini-whiteboard. • Phonemic awareness: Students orally segmented words into the sounds (phonemes). • Phonics and phonics spelling: Students used their mini-whiteboard to write the word, relating the sounds of the spoken word to the letters and spelling representing the sounds in the given word. • Review of spelling word structure and specific digraphs: Students learned a spelling rule, segmented given words and applied phonetic spelling to write the given words on their mini-whiteboard.
Concepts to introduce	<ul style="list-style-type: none"> • Word building with morphemes: Students learned the definition of a morpheme affix and the meaning of the current morpheme being taught. They orally put the word in a sentence, segmented the given words and counted the syllables. • Phonemic awareness: Students used onset and rime, oral segmentation of a given word, and counting syllables in the word containing the taught morpheme. • Phonics and phonics spelling: Students used their mini-whiteboard to write the word containing the taught morpheme, relating the sounds of the spoken word to the letters and spelling representing the sounds in the given word. • Rules: A rule was taught for each reviewed digraph and introduced morpheme affix. • The Editor's Desk: Students and teachers employed 'think alouds' to problem-solve mistakes in sentences containing spelling, punctuation and grammatical errors. Students then wrote the sentences independently into their <i>Spelling Detective Workbook</i>. • Dictation: Students independently applied their new spelling knowledge into contextualised connected sentences that the teacher dictated in the form of poetic prose, drawing on taught spelling. Students wrote the dictated sentences into their <i>Spelling Detective Workbook</i>.

level spelling outcomes and their knowledge about the role of morphemes in the English language, the weekly lesson sequence comprised *concepts to review* (for example, long and short vowel sounds and specified digraphs) and *concepts to*

introduce (for example, spelling rules, specified morphemes, a variety of editing tasks and poetic contextualised sentence dictation). An overview is presented in Table 19.

Providing well-scaffolded daily repetition and practice in the skills being taught in both guided and independent tasks underpinned this developmental process. The content demands of the weekly learning progression developed over the duration of The Project. The nine-week lesson sequence in Appendix J provides details of content in each lesson for the daily review, new material and skills development, guided practice and student independent practice. An overview of the weekly word spelling concepts is presented in Table 20.

Table 20. Overview of weekly word spelling: Reviewed and introduced concepts

Week	Reviewed concepts, rules	Introduced concepts, rules	Week	Reviewed concepts, rules	Introduced concepts, rules
1	Digraph /th/, /sh/, Doubling Four	-	6	Digraph /oo/	Morpheme <i>-ed</i> , /t/ and /d/ sound
2	Bossy e Digraph /ai/	Morpheme <i>-s</i>	7	Digraph /ay/	Morpheme <i>re-</i>
3	Digraph /ea/	Morpheme <i>un-</i>	8	Discrimination /ai/ and /ay/	Morpheme <i>-ed</i> (separate syllable)
4	Vowel r /ar/, /ark/	Morpheme <i>-ing</i> to base word without change	9	Review and consolidation of all taught concepts	
5	Digraph /ch/	Morpheme <i>-ing</i> drop /e/ before adding <i>-ing</i>	10	Assessments	

Importantly, the teacher always modelled once what students were required to do then led with the student. For example, when syllabifying, the teacher stepped out words or said the sound in words as was required by the students. No more than three children were chosen to have a turn on their own for independent practice in each task. The following activities in Weeks 4 and 8 and number of repetitions in each lesson relating to the word level spelling (comprising phonological awareness, phonics and Tricky Words) content in the lesson sequence are explained in detail.



Week 4

Phonological awareness: Each lesson commenced with identifying syllables in words, utilising either the Robot Walk or Syllables Drum activity. Phonemic awareness and segmentation included adding the morpheme affix *-ing* to

previously taught base words as illustrated in Table 21. Onset and rime was practised once a week.

Table 21. *Phonological awareness: Skills development strategies and activities related to the total number of repetitions each lesson: Week 4*

Lesson	Syllables (Clap the syllables then Robot Walk)		Phonemic awareness and segmentation (Phoneme Fingers, Kung Fu or Hoop Stepping)		Onset and Rime (Word building: adding a sound to change the word)
	Robot Walking words	Drum	Oral base word: clap the syllabus in each word	Oral added morpheme <i>-ing</i> . Put in a sentence	
1*		<i>lollipop</i> then student choice (x 5)	<i>car, far, bar, tar, ark</i> (x 5) Kung Fu: <i>arm, bar, park, army</i> (x 4)	Phoneme Fingers: <i>filling, buzzing</i> (x 2)	
2		<i>Insect</i> then student choice (x 2)	Phoneme Fingers then Hoop Stepping: <i>bark, dark, park, Mark, shark</i> (x 5)	Phoneme Fingers: <i>painting, eating</i> (x 2)	
3	<i>robot, tiger, pupil, insect, scorpion</i> (x 5)			Clap the Syllables: <i>cleaning, sailing</i> (x 2)	<i>ark, hark, sharp; pay, stray</i> (x 5)
4	<i>ants, baby, beautiful, macadamia, bananas</i> (x 5)		Kung Fu: <i>chart, spark, spar, scar</i> (x 4)	Clap the Syllables: <i>lifting, filling, eating, speaking</i> (x 4)	

Phonics skills: Identifying short and long vowel sounds and isolating the vowel in a given word that matched a picture on the slide was practised daily by bobbing down for short vowels or stretching tall for long vowel sounds, for example, *drone* . Ten randomly selected consonants were also reviewed (see Table 22). A picture relating to each of the three words containing the target consonant digraph was presented, for example *brush* . The word was spelled orally before the students recited in unison “/sh/ as in brush”.


Students practised phonics word spelling daily using either Phoneme Fingers, Hoop Stepping or Words in the Air to isolate each sound before spelling the word on their mini-whiteboards. A definition of the morpheme *-ing* was provided before being added to previously reviewed base words (word building) and then repeated using the same strategies, for example *smelling* .

Table 22. *Phonics skills: Skills development strategies and activities related to the total number of repetitions each lesson: Week 4*

Lesson	Alphabet (long and short vowels, vowel and consonant digraphs, doubling 4)		Phonics: Word spelling (Phoneme Fingers, Words in the Air or Hoop Stepping)		
	Vowels: Short, bob down; Long, stand tall; Vowel digraphs: chant	Consonants, consonant digraphs, bossy 'e'	Long vowel digraphs (rule introduced in lesson 1)	Adding morpheme -ing to reviewed base words	Definition and rule
1 *	ī, ā, ě, ē, ō 5; /ai/ <i>pail, tail, afraid</i> (x 3); /ea/ <i>leaf, eat, beach</i> (x 3); doubling 4 <i>cuff, spill, grass, buzz, bull, skull</i> (x 6)	/th/ <i>think, thin, path</i> (x 3); /sh/ <i>ship, brush, shop</i> (x 3)	/ar/ at the beginning or in the middle of a word mostly makes the long <i>ar</i> sound. Digraph /ar/ Words in the Air: <i>art, jar, star, cart, farm</i> (x 5).	Phoneme Fingers and Hoop Stepping: <i>yelling, fishing, dressing, smelling: twisting, drifting*</i> (x 6)	Morpheme <i>-ing</i> is an action or process. It has two sounds /i/ and /ng/. Just add <i>-ing</i> to base word with vowel digraph and final consonant
2	Vowels: ĭ, ē, ä, ě; (x 4)	Random selection of consonants (x 10)	Digraph /ark/ Phoneme Fingers: <i>ark, bark, dark, Mark, shark</i> (x 5)	Word in the Air: digraphs /ai/ and /ea/ <i>waiting, mailing, speaking, leaping</i> (x 4)	As above
3	Which vowel sound, long or short? <i>krill, crumbs, flute, blade, drone</i> (x 5)	Bossy e: <i>robe, rope, vote; ride, stripe, dice; blue, tube, glue; date, cake, quake</i> (x 12)	Hoop Stepping: <i>harp, part, smart; target, charming*</i> (x 5)	Words in the Air: <i>leading speaking, paining, hailing: cheating, claiming*</i> (x 6)	As above
4	Which vowel sound, long or short? <i>stride, pip, doze, eve, blob</i> (x 5)		Doubling 4 rule, digraph /ea/ + <i>-ing</i> : Hoop Stepping: <i>lifting, filling, eating, speaking</i> (x 4)	Incorporated into <i>lifting, filling, eating, speaking</i> (x 4)	As above
*challenge words					

Tricky Words: These comprised irregular and high frequency words and were rehearsed daily (see Table 23). Either a visual strategy accompanied by a rule where applicable or a mnemonic was used. Guided practice of previously taught concepts was applied using the Policeman’s Hat strategy twice weekly and word cloze (fill in the missing word in a sentence) once.

Table 23. *Tricky words and rules: Skills development strategies and activities related to the total number of repetitions each lesson: Week 4*

Lesson	Irregular words and high frequency words		Guided practice strategies	
	Visual strategy (Look at the word, say the word with me then letter name x 3)	Mnemonic or rule	Policeman's Hat and rule	Fill in the gaps
1	<i>come, some very,</i> Spell each word; (x 4)			
2	<i>do, does: go, goes</i> (x 4) <i>was, wash, want</i> (x 3)	An /a/ after a /w/ usually says the sort /o/ (<i>was,</i> <i>wash, want</i>)		
3	<i>have, love, give, said</i> Fill in the sentence gaps (x 4) (see Fill in the gaps)		<i>teme, team; very, fery;</i> <i>dark, darc; shark, sark;</i> <i>unwel, unwell; unable,</i> <i>unabl</i> (x 5)	I l - - - the garden. We - - - - bees there. "Please - - - - me some honey" - - - - Mark.
4			<i>eet, eat; these, thes;</i> <i>want, wont; was, was;</i> <i>frend, friend</i> (x 5)	

Week 8

As illustrated below, words increased in difficulty as the sequence progressed.

Table 24. *Phonological awareness: Skills development strategies and activities related to the total number of repetitions each lesson: Week 8*

Lesson	Syllables (Clap the syllables then Robot Walk)		Phonemic awareness and segmentation (Phoneme Fingers, Kung Fu or Hoop Stepping)		Onset and Rime (Word building: adding a sound to change the word)
	Robot Walking words	Drum	Oral base word: clap the syllabus in each word	Oral add morpheme -ing or -ed and put in a sentence	
1		<i>buses</i> <i>then student</i> <i>choice</i> (x 5)	Phoneme Fingers tap out sounds: <i>heated, painted, grunted, wanted</i> (x 4)	Phoneme Fingers: <i>filling, buzzing</i> (x 2) Phoneme Fingers: <i>heated, grunted</i> (x 2)	
2		<i>grasses</i> <i>then student</i> <i>choice</i> (x 5)	Phoneme Fingers tap out sounds: <i>play, tails, rays, crays, mail, grain</i> (x 6)		
3	<i>Australia,</i> <i>kangaroo,</i> <i>emu, echidna,</i> <i>rosella, brolga</i> (x 6)				<i>ray, rail, trail,</i> <i>paint, painted,</i> <i>fainted</i> (x 6)
4	<i>cricket, stars,</i> <i>microphone,</i> <i>friendship</i> (x 4) Independent student choice (x 5)		Kung Fu: <i>mailed, sailed, claimed, raided</i> (x 4)	Clap the Syllables: <i>raided, braided</i> (x 4)	


Phonological awareness: The same sequence of identifying syllables in words, utilising either the Robot Walk or Syllables Drum activity was followed in Week 8 (see Table 24). Phonemic awareness and segmentation included adding the morpheme affixes *-ing* and *-ed* to previously reviewed base words as illustrated above. An onset and rime sequence utilising previously reviewed digraphs and morpheme affix *-ed* was practised once a week.

Table 25. *Phonics skills: Skills development strategies and activities related to the total number of repetitions each lesson: Week 8*



Lesson	Alphabet (single long and short vowels, consonants)		Phonics: Word spelling (Phoneme Fingers; Words in the Air or Hoop Stepping)		
	Vowels: Short, bob down; Long, stand tall; Vowel digraphs: chant	Consonants, consonant digraphs, bossy 'e'	Long vowel digraphs discrimination (/ai/ and /ay/rule introduced in lesson 1)	Adding morpheme <i>-ing</i> , <i>-ed</i> , <i>un-</i> or <i>re-</i> to reviewed base words	Definition and rule
1*	/oo/ <i>woof, tools, stool</i> ; /ea/ <i>beat, meat, peak</i> ; /ar/ <i>jar, park, barge</i> ; /ai/ <i>frail, saint, quaint</i> (x 12)	/ch/ <i>church, chick, couch</i> ; /sh/ <i>hush, dish, cash</i> ; /th/ <i>moth, cloth, froth</i> (x 9)	/ai/ goes at the beginning or middle of a word; /ay/ goes at the end of a word; spell orally <i>train, play, hay, chain, bay, laid</i> (x 6); spell word from picture <i>rain, tray, x-ray</i> then /ai/ and /ay/; words in sentence dictation: <i>play, rain, today</i> (x 6)	Hoop Stepping: <i>heated, bleated, grunted, wanted, listed, waited</i> (x 6)	Morpheme <i>-ed</i> (past tense) makes 3 sounds, /t/ e.g. <i>crashed</i> , /d/ e.g. <i>dived</i> and /əd/ (a little 'grunt' and /d/) e.g. <i>bleated</i>
2	What sound do these consonants/digraphs make? /r/, /sh/, /z/, /y/, /j/, /k/, /q/, /th/, /h/, /l/, /x/, /ch/, /p/, /v/, /n/, /f/, /g/ (x 17)		Words in the Air: /ai/ and /ea/ <i>aided, painted, fainted, seated, feasted*</i> (x 5)	Hoop Stepping: adding <i>-ing</i> or <i>-ed</i> to bossy e base words: <i>waving, timing; biked, caged</i> (x 4)	For words ending with a bossy e drop the final /e/ before adding <i>-ing</i> or <i>-ed</i>
3	Which vowel sound, long or short? <i>lute, drop, crash, spire, vine</i> (x 5)	Bossy e: <i>robe, rope, vote; ride, stripes, dice; blue, tube, glue; date, cake, quake</i> (x 12)	Words in the Air: /ai/ and /ay/ <i>claim, clay</i> (x 2) Spell word from picture <i>laid, lay, pay, paid</i> (x 4)	Change <i>paid</i> into <i>unpaid</i> ; <i>play</i> into <i>replay</i> (x 2) Hoop Stepping: <i>grating, trading, faded, waded</i> (x 4) Random student to fill in gaps: <i>fainted, beaded, saying, hooking*</i> (x 4)	As above
4	/oo/ <i>foot, hood, look</i> ; /ea/ <i>leaf, eat, beach</i> ; /ar/ <i>dark, dart, shark</i> ; /ai/ <i>pail, tail, afraid</i> (x 12)	/ch/ <i>chase, chat, peach</i> ; /sh/ <i>ship, brush, shop</i> ; /th/ <i>think, thin, path</i> (x 9)	Building words (see next column)	Hoop Stepping: word building 1 and 2 syllables /ai/, <i>-ed</i> and <i>_un-</i> <i>raided, braided; trained, chained, unchained*</i> (x 5)	As above

*challenge words

Phonics skills: Bobbing down or standing tall for long and short vowel sounds continued. Pictures for three examples of words containing the target vowel

digraph were presented, for example, digraph /ai/ in the word *quaint* .

Students spelled the word orally then repeated in unison “/ai/ as in quaint.” Details are provided in Table 25.

Discrimination between /ai/ and /ay/ was rehearsed first by spelling the word orally from a picture cue, for example, *rain*  *x-ray*  before writing it on the mini-whiteboard. This was followed by utilising similar picture cues or the Words in the Air strategy to isolate each sound before writing the correct spelling.








The three sounds of morpheme *-ed* (/t/, /d/ and separate syllable *-ed*) had previously been defined prior to students adding it to reviewed base words. It was practised utilising Hoop Stepping. Random students were selected to fill in the gaps on the teacher’s whiteboard before independent writing, for example, *chained*  then *unchained*. The image of a crocodile provided the prompt for *chained* before a student stepped it out in the hoops. When all students had written *chained* they were asked to clap the syllables in *unchained* and the same procedure was repeated.

Table 26. *Tricky words and rules: Skills development strategies and activities related to the total number of repetitions each lesson: Week 8*

Lesson	Tricky words (irregular words and high frequency words)		Guided practice strategies	
	Visual strategy (Look at the word, say the word with me then letter name 3 times)	Mnemonic, rule, gesture	Policeman’s Hat (send the incorrect word to jail and state the rule)	Fill in the gaps
1	<i>are, you, your, our</i> Spell each word (x 4)			A -- y -- going to y --- hive or --- hive? 
2	<i>you, your, are, our</i> Spell each word (x 4)			Y-- get lot of butterflies near ---- pond. Many a -- by --- pond too.
3	Digraph /ay/ words: <i>all, ways, always</i> (x 3)		<i>always, always; trai, tray; our, ovr; rain, rayn; lived, livd</i> (x 5)	There are many w --- home. We a ----- go this ---.
4	Homophones: <i>their, there</i> Spell each word (x 2)	Students use gesture to point to partner for <i>their</i> and outside for <i>there</i> (x 2)	<i>friend, frend; claimed, claymed; rained, rained; happy, hapy; always, always</i> (x 5)	 have a dog. ----- sleeps over    -----.

Tricky words: These were practised daily using a visual strategy often accompanied by gesture. For example, to differentiate between the homophones *their* and *there*, students pointed to their partner (*their*) or outside (*there*). The Policeman's Hat strategy was used twice weekly and word cloze three times (see Table 26). All lessons were fully prepared and presented through a PowerPoint® presentation. A description of the slide presentation content is provided in the following section.

4.5.6 PowerPoint® slides and additional teacher materials

The fully prepared slides and semi-scripted format equipped the teachers with a learning progression, delivery consistency (Hollingsworth & Ybarra, 2009, 2018; Moats, 2010; Rosenshine, 2012) and important formative student assessment. To cater for the needs of individual students, the words were presented in three levels of approximately 30% easy, 40% at grade level and 30% harder examples. Word spelling always progressed from simpler to more difficult examples. To illustrate, Week 3 addressed the digraph long vowel digraph /ea/ (*eat, heat, peach, bleak*) and introduced morphemic content *un-* (*unclean, unseal, unheat, unable, unblock*). In Week 5 students practised cumulative digraph concepts, combining consonant /ch/, with vowel digraphs /ai/, /ea/ and vowel r /ar/ (*chair, arch, bench, chest, teach, chunk*) with the harder content containing morpheme *-ing* (*teaching, chunking*). Spelling tasks relating to one syllable base words featured less as The Project progressed and more difficult two and three syllable content of attaching prefix and suffix morpheme content to a word was added. For example, tasks in Week 7 featured word building with morphemes *re-*, *-ing* and *-ed* (*reusing, regaining, reflecting, remembered*). A busy bee icon identified challenge words for the above average spellers .

Where more than one picture appeared on the slide, each picture-related task was completed before the next picture was displayed. At the request of the teachers, a *delete prompt* that deleted the script relating to each task was included to eliminate the possibility of students reading the script. Importantly, before students undertook any spelling task, it was preceded by the teacher demonstrating the routine involved. The routine incorporated movement into many of the activities to keep the young students active and alert, for example, bobbing up and down in the Vowel Game, Robot Walking, Hoop Stepping, Kung Fu

phoneme segmentation and pulling down the Word in the Air. Students always wrote word spelling on their mini-whiteboards which was shown to the teacher on the command of “3-2-1 chin it.” This facilitated consistent checking for understanding (CFU). The following selection of slides from Week 2 through to Week 8 illustrate the purpose of each skills development task and student practice in each task.

Syllables, Week 2 Lesson 1


<p>Daily Review - Syllables</p>  <p>Teacher says: Syllables are beads in a word. Everyone say this with me. "Syllables are beads in a word." Watch me. There are the syllables in stink-bug. Clap it with me stink-bug. Everyone do it with me. Now repeat back with me. Repeat it 2 Choose a child to do it on their own.</p>	<p>The purpose of this task was to orally segment words, count the number of syllables and isolate the vowel in each syllable. Students repeated in unison “every syllable has a vowel or vowel sound.” This assists students with spelling pattern recognition. Pictures, e.g. <i>stinkbug</i>, based on the theme <i>Insects</i>, integrated the science topic for the term. Syllable counting increased in difficulty throughout.</p> <p>Students practised syllabifying five words using the same instructional language. The teacher demonstrated before students practised by clapping syllables then stepping out the words at least twice. Three students were chosen to do this independently. Students moved around the room as they syllabified different words.</p>
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Figure 11. Robot Walking, Week 2 Lesson 1.

Long and Short Vowel Game, Week 4 lesson 3

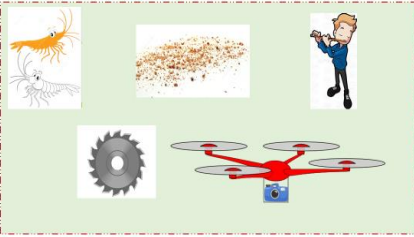
<p>Which vowel sound?</p>  <p>Teacher: When I say the word bob down?? It's a short vowel or that's not?? It's a long vowel. The words in (see lesson sequence). Repeat for each word. Tap out the sounds with your phoneme fingers. (kiss, crumbs, flute, blade, drone).</p>	<p>The purpose of this task was for students to isolate and discriminate between short and long vowel sounds, e.g. <i>krill</i>, <i>crumbs</i>, <i>flute</i>, <i>blade</i>, <i>drone</i>. Isolating vowel sounds poses difficulties for many students, so vowels were introduced at random, avoiding the familiar vowel alphabet pattern.</p> <p>Initially only vowel sounds without pictures were introduced. From Week 3 the more difficult task of isolating the sound in a word was initiated. Students practised listening to the word and isolating the vowel, bobbing down for the short vowel sound and stretching up tall for the long vowel sound.</p>
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Figure 12. Long and Short Vowel Game, Week 4 Lesson 3.

Tricky Words, Week 7 Lesson 4

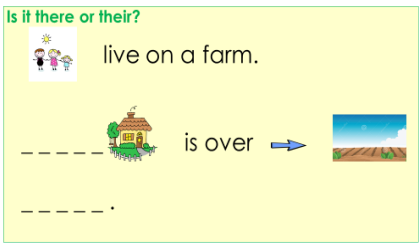
 <p>Is it there or their? live on a farm.</p> <p>is over →</p> <p>Teacher say the words. Then partner that pointed up the house. Look at the words. Write: 3, 2, 1, chop it. Teacher say the words. Then partner that pointed to the house. Write: 3, 2, 1, chop it.</p>	<p>The purpose of this task was to provide students with a purposeful spelling strategy for the different spellings of homophones <i>their</i> and <i>there</i>.</p> <p>Students practised spelling the homophones using part mnemonic and part visual techniques. The teacher and students said the sentence “their house is over there” and pointed to their partner when saying <i>their</i> and outside when saying <i>there</i>. They then looked at the word, spelled it in unison and wrote it on their mini-whiteboards for teachers to CFU.</p>
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Figure 16. Tricky Words, Week 7 Lesson 4.

Rules and mnemonic, Week 2 Lesson 2

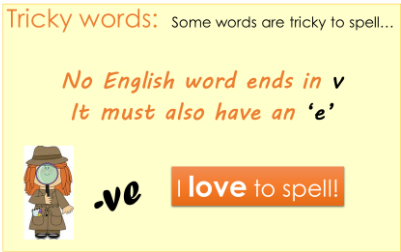
 <p>Tricky words: Some words are tricky to spell...</p> <p>No English word ends in v It must also have an 'e'</p> <p>-ve I love to spell!</p> <p>Teacher say this little rhyming poem with me. "No English word ends in v. It must also have an 'e'!"</p>	<p>The purpose of this task was to teach students an orthographic spelling rule to reinforce the correct spelling of words ending in /v/, in this instance give, have and love.</p> <p>The teacher and students said a poem “No English word ends in /v/, it must also have an /e/” saying the verse 3 times. The teacher then asked students to say each word before writing it, for example, <i>love</i>. The /u/ sound is written with an /o/, l-o-v+e. Students wrote <i>love</i> on their mini-whiteboard for the teacher to CFU.</p>
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Figure 17. Rule ³ and mnemonic, Week 2 Lesson 2.

Rule for digraph /ai/, Week 2 Lesson 3

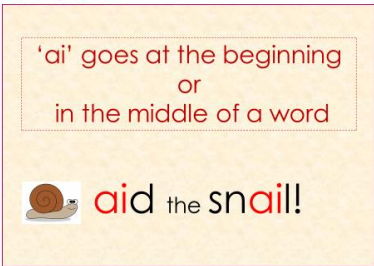
 <p>Daily Review: Digraph 'ai'</p> <p>'ai' goes at the beginning OR in the middle of a word</p> <p>aid the snail!</p>	<p>The purpose of this task was to define and explain a digraph (<i>di</i> means two and <i>graph</i> means letter) and that /ai/ is called a vowel digraph. This was followed by the rule that /ai/ goes at the beginning or in the middle of a word such as <i>aid</i> and <i>snail</i>.</p> <p>Students repeated the rule verbally and read the words <i>aid</i>, <i>paid</i>, <i>tail</i>, <i>mail</i>, <i>fail</i>, <i>wail</i> before applying five Kung Fu oral phonemic awareness tasks, followed by six Hoop Stepping phonics written tasks.</p>
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Figure 18. Rule and digraph /ai/, Week 2 Lesson 3.

³ In early written English, there were many straight lines in spelling words using letters such as V, W, TH, M and N. It is theorised that the monks (who were scribes) decided to change the /u/ to an /o/ in words such as *love*, *wonder* and *month*. They thought it would be easier for people to read if /u/ was replaced with /o/ in these cases and for example, the grapheme /uv/ became /ov/ (Winter, 2014). Today this is known as The Lazy Monk Rule. However, with the Year 2 students in this study, it was it was pragmatic to teach it as above.

Phonics spelling, Phoneme Fingers and syllables clapping. Adding morpheme *re-*, *-ing* and *-ed* to base words, Week 7 Lesson 3




<p style="text-align: center;">Building two and three syllable words with morphemes 're-' '-ing' and '-ed'</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p>Teacher: The word is rearm. Show me your phoneme fingers. Say the sound etc. Write the word. 3, 2, 1 claps!</p> <p>Teacher: This girl is reflecting.</p> <p>Teacher: His words is remembered.</p>	<p>The purpose of this task was to provide practice in building a two syllable word using /ar/ and <i>re-</i> (<i>rearm</i>) for the less able spellers. The more able spellers built challenge words by adding morphemes <i>re-</i>, <i>-ing</i> and <i>-ed</i> to make the three syllable words <i>reflecting</i> and <i>remembered</i>.</p>
	<p>Students practised spelling the word <i>rearm</i> words using Phoneme Fingers. The challenge words were first syllabified before the students wrote each syllable on their mini-whiteboards for the teacher to CFU.</p>

Figure 22. Phonics spelling, Phoneme Fingers. Adding morpheme *re-*, *-ing* and *-ed* to base words, Week 7 Lesson 3.

The Editor's Desk sentence editing, Week 6 Lesson 2









<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>The Editor's Desk</p> <p><i>One capital letters One full stop Seven spelling errors</i></p> </div> </div> <p style="text-align: center;"><i>We wer rideing by th broke then the wind shok the tres hart</i></p> 	<p>The purpose of this task was for students to collaborate with their partner and identify correct and incorrect spelling in the two sentences. Through scaffolded teacher guidance students then provided the correct rules for the mistakes before independently writing the sentences correctly.</p>
	<p>Students practised editing the sentences through a scaffolded teacher 'think aloud' and student pair-share editing task of revised and taught spelling concepts. They received a sheet with the incorrect sentences to independently edit and paste in their <i>Spelling Detective Book</i>.</p>

Figure 23. The Editor's Desk sentences, Week 6 Lesson 2.

The Editor's Desk Syllables Sort, Week 8 Lesson 4

<p>Write these verbs into the one or two syllable column.</p>			
	<p>waited</p>	<p>One syllable word</p>	<p>Two syllable word</p>
	<p>faded</p>		
	<p>cooked</p>		
	<p>singing</p>		
	<p>leaked</p>		
	<p>dressed</p>		

<p>The purpose of this task was to provide students with 'think aloud' teacher scaffolded guidance before they pair-shared with their partner, saying, then sorting into one and two syllable words. This preceded students writing the word in the correct syllable column.</p>
<p>Students verbalised each word, clapping the syllables in <i>waited</i>, <i>faded</i>, <i>cooked</i>, <i>singing</i>, <i>leaded</i> and <i>dressed</i>. They received the worksheet (pictured) then wrote the words in the correct syllable column and pasted it into their <i>Spelling Detective Book</i>.</p>

Figure 24. The Editor's Desk syllable sort, Week 8 Lesson 4.

Dictation, Week 8 Lesson 4

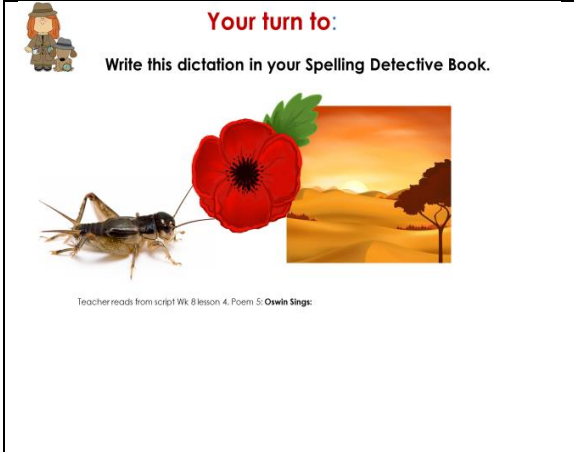
 <p>Your turn to:</p> <p>Write this dictation in your Spelling Detective Book.</p> <p>Teacher reads from script Wk 8 lesson 4. Poem 5: Oswin Sings:</p>	<p>The purpose of this independent student task was for students to use their listening and spelling skills and write two contextualised dictation sentences. The sentences contained words related to revised and taught word spelling components and revised punctuation (in particular capital letters and full stops).</p>
<p>Students practised independently writing the sentences in the form of poetic prose. They held each sentence in memory before writing each in their <i>Spelling Detective Book</i>. This poem, <i>Oswin sings</i> was the final poem in a suite of five.</p>	

Figure 25. Dictation, Oswin sings, Week 8 Lesson 4.

Further to the suite of semi-scripted slides, additional materials that accompanied each lesson were given to the teachers. These are described below.

Additional materials

Each week teachers were provided with laminated spelling and morpheme rules for classroom display as well as prepared work sheets for specific editing tasks. For example, worksheets reflecting The Editor's Desk activities including sentence editing and syllable sorting were supplied to minimise teacher preparation time. Each teacher also received the following high interest props that stimulated student engagement in each phase of the lessons

- a drum for beating out syllables;
- a set of six coloured hoops for stepping out phonemes;
- a policeman's hat that was worn by a student to send the word that did not follow the spelling rule to jail; and
- *The Spelling Detective Project* nine-week scope and sequence in Appendix J.

The pre-prepared semi-scripted lessons also ensured the teachers had a sequence to facilitate a tightly scaffolded, fast-paced lesson delivery. The suite of slides, additional materials and explicit pedagogical strategies also provided the teachers with the tools to constantly check for student understanding and monitor progress. This is described in the following section.

Progress-monitoring assessment

In order to enable teachers to assess students formatively during lessons and summatively, after a period of instruction, a number of program-specific progress-monitoring assessments (Carnine et al., 2006) were incorporated into each lesson of The Project. This enabled the teachers to see if their students were actually learning what was “being taught” (Carnine et al., 2006, p. 240) in the lesson. It provided continuous, systematic, formative assessment to assess student progress and achievement, giving teachers ownership of their students’ learning and included features that promote mastery learning (Hattie, 2009). For example, formatively, as per the EI approach to teaching, material was presented in small steps, with “high levels of teacher feedback that is both frequent and specific” including “the regular correction of mistakes students make” (Hattie, 2009, p. 170). Progress was monitored through the use of the following strategies

- the setting of appropriate, but challenging ‘we are learning to’ (WALT) goals;
- activating prior knowledge;
- continuous use of TAPPLE (Hollingsworth & Ybarra, 2009) steps to check for understanding;
- students providing the teacher with feedback on a correct spelling and the related rule;
- teacher and student cooperation through ‘think alouds’ and pair-share tasks;
- editing tasks; and
- contextualised sentence dictations.

The consistent use of student mini-whiteboards enabled teachers to see how each student was progressing in the learning goal and provided them with instant corrective feedback.

Summative assessments comprised connected sentence dictations in poetic prose. The dictations measured students’ ability to transfer taught spelling concepts to a writing task that was free from composing (Berninger, 1999; Berninger et al., 2000). This also provided evaluation on the effectiveness of the lesson. In a synthesis of meta-analysis on achievement, Hattie (2009) states that:

interventions are not “change for change’s sake” as not all interventions are successful. The major message is for teachers to pay attention to the formative effects of their teaching, as it is these attributes of seeking formative evaluation of the effects (intended and unintended) of their programs that makes for excellence in teaching. (Hattie, 2009, p. 181)

To provide the teachers with the knowledge and strategies required to optimise “active and guided instruction” (Hattie, 2009, p. 249) in the intervention, a professional development day was set aside. Details of the session are provided in the next section.

4.6 Teacher professional development

A full day professional development session was attended by the two Year 2 intervention teachers and the Learning Support Teacher (LST). The Principal and the Assistant Principal also attended the morning session where the principles of EI, the PowerPoint® lesson sequence and daily content were explained. The aim of the session was to explain the structure, content and delivery components of The Project. Therefore, it was important to develop the teachers’ knowledge about: a) current curriculum requirements; b) subject specific word level spelling; and c) pedagogical methods that best support effective teaching, learning and motivation for children of all ability levels. The session contained the following content.

Curriculum content: The Stage 1 and 2 spelling outcomes in *The NSW English K-6 Syllabus* (Board of Studies NSW, 2012a) and the related graphological, phonological and morphological scope and sequence content that were reflected in The Project was explored.

Subject specific content: Literature that provided definitions of, and a teaching sequence for, components of effective spelling instruction was examined.

Pedagogical content: The research-based principles of explicit instruction (EI) including delivering the EI spelling, editing and dictation components were examined and practised. The importance of fidelity and validity to The Project was discussed.

The session began with a short PowerPoint® presentation that provided an overview from a synthesis of over 800 meta-analyses of teaching and learning approaches (Hattie, 2009) that best support student achievement and influence outcomes. It was explained that Hattie had developed a way of ranking these

various influences according to their effect, which he called d . His analysis showed that across a range of teaching methods, the average value of d was 0.04. If 0.04 is the average, anything above 0.04 is better and anything below 0.04 is less effective. The barometer of teacher influence on student outcomes presented in Figure 26 was discussed. In particular the analysis revealing that “active and guided instruction is much more effective than unguided facilitative instruction” (Hattie, 2009, p. 243) and that overall, the effect size for the average activator teacher was $d = 0.60$ compared to the average facilitator teacher which was $d = 0.17$.

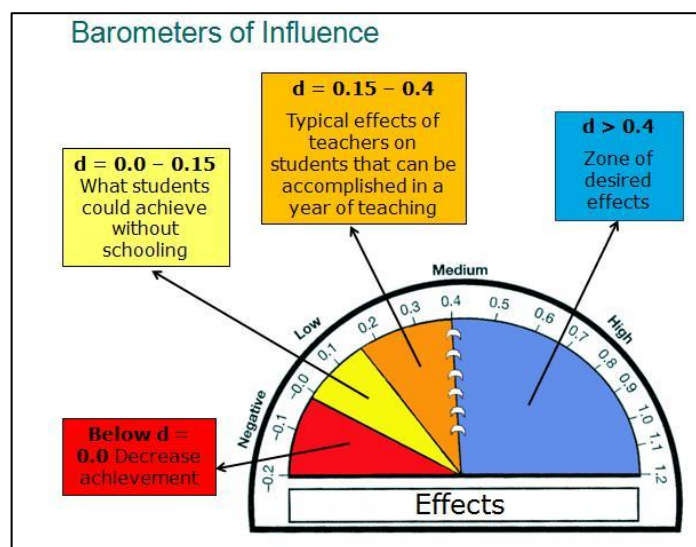


Figure 26. Hattie’s barometer of teacher influence on student outcomes (Hattie, 2009).

As the teaching and learning pedagogy underpinning The Project comprised principles that utilise highly active and fully guided teacher instruction (Rosenshine, 2012), high student involvement, motivation and empowerment (Hattie, 2009), these were explained to participants. Staff attending were informed that the aim of The Project was to commit the learned spelling skills to students’ long-term memory through the use of explicit instruction (EI) techniques. During the presentation, staff were encouraged to ask questions and provide input as to their perceptions on the influence of active instruction and facilitative instruction on student outcomes.

The NSW English: K-10 Syllabus

The Project spelling content utilised spelling requirements from *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a). The syllabus spelling content to be covered in The Project was highlighted with a yellow marker pen in the copy

provided for the teachers to include in their program of work. The spelling outcomes *skills* content in the scope and sequence from the Overview of phonological and graphological processing skills K-6 (Board of Studies NSW, 2012b) copy were also highlighted.

Components of effective spelling instruction

Each participant received Chapter 6 “Beginning Readers. Time for the Anglo-Saxon layer of language” from Henry (2000, pp. 87-144) that contained content about “common Anglo-Saxon letter-sound correspondences, important irregular words, common syllable patterns, and Anglo-Saxon morphemes (base words, compound words, prefixes, and suffixes)” (p. 87). The chapter provided teacher friendly explanations and information on the word spelling component in the teaching sequence that begins with building on what the child already knows about the alphabet, corresponding sounds, common patterns and related spelling rules. The following content reflected the phonological, graphological and morphemic spelling elements addressed in The Project

- consonants (in particular auditory discrimination);
- vowels (long and short vowel sounds and discrimination);
- spelling rules (in particular, silent *e* rule, Doubling Four Rule, adding suffixes to Anglo-Saxon base words);
- irregular words (visual memory strategies and letter name spellings);
- syllables (clapping the number of syllables in a word); and
- morphemes (the smallest unit of meaning in language including base words, suffixes and prefixes).

Each of these six elements was discussed and examples provided. To illustrate, in the following example, the Researcher used the word *cat* as a base word (a free morpheme). To make the plural, the morpheme suffix *-s* (a bound morpheme) was added. It was explained that a free morpheme makes sense on its own and cannot be broken down any further. The bound morpheme does not make sense on its own and is attached to the base word to change the meaning from *cat* to *cats*.

Next, The Editor’s Desk component in which the teacher provides guided ‘think aloud’ instructions and the students pair-share their responses to edit an incorrect sentence was explained. The benefits this task offers, for example, maximising

engagement and involvement of all students, enabling checking for understanding and providing formative feedback, was clarified.

The rationale for the dictation component in the student independent practice component of The Project was presented. The five poems the Researcher had composed were based around the picture story books that had been collaboratively selected to complement the science unit for the term on *Insects*. The work of Berninger et al. (2000) suggesting that contextualised sentence dictation is an undervalued and underutilised but effective tool for practising spelling to enhance the likelihood of it becoming generalised in self-composition was cited. Dictation also enhances student listening, spelling and writing skills and provides a foundation on which assess and evaluate taught word level spelling.

Explicit instruction demonstration lesson

It was explained that an explicit instruction (EI) procedure called ‘I do, we do, you’ (Wheldall et al., 2014) had been built into the teaching sequence. This means in each lesson a procedure is followed whereby the teacher first models the task, then provides “guided practice with informative feedback, and finally independent practice” (Wheldall et al., 2014, Issue 39).

The Researcher then presented one fast-paced EI demonstration lesson from the content of lessons they would be teaching during the first week of The Project. The EI lesson elements comprising: a) the daily review; b) WALT and WILF learning objectives; c) activating prior knowledge; d) explicit presentation of new material and skills development; e) student guided practice; f) student independent practice; and g) the final review were explained prior to and during the semi-scripted PowerPoint® demonstration lesson. The teachers were asked to actively participate in the student activities during the lesson. For example, during student guided practice they utilised Robot Walking in the syllables component, Phoneme Fingers in the phonemic awareness component and Hoop Stepping in the phonics component. We then discussed the importance of the specific engagement norms of EI and linked this to the 10 research-based principles of instruction and suggestions for classroom practice (Rosenshine, 2012). This included

- review of previous learning each lesson;
- new material presented in small steps;

- fast-paced delivery;
- the use of mini-whiteboards to provide instant formative assessment;
- the use of choral responding, specific teacher corrective feedback;
- scaffolded, guided instruction before independent work; and
- the use of praise to ensure focus, participation and avoid undesired behaviours.

Being mindful of the challenge of preparing explicit instruction lessons, staff were assured that they would be provided with all lessons in a semi-scripted PowerPoint® form and a nine-week daily lesson sequence. Resources required for lessons including worksheets, a policeman's hat, hoops, a drum, pop sticks and container, and a portable whiteboard would also be supplied to each teacher. The use of clear pronunciation by teachers and students to facilitate word spelling development was stressed. At the end of the demonstration lesson the importance of applying fidelity to the guidelines modelled, practised and discussed with the teachers was explained.

Assurance of fidelity and validity of the project

It was explained to the staff that they would be asked to complete a fidelity check list along with the Researcher on alternative weeks respectively. This would verify that the spelling, editing and dictation components were being taught in the manner demonstrated and discussed in collaboration. A copy of the check list is provided in Appendix D.

The Researcher offered extensive support throughout the intervention and committed to being available to collaborate with teachers who required assistance with any aspect of The Project. The following documentation was presented to each teacher for them to utilise and further upskill their curriculum, subject and pedagogical knowledge and optimise student learning

- *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) Stage 1 and 2 outcomes for spelling with highlighted content to be covered during the project and the syllabus phonological and graphological processing skills content (Board of Studies NSW, 2012b) connected to the spelling outcomes content with highlighted skills that would be targeted;

- a framework for the Explicit Instruction lessons in *The Spelling Detective Project*;
- a nine-week lesson sequence for The Project;
- Chapter 6 “Beginning Readers. Time for the Anglo-Saxon layer of language” from *Unlocking Literacy: Effective decoding and spelling instruction* (Henry, 2010, pp. 87-144);
- the article “Principles of Instruction: Research-based strategies that all teachers should know” (Rosenshine, 2012);
- laminated spelling rules display posters; and
- the Fidelity Protocol Checklist.

The data gathering and analysing process is described in the following chapter.

Chapter 5 Data collection and analysis

The quantitative components of the sequential mixed-methods data were analysed using SPSS and various statistical techniques to report overall results and to identify any significant differences. Analysis of the quantitative data from the scored tests and an inter-rater reliability check were conducted before further parametric analysis (Tashakkori & Teddlie, 2003) (See Chapter 3, Conceptual Framework). For all analyses, an alpha level of .05 ($p < .05$) was used and effect sizes were calculated and expressed as Cohen's *d*. The following sections describe the processes involved in collecting and analysing data and expands on the above introduction.

5.1 Data collection

Data were collected in three of the five main phases. An explanation of each of the five phases is provided.

Phase one

The two Year 2 teachers, the learning support teacher (LST), the Principal and Assistant Principal in the intervention school all received a day of professional development on explicit instruction (See Chapter 4, Developing *The Spelling Detective Project* for details).

Phase two

This was a data collection phase and involved both teacher and student assessments. Teachers from the intervention and comparison primary schools who had provided informed consent were given a multiple choice teacher knowledge survey at a convenient time arranged between the Researcher, the Principal, and the teachers. An adapted questionnaire on word level spelling phonological, morphological and orthographic aspects (adapted from (Mahar & Richdale, 2008)), and morpheme knowledge (based on (Moats, 1994)) was used. Data collected in this phase were directly relevant to **Research Question 1a and b**. Before conducting the survey, the structure of the survey was explained to the participants as was their right to not complete it, should they feel uncomfortable to do so.

Means and standard deviations from the teacher knowledge survey were calculated and possible differences between the intervention and comparison

group were analysed using Univariate analysis of variance. Differences between before and after intervention scores were calculated similarly.

This was followed by an individual, open-ended question interview with the Year 2 teachers, the Learning Support Teacher (LST) and the Acting Principal to examine their professional beliefs and classroom practices providing further data to address **Research Question 1**. Interviews were recorded and responses grouped into topics, coded and categorised and then used as findings. The qualitative analysis that followed explored standpoints that would confirm or rebut findings from literature (Creswell, 2014) and triangulated with the quantitative outcomes from the teacher knowledge survey.

Individual students from two Year 2 classes in the intervention school and one Year 2 class in the comparison school, who had returned informed consent, were assessed using the standardised single word spelling Schonell Spelling Test A (Schonell, 1932), a researcher-adapted morphological knowledge spelling assessment (NIFDI, 2016) (both addressing **Research Question 3**) and two specifically adapted dictation passages from decodable readers (B. Dixon, 2013, 2014) which addressed **Research Question 4a**. The assessments took place in the students' own classrooms with their teacher present. Before conducting the assessments, the purpose of each was explained to the students. They were asked to write their name and date on top of the three assessment sheets and were assured that this would be replaced with a number and therefore they would not be identified.

First the Schonell Spelling Test A was given, which took approximately ten minutes. Next, the morphological knowledge spelling assessment was introduced. The Researcher explained to the students that they may find some words difficult to spell and not to worry, but just do they best they could. This component took students approximately five minutes to complete.

It was explained that the format of the next two assessments was short, story-based dictations. The first dictation, *At the sandpit* was read to 'set the scene' and provide background information on the spelling content. The students were told not to worry if they could not spell a word and to 'have a go'. Each sentence was read in full again, followed by reading three to four words at a time, pausing for the

students to have enough time to write. The same procedure was followed for the second dictation sample assessment. After this, students were thanked for their participation and each class was presented with a participation Merit Certificate. Children who were absent during these assessments were assessed in a similar by the Researcher upon their return.

Phase three

The Spelling Detective Project was implemented in the intervention school. In the comparison school instruction occurred as usual during this phase.

Phase four

This was a data collection phase. The two Year 2 class teachers and the LST in the intervention school (the Acting Principal was unavailable during this period) were interviewed again mid-term to see if their views on teaching the phonological and morphological aspects of spelling explicitly had altered (**Research Question 2b**). The interviews were recorded, coded and analysed following the same procedure as interview data gathered in phase two.

Phase five

This was a data collection phase. Post-intervention, all the students in the intervention and comparison groups were retested using the parallel Schonell Spelling Test B (Schonell, 1932), a parallel researcher-adapted morphological spelling assessment (NIFDI, 2016) (**Research Question 3**) and the same two dictation assessments (B. Dixon, 2013, 2014) (**Research Question 4a**).

Nine randomly selected students from both the comparison and intervention schools were asked to participate in a post intervention interview (**Research Question 4b**). A copy of the Informed Consent Form for the students who took part in the interview is in Appendix H. Responses were recorded and analysed as above, using the same methods as in the individual teacher interviews.

All teachers in the intervention and comparison schools completed a parallel (to the pre-intervention version) post-intervention multiple-choice teacher knowledge survey on the phonological, orthographic and morphological components of English (Mahar & Richdale, 2008; Moats, 1994) (**Research Question 2a**). Quantitative

analysis was carried out in the same manner as in phase two to determine any knowledge growth in these aspects of the English spelling system.

The two Year 2 teachers, the LST and Acting Principal in the intervention school were interviewed to determine if there had been any changes in their views on explicitly teaching the phonological and morphological elements of spelling (**Research Questions 2b**) and the extent of the intervention being embraced by the teachers and Acting Principal (**Research Question 5**). Interviews were coded and analysed as in previous phases. A description of how the data from this research was analysed is provided in the next section.

5.2 Data analysis

An independent researcher provided an interrater reliability check of all teacher and student quantitative data. The coding system and peer-debriefing for the qualitative data was checked by the Researcher's supervisors. The collection and analysis process follows.

Teacher knowledge surveys quantitative data

The pre-intervention survey and parallel post-intervention survey comprised two parts. Part A contained 10 multiple choice questions that assessed knowledge of the phonological, orthographic and morphological aspects of English, for example, "How many sounds are in the word *lamb*?" (this was question two and the answer is three sounds). Each correct answer scored one point. Incorrect responses scored zero and missing responses were treated by SPSS as missing data.

Part B assessed teachers' syllable and morpheme knowledge. It contained eight words for the teachers to determine the number of syllables and morphemes in each word. For example, *unbelievable*, contains five syllables and three morphemes.

Quantitative analysis identified strengths and gaps in teacher knowledge. Possible differences in teachers' scores on these tests were analysed using a two-tailed t-test.

Teacher individual interviews qualitative data

The recorded pre-, mid- and post-intervention interviews were transcribed verbatim and responses to questions "clustered into topics, coded then grouped

into related categories and used as major findings” (Creswell, 2014, p. 198). Data were grouped thematically and analysed to establish the relationship between the teachers’ experience with The Project, their opinions on teaching spelling, and their understanding and knowledge of the phonological and morphological structures of the English language. Data were then cross analysed to establish fidelity to the methods and presented in narrative form. Case studies were developed to provide a link to the qualitative and quantitative teacher data and student outcomes (see Chapter 3, Conceptual Framework for details).

Student assessments quantitative data

Single word spelling: Students were provided with lined paper (to facilitate correct placement of upper and lower case letters and sentence order) and a pencil. They were asked to ‘have a go’ if they could not spell a word. A total of 50 words ranging from simple, for example, *net* and *see* to the more complex, *fare* and *headache* were given. At the request of the LST, two students of below average spelling ability were given 20 words by the Researcher in a quiet setting so as not to overtax them in a whole class situation. Each word was dictated, first individually and then put into a sentence to contextualise. One point was awarded for each correctly spelled word. The Schonell Spelling Tests A and B (Schonell, 1932) are in Appendix E.

Morphemes: The Researcher-adapted morpheme knowledge spelling assessment (NIFDI, 2016) comprised 10 words that were dictated and scored in the same manner as single word spelling. Morphemes assessed were *un-*, *re-*, *dis-*, *-ing*, *-ly*, *-ed*, *-ful*, for example, *unfit*, *dismay*, *likely*, and *grateful*. The assessment is located in Appendix F. The two below average spelling ability students were not asked to complete this assessment.

Use of Univariate analysis

Inferential statistical testing was applied to the data using a Univariate procedure and a two-tailed t-test for the pre- and post-data in the statistical software SPSS. Where there was a chance of multiple comparisons being made on the same data, Univariate tests were used. Univariate analysis is an ANOVA procedure. One-way ANOVAS has a single independent variable (IV which is categorical/nominal) having two or more levels, and a single, metric (DV, interval or ratio strength scale)

dependent variable. One-way MANOVA has a single IV and two or more metric DVs. Note that in the thesis any inequality in variances was adjusted for, and covariates as well, making this the appropriate test. MANOVA could have also been used but this is a dense thesis so the decision was made to test outcome variables one by one, hence Univariate analysis.

Therefore, where there were large differences between schools or classes in pre-test results, a Univariate analysis was conducted to determine the overall potential for significance. Statistical significance was interpreted using an alpha level of .05 and effect size expressed as Cohen's *d* (see Chapter 6, Results).

Dictation assessments: The two dictation assessments were delivered both pre- and post-intervention. At no time during the research were the students taught the dictations and the teachers involved had no access to these assessments. The dictations delivered during the intervention were in poetic prose that related to the *Insects* theme of study and bore no resemblance to either of the pre- and post-narrative dictation assessments. The scoring system comprised the following criteria.

- All spelling and dictation assessments were scored by hand.
- For punctuation, full stops or an exclamation mark where appropriate to the meaning of the sentence, was scored correct.
- Inappropriate use of an apostrophe was deemed to be incorrect spelling since the meaning of the word is changed.
- Differentiation between upper and lower case letters for people's names and for the start of a sentence were scored as follows.
 - A capital at the beginning of a sentence was awarded one point, for example, the names *Pip* and *Len*.
 - *Pip* was awarded two points; one point for the capital P and one point for correct word spelling.
 - *PiP* was awarded one point; zero for the capital (there is no differentiation between an upper and lower case P) and one for correct word spelling.
 - *pip* was awarded one point; zero for no capital and one point for correct word spelling.

- A full stop at the end of each sentence was awarded one point.
- Either an exclamation mark or a full stop after the word *Wow* or at the end of the final sentence in dictation two was awarded one point as in the following example.
 - “*Wow (!)* in a flash she sprang up the lemon tree” (!) or (.).
- The use of an apostrophe resulted in a zero score for the word spelling as there were no words requiring an apostrophe in the dictations.

Students in class CPS1A had no set seating arrangements and the number of traditional desks was limited. They wrote in a free area of their choice. For example, some students wrote standing up, or sitting on the floor using a beanbag-bottom lap-desk. The patterned writing surface on such a work surface can leave an imprint under the student’s writing, resulting in faint or distorted work. Where this occurred the students’ pre- and post-assessments were compared for clarity.

An independent researcher provided an interrater reliability check of dictation scores. Before commencing, a marking trial was conducted using a random selection of four papers for a trial data analysis by discussion. Thereafter, 20% of assessments using the formula from a random number generator site to select pre- and post-assessments was carried out. An interrater reliability score for all pre- and post-assessments resulted in a 98.9% agreement (calculated using the formula $\frac{\text{agreements}}{\text{agreements} + \text{disagreements}} \times 100$) with disagreements resolved by discussion. A high interrater reliability score was anticipated and achieved owing to the stringent scoring system criteria above.

Student interviews qualitative data

These data were coded and analysed in the same manner as for the teachers. Results of the analyses are reported in the next chapter.

Chapter 6 Results

This chapter presents both quantitative and qualitative results of the research. The sequential mixed methods data gathering approach provided a framework for analysing both quantitative results (teacher knowledge surveys and student assessments) and qualitative results (individual teacher and student interviews) to be reported. It enabled the findings from data to be integrated, which facilitated the generation of explanations from the analysis of the quantitative data. Integration provided convergent validity to the research and also provided triangulation (Teddlie & Tashakkori, 2009).

First, data relating to the validity and reliability of the implementation of The Project are provided. Second, results of teacher statistical and thematic analysis are presented, followed by analysis of student data which is presented in the same manner as the teacher data. Each is reported in research question order. All participating teachers and students in both the intervention and comparison schools were allocated a pseudonym.

6.1 Fidelity of implementation data

Teachers were observed in their classrooms whilst delivering lessons as an implementation check. Teachers in both classes in the intervention school and the Researcher completed a fidelity protocol checklist on alternate weeks. Lessons were observed from the back of the classroom and data recorded by hand by the Researcher. Examples of Researcher completed checklists are in Appendix D. Table 27 summarises fidelity data collected by the Researcher for both Year 2 teachers over the duration of The Project. Where lessons were missed (the CPS1A class teacher was absent on three occasions, and the CPS1B teacher on one occasion) the Researcher was assured they had been rescheduled and all lessons in The Project were taught. Please note that the Researcher's observations did not always coincide with those of the teachers.

Table 27. Summary of data from the Researcher fidelity observations

Components	Intervention class CPS1A	Intervention class CPS1B
Four lessons (40 mins each) were undertaken each week.		
Spelling	✓	✓
Editor's Desk (ED)	✓	✓
Dictation	✓	✓
Each component lasts approximately 10 minutes to 15 minutes without ED component.		
Spelling	✓	✓
Editor's Desk (ED)	✓	✓
Dictation	✓	✓
Each component introduced to whole class: children are focused and actively listening.		
Spelling	Children usually unsettled	Children sometimes unsettled
Editor's Desk (ED)	Children usually unsettled	Children sometimes unsettled
Dictation	Children usually unsettled	Children sometimes unsettled
The script and lesson content in each component is adhered to each week as per the prepared presentation.		
Spelling	Script not adhered to; content followed	Script mostly adhered to; content followed
Editor's Desk (ED)	Explanation of spelling rule requiring editing unclear	✓
Dictation	Children usually unsettled; content followed	✓
Immediate student feedback in spelling component is provided.		
Spelling	Sometimes	Mostly
Spelling charts displayed, clear speech modelled and misspelt words discussed with students.		
Spelling	Few charts displayed	✓
Editor's Desk (ED)	Misspelt words sometimes discussed	Mostly
Dictation	Time not allocated for discussion	Time sometimes allocated for discussion
	Articulation often unclear	Articulation usually clear

6.2 Research Question 1: a) Which phonological and morphological aspects of English spelling did all teaching staff in two rural NSW primary schools demonstrate? and b) What were the current views and approaches to teaching spelling, specifically in Year 2?

6.2.1 Teacher pre-intervention quantitative results

Research question 1a focused on the phonological and morphological components of English that previous research has shown teachers need to know in order to teach spelling explicitly (Henry, 2010; Joshi et al., 2008; Moats, 2010; Westwood, 2018). Twenty-one teachers from the intervention school completed the parallel

pre- and post-intervention teacher knowledge surveys (Mahar & Richdale, 2008; Moats, 1994). Ten teachers from the comparison school completed the pre-intervention teacher knowledge survey. Post-intervention, nine teachers completed the teacher knowledge survey and one declined, therefore the data from the pre-intervention survey for that teacher was removed. This left a total of nine teacher results from the comparison school.

In order to measure baseline teacher knowledge of word structure, including phonological and morphological knowledge, pre-intervention knowledge survey results were analysed and allocated a score of one for each correct answer. The mean scores for teachers from each school in the pre-intervention test are shown in Table 28. The total score possible was 10 for word structure, eight for syllables, and eight for morphemes.

Table 28. Mean pre-intervention scores in tests of teacher knowledge of word structure, syllables and morphemes

School	Word structure mean	Word structure SD	Syllables mean	Syllables SD	Morphemes mean	Morphemes SD
CPS1 (CPS1A and CPS1B)	5.05	1.02	7.19	1.21	0.24	0.62
CPS2	5.22	0.97	6.78	1.09	0.44	1.33

Using a two-tailed t-test, no significant difference ($p < .05$) in teacher knowledge between schools was determined: word knowledge ($t(24) = 0.43$; $p = .67$); syllables ($t(24) = -0.88$; $p = .39$); or morphemes ($t(24) = 0.58$; $p = .56$). A two-tailed t-test for equality of means was carried out. There were no significant differences between schools in teacher knowledge of word structure ($p = .67$); syllables ($p = .39$) or morphemes ($p = .56$) on pre-intervention scores. That is, schools could be regarded as equivalent on this measure. To specifically identify which phonological and morphological aspects of spelling teachers in CS1 and CPS 2 had demonstrated before the commencement of the intervention, the scores from each section of the survey were tallied and converted into percentages. Three areas of knowledge were assessed: word structure, syllable and morpheme knowledge. The score points for word structure knowledge are provided in Table 29.

Table 29. *Pre-intervention test scores in teacher knowledge of word structure*

Word structure	% correct by school	
	CPS1	CPS2
Identify short vowel sound	100	100
Define a syllable	48	33
Identify a diphthong	0	11
Identify a voiced consonant digraph	9.5	11
Identify phonemes in a word	71	66
Identify a voiced and unvoiced consonant pair	62	77
Define orthographic awareness	24	44
Identify a schwa	9.5	0
Count syllables in a given word	100	99
Reverse the order of sounds in a given word	81	77

In the intervention school CPS1, all (100%) teachers identified a short vowel sound and the number of syllables in a given word. The majority (81%) reversed sounds in a given word. Few (9.5%) identified a voiced digraph or a schwa, and none (0%) identified a diphthong. In the comparison school CPS2, all (100%) teachers identified a short vowel sound and most (99%) the number of syllables in a given word. Many (77%) identified a voiced and unvoiced consonant pair, whilst none (0%) identified a schwa. The score points for pre-intervention syllable knowledge were tallied and the number of correct responses and related percentages are provided in Table 30.

Table 30. *Pre-intervention test scores in teacher knowledge of syllables*

Syllables score	CPS1 (n = 21)		CPS2 (n = 9)	
	# score	% score	# score	% score
0	-	-	-	-
1	-	-	-	-
2	-	-	-	-
3	1	4.8	-	-
4	-	-	-	-
5	-	-	2	22.2
6	3	14.2	-	-
7	6	28.6	5	55.6
8	11	52.4	2	22.2

In the intervention school CPS1, approximately half the teachers (52.4%) identified each syllable in the eight given words and less than half (42.8%) identified six to seven syllables in the eight given words. In the comparison school CPS2, two

(22.2%) identified each syllable in the eight given words and over half (55.6%) identified each syllable in six to seven of the eight given words.

The score points for pre-intervention morpheme knowledge were tallied and the correct the number of correct responses and related percentages are provided in Table 31.

Table 31. *Pre-intervention test scores in teacher knowledge of morphemes*

Morphemes score	CPS1 (n = 21)		CPS2 (n = 9)	
	# score	% score	# score	% score
0	18	85.7	8	88.9
1	1	4.8	-	-
2	2	9.5	-	-
3	-	-	-	-
4	-	-	1	11.1
5	-	-	-	-
6	-	-	-	-
7	-	-	-	-
8	-	-	-	-

In the intervention school CPS1, from the eight given words none (0%) could identify each morpheme in three to eight of the words. Two (9.5%) identified the morphemes in two words. In the comparison school CPS2, most (88.9%) could not identify each morpheme in the eight given words. One (11.1%) identified the morphemes in four of the given words.

6.2.2 Summary of teacher pre-intervention quantitative results, Research Question 1a

In addressing Research Question 1a, at the beginning of The Project, there were no significant differences between schools CPS1 and CPS2 in teachers' word structure, syllable, or morpheme knowledge. In both schools, there were gaps in their knowledge of essential components of word structure and of morphemes. Of the 10 components comprising word structure knowledge, all teachers in the intervention school and all teachers in the comparison school identified the short vowel sound component in a given word and all but one correctly counted syllables in a given word. Over half the teachers identified the phonemes in a given word, a voiced and unvoiced consonant pair, and could reverse sounds in a given word. Many had limited knowledge on the definition of a syllable. None in one

intervention class could identify a diphthong and none in the comparison class a schwa.

Half the teachers in the intervention school identified each syllable in the eight given words. Fewer than half identified each syllable in six to seven of the eight given words and one identified each syllable in three of the words. In the comparison school, most identified each syllable in seven or all of the eight given words, with some identifying the syllables in five of the given words. There were no teachers in either school who could identify the morphemic components in eight of the given words. Most were unable to identify any of the morphemic components in any of the eight words, with a few identifying the components in one or two words and one identifying the morphemic components in four words.

Research Question 1b: What were the current views and approaches to teaching spelling, specifically in Year 2?

6.2.3 Teacher pre-intervention qualitative results

This section contains the qualitative results from the pre-, mid- and post-intervention individual teacher interviews. All teachers were allocated a pseudonym. Prior to the implementation of The Project, the Year 2 teachers (Robyn and Jan), the Learning Support Teacher (LST) (Ella), and the Acting Principal (Tim) (whose usual position was Assistant Principal and teacher of the multi-age literacy groups) in the intervention school and the two Year 2 teachers (Dana and Helen) in the comparison school were interviewed. The aim of these interviews was to gather pre-intervention data on each teacher's current approaches to teaching spelling, the activities they considered to be most appropriate, the strategies they taught students to use, and the role spelling plays in writing development.

To analyse the qualitative data, responses from the recorded interviews were clustered into topics (*pre-, mid- and post-intervention views on teaching spelling*). The detailed data gathered from the teachers were then categorised into *participants* and *approaches*. Next, issues specific to the interview questions were grouped together and colour coded into related categories (*importance of spelling, teacher approaches, activities, strategies, strategies for students with LD, and views on the role of spelling in writing*). The mid- and post-intervention interviews also enabled the gathering of data that were clustered into *implementation barriers* or *enablers* themes. Peer-debriefing was conducted with the Researcher's supervisors.

The data provided enabled generalisations to be compared with relevant research literature (Creswell, 2014) and the quantitative data. The coding system was reviewed by the Researcher's supervisors. The key to qualitative data colour-coding categories used for the teacher interviews is provided in Appendix N.

Table 32 illustrates the teachers' replies to questions posed on their current knowledge about spelling and the teaching practices each employed. The data provided a baseline against which to measure any changes in knowledge about the phonological and morphological aspects of words and their views on favoured pedagogical approaches.

The following excerpts provide a sample of responses from teachers' statements. The quotes were selected from five categories that illustrated and enabled exploration of the specific issues that linked to the research question and pertinent research literature. The categories comprise teachers' responses to *favoured student activities for spelling development*, *preferred strategies*, *preferred strategies for struggling spellers*, *the role spelling plays in writing development*, and their *understandings of spelling concepts and strategies overtime*.

As recorded in Table 32, five of the six teachers believed spelling to be important, with one stating it was only important in writing. Teachers were then asked about their favoured student activities for spelling development.

Correlate reading and writing. Twenty minutes of reading and writing. Good readers are good spellers. Vocab and word attack skills ... Their phonics with spelling is coming through their reading. Different ways of attacking words. Phonics is coming through on that (Robyn).

Word families, words in context, re-writing words for homework, video clip Geraldine Giraffe for sounds, integrate with writing tasks, integrate with grammar tasks (Jan).

Teaching the meaning of words. It engages the students more. What's it called? (*Researcher supplied the word "etymology"*). Also theme words. You can apply it then and it has meaning. Not chunks of spelling words for the sake of it (Tim).

Word study, looking at words through written language, linking written symbols to sounds. Connect words and concepts and incorporate in written stories (Dana).

Table 32. *Pre-intervention: Individual teachers' views on current approaches to teaching spelling*

	School CPS1				School CPS2		Total
	Robyn	Jan	Tim	Ella	Dana	Helen	
1. Is spelling important?							
Yes	✓	✓		✓	✓	✓	5
No, only in writing			✓				1
2. How do you teach spelling?							
Use program		✓		✓	✓	✓	4
As needed	✓			✓			2
Don't teach spelling			✓				1
3. Which student activities do you favour?							
Teaching phonics in reading	✓					✓	2
Building on child's knowledge	✓						1
Word families, letter sounds		✓			✓	✓	3
Integrating spelling with writing		✓			✓		2
Using syllables and phonemic awareness				✓			1
Teaching etymology			✓				1
Using dictation		✓					1
4. Which strategies do you teach students to use?							
Does it look right?	✓				✓		2
Dictionary usage	✓						1
Independent learning, teacher is the last resort	✓						1
Breaking up words		✓					1
Looking at patterns and or sounds		✓	✓	✓		✓	4
Using syllabification, articulation		✓			✓		2
5. Which strategies do you use for students with spelling difficulties?							
Reading more	✓						1
Paying better attention	✓						1
Focusing on sounds, blending		✓		✓	✓	✓	4
Taking a risk			✓				1
Seeing what looks right					✓		1
6. What role does spelling play in writing development?							
Check before publishing only	✓						1
Very important		✓	✓	✓	✓	✓	5
Facilitates construction of more words		✓			✓	✓	3
7. Has your understanding of spelling concepts and strategies changed overtime?							
No	✓						1
Evolving		✓	✓		✓		3
Now using a more systematic approach				✓	✓	✓	3

There's a series of them after you've introduced blends and sounds of the word. Give them situations e.g. little iPad, blending cards, targeting what you're teaching, not just the phonics strategy (Helen).

Teachers then stated their preferred strategies for students to use when spelling.

Have a Go. Notebooks. I'll look up things on the computer. It's faster than a dictionary so I give the children the same tools. Also visual, does it look right? Have you seen the word somewhere else? Have a go themselves. I'm the last resort. You want independent learners (Robyn).

Looking at words, using them in writing, breaking up the sounds ... using the Have a Go Sheet, articulating correct pronunciation (Jan).

Dictation is a strong way to teach spelling. The most important part of our spelling is to increase vocabulary. I'd rather see students make errors trying to spell words. Sounding out is important. Taking risks Years 1-6. They just spell words that know they can get right (Tim).

Sounding out, look to see if the word looks right, sounding out syllables, making words into chunks (Dana).

Linking. Linking the words to aspects like reading making it meaningful, so it's not just a word. Enrich them with lots of activities like particular letter-sound relationships. Making kids identify the word in sentence when you're reading a story (Helen).

Teachers specified their preferred strategies for struggling spellers.

To sound out a word out. I sometimes think it's not important. They're not actually payin' [sic] attention. One girl is writing *wet* and I asked "Why?" I stopped and said "*w-e-n-t*". They're not paying attention to it, perhaps the way we're speaking they're actually not hearing the sounds. Australians are probably not the best, the way they speak. I'm probably not the best example. We tend to shorten things. They [students] are not do'en [sic] the reading. Those that are good spellers are good readers. Why, because they love reading. They were good readers in kindergarten. My kids that struggle

with writing and spelling, there's not much of that go'en [sic] on at home (Robyn).

"...Look at my mouth, make the sound, where's your tongue, I want to hear /ch/." I should use mirrors ... focussing on voiced and voiceless /th/ (Jan).

The Elkonin boxes ... phonemic awareness from *Sounds Check* spelling book for sounds manipulation. So *cup* change the beginning sound to /h/... They're not good at spelling chunks. And we haven't got onto vowels yet. Blending sounds into real and nonsense words They know each of the sounds, so blending even simple words. That's been the hardest thing (Ella).

Remembering high frequency words ... try to have them remember the order of the letters, 'what looks right.' Just remember ... *what* they put an /o/ in *whot* (Dana).

I talk about the initial sound, then the final sound and any other sounds in the middle, segmenting, syllables (Helen).

Teachers then expressed their views on the role spelling plays in writing development.

When they are writing I need them to focus on writing not spelling. They weren't risk takers. Come out and get their spelling checked. If it's just for me I don't need to edit. If it's for publishing that's when editing comes in (Robyn).

Very important role. Using sounds to approximate writing. Important to decipher own and others' writing (Jan).

It's vital. If you don't know how to spell [a word] you won't use it (Tim).

I can speak from personal experience. I'm a victim of Whole Language and a terrible speller. It restricts everything that I write. If I know somebody else is going to read it I'm very selective about the words I choose (Ella).

I guess very linked to writing ... It ... enables them to construct more words that are correct ...it's a mechanism to transfer their thoughts to paper (Dana).

Huge ... It's related to everything. When children are writing they're spelling (Helen).

Finally, teachers stated if there had been a change in their understanding of spelling concepts over time. Robyn had been teaching for 28 years, Jan for 22 years, Tim for 25 years, Ella for 16 years, Dana for 34 years and Helen for 14 years.

I don't think so. [I've] always concentrated on the strategies even in Years 3 and 4, the phonics, word families, vowels, blends. In kindergarten it was more explicit with single sounds, blends and word building. You need to spend every day reading. You need to spend every day writing. You're not going to learn by osmosis, you need explicit, explicit in that (Robyn).

Evolved over time and still evolving. I'm sure there are other ... better ways. Sometimes I say that's not working (Jan).

Definitely. I have changed my philosophy. In the past, I thought spelling was isolated and I timetabled *Spelling*. I used to use quota words. I sent home words they could spell. That was wasting time. Still feel explicit teaching strategies, rules, theme words are important. Has to be relevant to students. Dictations would have to fit into the classroom focus. I can't say I'm a good teacher of spelling. I do understand now that it must apply to their writing (Tim).

It's much more systematic. Having the phonetic readers really leans to it. We didn't have the resources before to support it. I use the systematic approach as opposed to doing the *at* family. But I'm in isolation. I'm not whole class. I do reading and we do spelling and writing with that context (Ella).

In some ways. It's becoming more important. For some years it was considered enough to expose children to literature, they would absorb written words. Now I think it's more teacher-directed (Dana).

...I had ESL schools. That was a real development and made me realise we had to look at it differently. Overall phonics is part, it's always been a big part of my teaching (Helen).

6.2.4 Summary of teacher pre-intervention qualitative results, Research Question 1b

In summary, there were diverse responses from the teachers interviewed on their current views and approaches to teaching spelling. Most thought spelling itself was important, however one felt it was only important in writing. Many used a program to teach spelling, one taught spelling as required and one did not teach it at all. Preferred student activities were teaching phonics in reading, building on a child's knowledge, teaching word families and letter sounds. Most teachers preferred strategies for students to use were looking at the patterns of sounds in words followed by utilising 'does it look right?' A few favoured students using syllabification strategies whilst one teacher felt students should use a dictionary, with the teacher being a last resort.

For most teachers, focusing on the sounds and blending sounds were the preferred strategies for students experiencing difficulties with spelling. Seeing if it 'looks right', taking a risk, reading more and paying better attention were also encouraged. All but one of the teachers felt spelling played a very important role in writing development with most stating it facilitates the construction of more words. One teacher felt it was not important and only needed checking if the piece was to be published. When asked if their understanding of spelling concepts and strategies had changed over time, most teachers said it was still evolving, stating that they now used a more systematic approach. One teacher said she had not changed her views over time.

Prior to the intervention, the teachers in the intervention school received professional development on the phonological and morphological aspects of words. The next research question explored the growth in teacher word level knowledge including the phonological and morphological aspects of words in classes CPS1A and CPS1B as a result of the professional development day and implementing The Project.

6.3 Research Question 2: Did the teachers in both rural, NSW primary schools develop their phonological and morphological aspects of word level knowledge of the English spelling? and b) What phonological and morphological word level knowledge did teachers demonstrate after professional development?

To answer this research question quantitative data were collected post-intervention from all teachers in the intervention and comparison schools.

6.3.1 Teacher post-intervention quantitative results

The post-intervention knowledge survey results were scored in the same manner as the pre-intervention results and are show in Table 33. Using a two-tailed t-test, no

Table 33. Mean post-intervention scores within schools in tests in teacher knowledge of word structure, syllables and morphemes

School	Word structure mean	Word structure SD	Syllables mean	Syllables SD	Morphemes mean	Morphemes SD
CPS1 (CPS1A and CPS1B)	5.00	1.83	7.90	0.32	2.80	2.44
CPS2	4.85	1.27	7.30	0.92	2.05	2.31

significant difference ($p < .05$) in teacher knowledge between schools was determined in word knowledge ($t(24) = 0.26$; $p = .79$) or morphemes ($t(24) = 0.82$; $p = .42$). For syllables, Levene's test indicated non-equal variances ($F = 13.2$; $p = .00$). There was a significant difference between schools CPS1 and CPS2. CPS1 performed significantly better ($p < .05$) than CPS2 on morpheme knowledge ($t(24) = 2.61$; $p = .01$). The change in mean pre- to post intervention scores within schools are shown in Table 34.

Table 34. Change in mean pre- to post-intervention scores within schools in tests of teacher knowledge of word structure, syllables and morphemes

		School CPS1 (classes CPS1A and CPS1B)		School CPS2 (Class CPS2)	
		Pre-	Post-	Pre-	Post-
Word structure	Mean	5.10	4.85	5.22	4.66
	SD	1.02	1.27	0.97	1.58
Syllables	Mean	7.15	7.30	6.78	7.88
	SD	1.23	0.92	1.09	0.33
Morphemes	Mean	0.25	2.05	0.44	2.33
	SD	0.64	2.31	1.33	2.06

Changes in teacher knowledge mean scores within schools were tested in a two-tailed t-test. In the comparison school CPS2, there was no significant difference ($p < .05$) in mean scores pre- to post-intervention scores for word structure ($t(24) = 1.00$; $p = .35$). There was a significant improvement ($p < .05$) in mean syllable scores ($t(24) = -2.86$; $p = .02$) and morphemes ($t(24) = -3.09$; $p = .01$). In the intervention school CPS1, there was no significant difference ($p < .05$) in mean scores pre- to post-intervention scores for word structure ($t(24) = 0.77$; $p = .45$) or syllables ($t(24) = -0.68$; $p = .50$), but there was a significant improvement ($p < .05$) in mean morpheme scores ($t(24) = -3.64$; $p = .00$).

Changes in teacher knowledge mean scores between schools were tested using a Univariate procedure. There were no significant differences ($p < .05$) between the schools for word knowledge [$F(1,28) = 0.0$; $p = .79$]; syllables [$F(1,28) = 3.93$; $p = .06$] or morphemes [$F(1,28) = 0.68$; $p = .42$].

To identify which phonological and morphological aspects of spelling teachers in CS1 and CPS 2 had post-intervention, the scores from each section of the survey were tallied and converted into percentages. The score points for pre- and post-word structure knowledge are provided in Table 35.

Table 35. Pre- and post-intervention test scores in teacher knowledge of word structure

Questions	% correct by school			
	CPS1		CPS2	
	pre-	post-	pre-	post-
Identify short vowel sound	100	100	100	100
Define a syllable	48	85	33	33
Identify a diphthong	0	9.5	11	44
Identify a voiced consonant digraph	9.5	19	11	11
Identify phonemes in a word	71	62	66	66
Identify a voiced and unvoiced consonant pair	62	14	77	11
Define orthographic awareness	24	28.5	44	22
Identify a schwa	9.5	9.5	0	11
Count syllables in a given word	100	100	99	88
Reverse the order of sounds in a given word	81	71	77	77

In the intervention school CPS1, all teachers identified a short vowel sound and the number of syllables in a given word. There was an increase of knowledge in defining a syllable (48% to 85%), a voiced consonant digraph (9.5% to 19%), a diphthong (0% to 9.5%) and orthographic awareness (24% to 28.5%). There was a decrease in identifying a voiced and unvoiced consonant pair (62% to 14%), and reversing the order of sounds in a given word (81% to 71%).

In the comparison school CPS2, all of the teachers identified a short vowel sound. There was an increase in identifying a diphthong (11% to 44%) and a schwa (0% to 11%) and a decrease in identifying a voiced and unvoiced consonant pair (77% to 11%).

The score points for post-intervention syllable knowledge were tallied. The number of correct responses and related percentages pre- and post- intervention are

Table 36. *Pre- to post-intervention test scores in teacher knowledge of syllables*

Syllables score	CPS1 (n = 21)				CPS2 (n = 9)			
	Pre- # score	Pre- % score	Post- # score	Post- % score	Pre- # score	Pre- % score	Post- # score	Post- % score
0	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-
2	-	-	-	-	2	22.2	-	-
3	1	4.8	-	-	-	-	-	-
4	-	-	-	-	5	55.6	-	-
5	-	-	1	4.8	2	22.2	-	-
6	3	14.2	3	14.3	-	-	-	-
7	6	28.6	5	23.8	-	-	1	11.1
8	11	52.4	12	57.1	2	22.2	8	88.9

provided in Table 36. In the intervention school CPS1, there was a slight increase in the number of teachers who could identify the syllables in all of the eight given words (52.4% to 57.1%). The other half identified syllables in five to seven of the given words. In the comparison school CPS2, there was a large increase in the number of teachers who identified the syllables in all of the eight given words (22.2% to 88.9%): one teacher identified all of the syllables in seven of the words.

The score points for post-intervention morpheme knowledge were tallied. The

Table 37. *Pre- to post-intervention test scores in teacher knowledge of morphemes*

Morphemes score	CPS1 (n = 21)				CPS2 (n = 9)			
	Pre- # score	Pre- % score	Post- # score	Post % score	Pre- # score	Pre- % score	Post- # score	Post- % score
0	18	85.7	9	42.9	8	88.9	3	33.3
1	1	4.8	2	9.5	-	-	1	11.1
2	2	9.5	1	4.8	-	-	-	-
3	-	-	1	4.8	-	-	1	11.1
4	-	-	3	14.3	1	11.1	3	33.3
5	-	-	2	9.5	-	-	-	-
6	-	-	2	9.5	-	-	1	11.1
7	-	-	1	4.8	-	-	-	-
8	-	-	-	-	-	-	-	-

number of correct responses and related percentages pre- and post- intervention are provided in Table 37. There was an increase in the number of teachers in the intervention school who identified the morphemic components in seven to four of the given words (0% to 38.1%). In the comparison school, there was an increase in the number of teachers who identified the morphemic components in either six, four or three of the given words: fewer than half were unable to identify the morphemic components in any of the given words.

6.3.2 Summary of teacher post-intervention quantitative results, Research Question 2a

All teachers in both schools

In summary, to address Research Question 2 post-intervention, overall, the teachers in the intervention school demonstrated a significant increase in morpheme knowledge but not in syllables or word structure. The teachers in the comparison school had no significant change in word structure knowledge, but did in syllables and morphemes.

Four teachers involved in the professional development and The Project

To measure pre- to post-intervention change, data for four teachers (Robyn, Jan, Ella, and Tim) involved in the professional development and The Project in the intervention school were extracted from the overall results. The change in scores pre- to post-intervention for these four teachers is shown below in Table 38.

Table 38. Scores of four teachers pre- and post-professional development: Tests in teacher knowledge of word structure, syllables and morphemes

School CPS1 Teachers	Word structure/10			Syllables/8			Morphemes/8		
	pre-	post-	change	pre-	post-	change	pre-	post-	change
Jan	4	8	+4 (40%)	8	8	0 (0%)	0	7	+7 (87.5%)
Robyn	5	6	+1 (10%)	8	7	-1 (-12.5%)	0	0	0 (0%)
Ella	6	6	0 (0%)	8	8	0 (0%)	0	0	0 (0%)
Tim	5	3	-2 (-20%)	6	8	+2 (25%)	2	2	0 (0%)

Because of the limited number of participants, post-intervention statistical analysis was not carried out and changes in scores were tallied and converted to percentages. Three teachers improved in at least one specific aspect of knowledge. Jan improved significantly in word structure (40%) and morpheme knowledge

(87.5%), Robyn showed improvement in word structure (10%) and Tim, improvement in syllables (25%). Two teachers regressed in some aspects of knowledge, Robyn in syllables (-12.5%) and Tim in word structure (-20%). Ella had no change in either word structure, syllable or morpheme knowledge.

Research Question 2b: What phonological and morphological word level knowledge did teachers demonstrate after professional development?

6.3.3 Qualitative results from individual teacher interviews, Research Question 2b

The qualitative data from the mid- and post-intervention interviews with the four teachers were analysed and the results are presented in the next section. This provided triangulation with the quantitative data.

Mid-intervention interviews

The two Year 2 teachers and the LST in the intervention school were each interviewed mid-Project (week 5) to identify content knowledge development, explore their feelings on the pedagogical approaches employed, and implementation barriers and enablers in The Project. Table 39 shows the teachers' responses on the approaches to teaching spelling and implementing The Project so far. The Acting Principal was unable to be interviewed or view The Project due to administrative commitments and meetings. The following extracts provide a sample of responses pertaining to teachers' views on their developing a growing knowledge about spelling concepts.

Just the technical terms. We use prefixes and suffixes. I know what they are, a morpheme and digraph. I know two vowels, that's a digraph. I know morphemes suffixes and prefixes. So one or two letters that are added to change the meaning of a word (Robyn).

Oh morphemes, oh yes! Just knowing the lingo. Early in the program I was just keeping building that knowledge. It's good, especially if it's in the syllabus (Jan).

Yes, absolutely! ... It's interesting this approach. Common terminology like digraph you have to know what they mean. I didn't know what they meant. I've been learning as I go. It's definitely been helpful to know (Ella).

Table 39. Mid-intervention: Individual teachers' views on approaches to teaching spelling

	Robyn	Jan	Ella	Total
1.Are you feeling more knowledgeable about components such as syllables and morphemes?				
Use of terminology	✓		✓	2
Yes		✓	✓	2
Not really	✓			1
When did change in knowledge begin?				
No response	✓			1
Early on in project		✓	✓	2
2.Which Project teaching approaches have you not used before?				
Different to usual practice	✓	✓	✓	3
More callisthenics (movements)			✓	1
More content to cover	✓			1
Semi-scripted content is different	✓			1
Fast -pace and immediate correction		✓		1
More whole class vs group work	✓			1
3.What are the implementation barriers?				
Length of lesson left no time for guided reading and writing	✓			1
Immediate student corrections		✓		1
Demanding on the students		✓		1
Rules difficult for low ability students			✓	1
Script stifles personal teaching style	✓			1
4.What are the implementation enablers?				
Teachers like rules		✓		1
Teachers like revision		✓	✓	2
Teachers and students like program		✓	✓	2
Students enjoy the lessons		✓	✓	2
Not sure	✓			1
Students are engaged	✓	✓	✓	3
5.Have you changed your views on teaching spelling?				
Yes, never taught explicitly		✓		1
No, always do phonics	✓			1
No, always taught explicitly			✓	1

Next, teachers commented on approaches they had not previously used.

There's a lot to cover. I wouldn't do 35-40 minutes on spelling alone. I can't do reading groups or other activities. It's whole class. I normally do more group work. It's more individualised, sorting words, still do syllables using them into sentences. Use more of their words in sentences and their writing (Robyn).

Oh yes, everything apart from the dictation. But we wouldn't have done dictation as a poem. I made up sentences as we went along (Jan).

Teachers then expressed their thoughts on implementation barriers.

Just the length, 30-40 mins. I do yours, but I don't do guided reading. I do my reading and writing and time's up. I don't have time to do reading groups or small group work (Robyn).

For the children to have it correct. I feel I'm demanding of the children when they make errors. Because it's fast-paced. I take a softer approach, more trial and error and error. Not "it's not correct" (Jan).

The definitions are above my children. They can't remember those rules, e.g. FLOSS rule. I do more "Is it one syllable?" (Ella).

Implementation enablers were then explored, including the teachers' opinions on the students' enjoyment of the Project.

You'd have to ask them. I don't know. They haven't said "I don't like it" or "I love this." (Robyn).

They want to take turns, wanting to be the policeman. They're still enjoying it ... quite engaged (Jan).

Finally, teachers were asked if their views on teaching spelling had changed.

No it's no different. I do phonics, phonics based spelling anyway (Robyn).

I wouldn't have done the explicit writing it down. The rule, not so explicitly (Jan).

No. I subscribe to the theory so nothing has changed for me (Ella).

Post-intervention interviews

Teachers were asked post-Project about their personal feelings on the teaching of spelling and on their satisfaction with teaching and implementing The Project. Table 40 shows the teachers' responses on the importance of, and knowledge required, to teach spelling and how they felt about The Project. It should be noted that Tim, the Acting Principal did not teach during, or on The Project, but watched a

Table 40. Post-intervention: Individual teachers' views on approaches to teaching spelling

	Robyn	Jan	Ella	Tim	Total
1.Are you feeling more knowledgeable about components such as syllables and morphemes?					
Yes	✓	✓	✓	✓	4
Know more terminology	✓	✓	✓	✓	4
2.Which Project teaching approaches have not used before?					
Emphasising syllables	✓				1
Knowing vowel goes in syllable	✓				1
Callisthenics activities (movement)		✓			1
Phonemic awareness		✓			1
Segmenting		✓			1
Using technical language			✓	✓	2
3.What are the implementation barriers?					
Contra to teaching style	✓				1
Non-interactive electronic white-board created extra work	✓				1
Time consuming	✓	✓			2
The semi-scripted prepared program	✓				1
None		✓	✓	✓	3
4.What are the implementation enablers?					
Targeted all student levels				✓	1
Enjoyed the pedagogy		✓	✓	✓	3
Seeing students focused and achieving		✓		✓	2
The semi-scripted prepared program		✓	✓	✓	3
Students knew expectations and routine		✓			1
Use of props		✓		✓	2
Use of mini-whiteboards				✓	1
Student involvement and self-correcting		✓		✓	2
Would suit all year levels				✓	1
Thoughts on enablers not offered	✓				1
5. Have you changed your view on teaching spelling?					
No, phonics is the important part	✓				1
Yes, value in explicit instruction		✓			1
Yes, value in engaging activities		✓		✓	2
Pace too fast for spellers with learning difficulties			✓		1
6.Student spelling achievement					
Students using terminology	✓	✓			2
Students self-correcting		✓			1
Poor spellers are achieving				✓	1

spelling lesson with Jan's Year 2 student's mid-way through The Project. He participated in the post-intervention interviews and wrote a report on the lesson

he saw. A summary of the report is presented in section Research Question 5 and the full report is in Appendix M. The following excerpts are from teacher responses when asked if they felt more knowledgeable about concepts such as syllables and morphemes.

Yes, 'cause you're remembering the names of them. Sometimes you don't remember the exact word sort, but it's all stuff we cover (Robyn).

Yes. I know the terminology now. Know that it has to be more explicitly unpacked and broken down (Jan).

I would have been reluctant to use the terminology morphemes and graphemes. I saw the students relating to those terms. I could have been doing that in my own lessons (Tim).

Next, teachers specified approaches used in The Project that they had not previously taught.

Bigger emphasis on syllables. Yeah. Sort of knowing your vowel sound goes with the syllable. Sort of drumming that a bit more, um yeah, that's probably a good help (Robyn).

The kinesiology activities to get the body moving. Thinking about PA and segmenting in that way (Jan).

Well, using whiteboards, because I've never used the mini-whiteboards in my lessons. I would do that now. I can see the value in that. I liked the detective's hat as well ... it gave them a new focus (Tim).

Teachers then commented on the implementation barriers during The Project.

The fact it was scripted. My whiteboard's not interactive. Every time you had to write something on it I had to make flip charts from the slides (Robyn).

Nothing (Jan).

Nothing. All quite manageable (Ella).

No! I felt that all the students, like I mentioned a couple of students in my notes ... who tend to struggle ... they were engaged and getting a lot of accuracy (Tim).

This was followed by statements on implementation enablers during The Project.

The fact that it was prepared. You knew exactly what the expectations were and what you were aiming to achieve. The children knew what they needed to do (Jan).

I don't have a problem with a scripted text. It's achievable, they get success (Ella).

Seeing the lesson and all students achieving ... engaged from start to finish. All the students were involved, the one out the front, the ones sitting with their whiteboards. In Hoop Stepping, the students watching were engaged and self-correcting the student out in front. At their desks they were involved with the dictations (Tim).

Teachers were then asked if their views on teaching spelling had changed.

No. because it's phonics based. Phonics is the important part and learning some of those rules and what letters go together and the sounds, that's important (Robyn).

I can see the value in being explicit and the related activities to engage the children. You knew there was a set way (Jan).

Definitely. Seeing the students engaged in the lesson ... the higher order thinking students to those who struggle opened up my mind to doing this in all KLAS... It was really an important component that everyone was involved (Tim).

Finally, teachers were asked to report if they had noticed any change in their students' spelling.

Just the technical terms. We use prefixes and suffixes. They talk about things. What sound is it. Is it an *-ed*. What's the *-ing* word? Sort of pick up on that. Sometimes they'll come out. I'll say "Okay, is it an /ay/?" if it's an /a/ sort of thing ... we did some writing tasks today, you know, just to see if it's transfer'n [sic] into their everyday writing and they're remembering that (Robyn).

They're thinking about it. Flynn this morning would have said "Don't know". But he wrote *ese* for *easy*. I said "Have a look at the word." "Oh, it's /ea/." I said "It's a vowel what?" "A vowel digraph!" Then I said "Look at the word now." He had put *ease*. "What does it say now" *Ease*". "What do we need for it to say *easy*?" "Ah, we need the /y/!" (Jan).

Accuracy with lower achieving students. It was targeting all the students. But I felt behind the students. In a test I would probably score less than the students. Students and staff would struggle with some of those aspects until they're trained (Tim).

6.3.4 Summary of post-intervention teacher quantitative and qualitative results, Research Question 2

In summary, in addressing Research Question 2, quantitative results revealed teachers in the intervention school CPS1 showed a significant increase in their morpheme knowledge, but not in syllables or word structure. Teachers in CPS2, the comparison school, showed no significant change in word structure knowledge, but a significant increase in syllable knowledge and an increase in morpheme knowledge.

Four teachers involved in professional development and The Project

Qualitative results revealed that all four teachers involved in The Project in CPS1 felt more knowledgeable about terminology (morphemes, digraphs and syllables) after implementation for a period of nine weeks, but they did not comment on other terminology used, such as phonemes and graphemes. Whilst all four teachers felt their knowledge of morphemes in particular had increased, one teacher stated they already had prior knowledge of phonics, prefixes and suffixes covered in The Project. However, this did not correlate with the quantitative results. Only Jan displayed an increase in word structure and morphemes knowledge. Jan had a perfect syllable knowledge score both pre- and post-intervention. Both Robyn and Ella showed little or no change in word structure and syllable knowledge and again scored zero for morpheme knowledge. Tim's word structure knowledge decreased, syllable knowledge increased and morpheme knowledge remained unchanged.

6.4 Research Question 3: To what extent did spelling performance improve when Year 2 children were taught explicitly about phonological and morphological aspects of words?

6.4.1 Student pre-intervention quantitative results

Research Question 3 was answered through conducting word spelling assessments using the parallel standardised Schonell Spelling Test A (Schonell, 1932) pre-intervention, Schonell Spelling Test B post-intervention and a Researcher-adapted parallel pre- and post-morphological spelling assessment (NIFDI, 2016). The word spelling assessments comprised 50 words. The morphological assessment contained 10 words. Please note, as there was one Year 2 class in the comparison school, CPS2 represents both the class and the school. Which sample is being reported is made explicit in the following data.

The effect size measured the magnitude of the intervention effect against the comparison effect, and was expressed as Cohen's *d*. This is a measure of effect size and is the standardised differences between the two means. It was used to compare the intervention school and class results to the comparison school and class results and was calculated using an effect size calculator. It enabled evaluations between the intervention and comparison groups to be made as the difference is standardised. Cohen's *d* effect size formula lies between 0 to 1 and is interpreted as follows

- 0 - 0.20 = weak effect;
- 0.21 - 0.50 = modest effect;
- 0.51 - 1.00 = moderate effect; and
- > 1.00 = strong effect (Cohen et al., 2011).

The probability of superiority was used to measure the effect size of the “probability that a person picked at random from the treatment groups will have a higher score than a person picked at random from the control group” (Magnusson, 2014, para. 4). It was calculated using an interactive visualisation process (Magnusson, 2014). The pre-intervention spelling and morpheme assessment interclass and interschool are presented in Table 41.

Spelling

The mean scores of the three classes in the spelling pre-test were compared using a Univariate procedure. There was no significant difference ($p < .05$) between the

three classes [$F(2,58) = 0.02$; $p = .98$]. The intervention and comparison schools were tested for differences in mean pre-assessment spelling scores using a two-tailed t-test. There was no significant difference ($p < .05$) between the scores of the two groups [$t = 0.11$, $p = .91$].

Table 41. Mean results in pre-spelling and morpheme assessments interclass and interschool

Class and school	Mean spelling score	SD spelling	Mean morpheme score	SD morpheme
Class CPS1A	29.41	11.45	5.40	2.90
Class CPS1B	29.89	10.29	4.44	2.26
School CPS1 (Class 1A+1B)	29.66	10.7	4.88	2.58
School/class CPS2	29.36	9.36	4.12	2.83

Morphemes

The mean scores of the three classes in the morpheme pre-test were compared using a Univariate test. There was no significant difference ($p < .05$) between the three classes [$F(2,56) = 1.09$; $p = .34$]. There was a numerical superiority of CPS1A over the other two classes that was not statistically significant. Schools were tested for differences in mean pre-assessment morpheme scores using a two-tailed t-test with pre-morpheme results as the covariate. There was no significant difference ($p < .05$) between the scores of the two schools [$t = 1.07$, $p = .29$].

Percentage of students making errors: pre-word spelling and morphemes

The spelling errors represented in Table 42 have been grouped in terms of word types, the application of spelling rules and the application of orthographical knowledge. Between 40% and 44% of students were unable to accurately apply common letter-sound correspondences to encoding regular words. The error range for words reflecting the Doubling Four Rule was relatively consistent between classes, with the exception of 58% of the comparison class students incorrectly spelling *ill*. The students' errors with tricky words were for the most part consistent

Table 42. Number and percentage of students making errors in pre-intervention Schonell Spelling Test

Selection of error	School CPS1		School CPS1B
	CPS1A 17 students	CPS1B 18 students	CPS2 25 students
Group 1: 11 consonant, vowel consonant words: <i>net, can, fun, top, rag, sat, hit, lid, cap, had, let</i>	7 (41%)	8 (44%)	10 (40%)
Group 2: 2 Doubling Four Rule words: <i>doll</i>	6 (35%)	4 (22%)	6 (25%)
<i>ill</i>	4 (35%)	5 (28%)	14 (58%)
Group 3: Tricky words (high frequency or Irregular words): <i>then</i>	1 (6%)	2 (12%)	2 (8%)
<i>by</i>	7 (41%)	7 (38%)	7 (28%)
<i>how:</i>	6 (35%)	5 (28%)	4 (16%)
<i>your</i>	4 (35%)	5 (28%)	9 (36%)
Group 4: 6 Other words: <i>may</i>	2 (12%)	0 (0%)	4 (16%)
<i>talk</i>	8 (47%)	5 (28%)	10 (40%)
<i>cold</i>	3 (18%)	5 (28%)	2 (8%)
<i>four</i>	6 (35%)	7 (38%)	9 (36%)
<i>lowest</i>	9 (52%)	8 (44%)	14 (56%)
<i>brain</i>	8 (44%)	7 (38%)	13 (52%)

between groups on the same word, but varied for the comparison class who recorded fewer incorrect instances (16%) of the word *how* than one of the intervention classes (35%). Other words, such as *four*, *lowest* and *brain* were spelled incorrectly by similar numbers of students in both schools, however, there was some variation between *may*, *talk* and *cold*.

The percentage of students who made errors in the ten words in morpheme pre- and post-assessments is presented in Table 43. The spelling errors have been separated, and grouped into morpheme prefixes, base words and suffixes. In the pre-assessments, students made the fewest errors spelling the regular word *unfit* with 6% to 13% of errors on prefix *un-* in the intervention school and 24% in the comparison school. Up to 12% of students in both schools made errors spelling the base word *fit*. In the word *missing*, there were few errors in the commonly occurring affix *-ing* but more in applying the Doubling Four Rule in the base word *miss* (between 20% and 44%). There was a relatively consistent error range between the two schools spelling *likely*, with between 44% and 60% of errors in the split vowel digraph *like*, between 40% and 56% in suffix *-ly*, and similar errors in the

base word and affix components of *cared*. In the final word *grateful*, base word *grate* was spelled incorrectly by between 64% and 83% of students across both schools. Errors in the suffix *-ful* varied from between 35% to 56% of students in the intervention groups and 76% in the comparison group.

Table 43. Number and percentage of students making errors in the pre- and post-morpheme assessments

Words	School CPS1				School CPS2	
	*CPS1A 15 students		CPS1B 18 students		CPS2 25 students	
Morphemes	Pre-	Post-	Pre-	Post-	Pre-	Post-
prefixes:						
<i>un-</i>	2 (13%)	0 (0%)	1 (6%)	0 (0%)	6 (24%)	1 (4%)
<i>re-</i>	5 (29%)	1 (6%)	6 (33%)	0 (0%)	5 (20%)	3 (12%)
<i>dis-</i>	6 (40%)	2 (12%)	4 (22%)	1 (6%)	8 (32%)	8 (32%)
Morpheme base words:						
<i>(un) fit</i>	1 (7%)	3 (18%)	2 (12%)	0 (0%)	4 (12%)	6 (24%)
<i>(re) made</i>	6 (40%)	1 (6%)	6 (33%)	1 (6%)	11 (44%)	8 (32%)
<i>(dis) may</i>	1 (7%)	1 (6%)	7 (39%)	2 (12%)	14 (56%)	10 (40%)
<i>miss (ing)</i>	3 (20%)	4 (27%)	8 (44%)	5 (28%)	8 (32%)	10 (40%)
<i>love (ly)</i>	6 (35%)	6 (35%)	8 (44%)	5 (28%)	10 (40%)	15 (60%)
<i>like (ly)</i>	9 (60%)	5 (29%)	10 (56%)	6 (33%)	11 (44%)	15 (63%)
<i>push (ed)</i>	5 (33%)	3 (18%)	7 (39%)	5 (28%)	11 (44%)	5 (20%)
<i>mind (ed)</i>	4 (27%)	5 (29%)	8 (44%)	8 (44%)	11 (44%)	11 (44%)
<i>care (ed)</i>	8 (53%)	3 (18%)	11 (61%)	7 (39%)	11 (44%)	8 (33%)
<i>grate (ful)</i>	10 (67%)	14 (82%)	15 (83%)	13 (72%)	16 (64%)	20 (80%)
Morpheme suffixes:						
<i>-ing</i>	0 (0%)	0 (0%)	2 (12%)	0 (0%)	1 (4%)	3 (12%)
<i>-ly</i>	5 (33%)	4 (27%)	7 (39%)	2 (12%)	6 (24%)	13 (52%)
<i>-ly</i>	6 (40%)	5 (33%)	9 (50%)	2 (12%)	14 (56%)	10 (40%)
<i>-ed (/t/ sound)</i>	2 (13%)	0 (0%)	8 (44%)	2 (12%)	7 (28%)	5 (20%)
<i>-ed (schwa)</i>	4 (27%)	1 (6%)	5 (28%)	1 (6%)	7 (28%)	8 (33%)
<i>-ed (/d/ sound)</i>	7 (47%)	3 (18%)	9 (50%)	1 (6%)	12 (48%)	8 (33%)
<i>-ful</i>	6 (35%)	5 (33%)	10 (56%)	10 (56%)	19 (76%)	16 (64%)
*Two (below average spellers) of the 17 students were excluded from this test as the class teacher deemed it too difficult.						

6.4.2 Summary of student pre-intervention quantitative results

The pre-intervention spelling and morpheme assessments showed that there were no significant differences between the scores for either spelling or morphemes in either of the three classes (CPS1A, CPS1B and CPS2) or the two schools, CPS1 and the comparison school CPS2. There was a large percentage range of students who made errors in each class and school in the spelling and morphological assessments.

6.4.3 Student post-intervention quantitative results

The post-intervention spelling and morpheme assessments interclass and interschool are provided in Table 44.

Table 44. Mean results in post-spelling and morpheme assessments interclass and interschool

Class and school	Mean spelling score	SD spelling	Mean morpheme score	SD morpheme
Class CPS1A	32.88	10.07	6.67	2.26
Class CPS1B	35.72	8.35	6.83	2.41
School CPS1 (Class 1A+1B)	34.34	9.20	6.76	2.31
School/class CPS2	32.28	9.69	5.04	2.81

Spelling

The three classes were tested for differences in mean post-spelling scores using a Univariate procedure with pre-spelling as the covariate. The mean score of class CPS1B was significantly better than that of class CPS2 [$F(2,59) = 3.23$; $p = .05$]. There was no significant difference ($p < .05$) between classes CPS1A and CPS1B ($p = .20$) or classes CPS1A and CPS2 ($p = 1.00$). Schools were tested for differences in mean post-spelling scores using a Univariate procedure with pre-spelling as the covariate and there was no significant differences between schools [$F(1,57) = 3.23$; $p = .11$].

The percentage of students making errors in the post-spelling assessment is presented in Table 45. The parallel post-test words were again grouped in terms of word type as for the pre-spelling test. In the cvc words, there was a decrease in errors of between 44% and 22% in the intervention school; however, in the comparison school there was an increase of 40% to 44%. In applying the Doubling Four Rule there were fewer errors across all classes.

It should be noted that the words in the following tricky words group and other words did not exactly parallel the pre-test spelling patterns. The students' errors with tricky words *be* and *with* were mainly consistent between groups (between 12% and 18%) but varied for one intervention class where there were no errors in

Table 45. Number and percentage of students making errors in the post-intervention Schonell Spelling Test

Selection of errors	School CPS1		School CPS2
	CPS1A 17 students	CPS1B 18 students	CPS2 25 students
Group 1: 11 consonant, vowel consonant words: <i>cub, mat, ran, bag, ten, hat, dad, bed, leg, dot, pen</i>	4 (24%)	4 (22%)	11 (44%)
Group 2 Doubling Four Rule words: <i>till</i>	1 (6%)	2 (12%)	4 (16%)
<i>call</i>	3 (18%)	1 (6%)	4 (16%)
Group 3: 4 Tricky words (high frequency or irregular words): <i>good</i>	1 (6%)	0 (0%)	1 (4%)
<i>be</i>	2 (12%)	2 (12%)	4 (16%)
<i>with</i>	3 (18%)	2 (12%)	3 (12%)
<i>from</i>	1 (6%)	0 (0%)	0 (0%)
Group 4: 6 other words: <i>time</i>	2 (12%)	0 (0%)	3 (12%)
<i>week</i>	1 (6%)	2 (12%)	4 (16%)
<i>sooner</i>	2 (12%)	3 (17%)	14 (56%)
<i>year</i>	2 (12%)	2 (12%)	6 (25%)
<i>dream</i>	2 (12%)	4 (22%)	7 (28%)
<i>large</i>	5 (29%)	5 (28%)	10 (40%)

spelling *good* and *from* but 6% of errors for the other class. The comparison class also recorded no errors in spelling *from*. Other words such as *sooner*, *year* and *large* were spelled incorrectly (between 12% and 29%) by a similar number of students in both intervention classes. However, in the same words there were student errors of between 25% and 56% in the comparison class.

Morphemes

The three classes were tested for differences using a Univariate procedure with pre-morphemes as the covariate. The mean score of class CPS1B was significantly ($p < .05$) better than that of class CPS2 [$F(2,56) = 4.7$; $p = .01$]. There was no significant difference ($p < .05$) between classes CPS1A and CPS1B ($p = .42$) or classes CPS1A and CPS2 ($p = .64$). Schools were tested for differences in mean post-morpheme scores using a two-tailed t-test with pre-morphemes as the covariate. CPS1 was significantly better than the comparison school [$F(1,56) = 4.70$; $p = .01$].

The percentage of students who made errors in the post-morpheme assessment is presented in Table 43. There were considerably fewer errors in both intervention

classes spelling each affix attached to the base word than in the pre-assessment. Comparison class students also had fewer errors in many affixes, apart from *dis-* which remained at 32% and *-ly* in spelling *lovely* which increased from 24% to 54%. Generally, there was a decrease in morpheme base word errors in both intervention classes, apart from base word *mind* which remained essentially unchanged and *grate* in which errors increased for one intervention class (67% to 82%) and the comparison class (64% to 80%). In the comparison class, base word errors remained varied: the greatest increase in base word errors was in *love* (40% to 60%) and greatest decrease in *push* (44% to 20%).

Errors when applying the Doubling Four Rule in base word *miss* for students in one intervention class decreased (44% to 28%), but the other class, and the comparison class had an increase in errors. There were no errors in spelling affix *-ing* in the word *missing* in either intervention classes, but an increase (4% to 12%) in the comparison class. The error range in spelling *likely* was fairly consistent in both intervention classes, with a decrease in student errors spelling split vowel digraph *like* (between 60% and 29%) and a decrease in errors spelling *-ly* (between 50% and 12%). There was a similar decrease in errors spelling *cared* but a greater decrease in errors spelling affix *-ed* (47% to 18% and 50% to 6%). Morpheme affix errors in the comparison school remained generally high. In the final word *grateful* there was an increase in errors spelling base word *grate* in one intervention class, a decrease in the other and an increase in the comparison class. Errors spelling *-ful* remained fairly constant apart from in the comparison class which had a decrease (76% to 64%).

6.4.4 Summary of student post-intervention quantitative results

The post-intervention spelling and morpheme results were significantly better for class CPS1B than that of CPS1A or CPS2. There was no significant difference between the mean scores for spelling and morphemes in the intervention school CPS1 and the comparison school CPS2.

6.5 Research Question 4: a) How does the implementation of explicitly targeted spelling instruction about the phonological and morphological aspects of words impact on Year 2 children’s sentence dictation? and b) How did Year 2 children feel about the teaching strategies used to teach spelling in their classroom during the term?

6.5.1 Student pre-intervention quantitative results

Pre-intervention, students were given two specially adapted dictation passages from decodable readers (B. Dixon, 2013, 2014) that measured their spelling and sentence transcription skills in connected text through an unassisted writing task. Dictation 1 contained 33 words reflecting an Early Stage 1 level content (Board of Studies NSW, 2012a). Dictation 2 contained 42 words reflecting a Stage 1 level content (Board of Studies NSW, 2012a). (See Chapter 3, Conceptual Framework for content details.) A summary table of mean results pre-dictation 1 and 2, interclass and interschool is provided in Table 46.

Table 46. Mean results in pre-dictation 1 and dictation 2, interclass and interschool

Class and school	Mean dictation 1 score	SD dictation 1	Mean dictation 2 score	SD dictation 2 score
Class CPS1A	28.60	8.42	32.53	8.94
Class CPS1B	29.50	1.20	33.50	7.58
School CPS1 (Class 1A+1B)	28.23	7.42	33.06	8.11
School/class CPS2	24.20	9.57	24.48	14.83

Dictation 1

The mean scores of the three classes in pre-dictation 1 were compared using a Univariate procedure. There were no significant differences ($p < .05$) [$F(1,57) = 2.11$; $p = .13$]. Mean results of intervention and comparison schools for pre-dictation 1 assessment were compared using a Univariate test. There were no significant differences ($p < .05$) between comparison or intervention schools [$F(1,58) = 3.3$; $p = .07$]. A selection of student errors in the pre- and post-dictation 1 is presented in Table 47.

The spelling and punctuation errors represented in Table 47 have been grouped in terms of word structure, the application of a spelling rule, the application of orthographic knowledge (tricky words) and punctuation knowledge. In the pre-

assessment, 17% and 35% respectively of students in the intervention school and 20% and 44% in the comparison school were unable to accurately apply common letter-sound correspondences in encoding the cvc words *Pip* and *Len*. The error range was fairly consistent for other words in this group, such as *pink* (between 22% and 35%) and *lunch* (between 28% and 35%), with the comparison school having almost double the errors to the intervention school.

Table 47. Number and percentage of students making errors in pre- and post-dictation 1

Selection of words	School CPS1				School CPS2	
	CPS1A 17 students		CPS1B 18 students		CPS2 25 students	
Regular structure and compound words:	Pre-	Post-	Pre-	Post-	Pre-	Post-
<i>Pip</i>	3 (18%)	1 (6%)	3 (17%)	1 (6%)	5 (20%)	1 (4%)
<i>Len</i>	6 (35%)	3 (18%)	4 (22%)	4 (22%)	11 (44%)	7 (28%)
Compound word <i>sandpit</i>	7 (41%)	4 (24%)	4 (22%)	3 (17%)	8 (32%)	9 (36%)
cvcc, cvccc words						
<i>pink</i>	6 (35%)	4 (24%)	4 (22%)	1 (6%)	11 (44%)	11 (44%)
<i>lunch</i>	6 (35%)	2 (12%)	5 (28%)	2 (12%)	12 (48%)	8 (32%)
<i>jumps</i>	5 (29%)	3 (18%)	7 (39%)	7 (39%)	13 (52%)	6 (24%)
Rule:						
Split vowel digraphs <i>kite</i>	12 (71%)	6 (35%)	6 (33%)	0 (0%)	11 (44%)	18 (72%)
<i>spade</i>	13 (76%)	9 (53%)	7 (39%)	5 (28%)	15 (60%)	18 (72%)
Doubling Four Rule + -s <i>shells</i>	11 (65%)	6 (35%)	10 (56%)	7 (39%)	15 (60%)	20 (80%)
Tricky words (high frequency or irregular):						
<i>puts</i>	7 (41%)	7 (41%)	8 (44%)	7 (39%)	18 (72%)	10 (40%)
<i>down*</i>	5 (29%)	7 (41%)	7 (39%)	3 (17%)	15 (60%)	10 (40%)
Punctuation:						
Full stop Sentence 1	12 (71%)	7 (41%)	13 (72%)	0 (0%)	16 (64%)	16 (64%)
Sentence 2	12 (71%)	9 (53%)	14 (78%)	1 (6%)	17 (68%)	19 (76%)
Sentence 3	11 (65%)	9 (53%)	16 (89%)	3 (17%)	23 (92%)	18 (72%)
Sentence 4	2 (12%)	7 (41%)	2 (12%)	2 (12%)	16 (64%)	6 (24%)
Use of capital						
<i>Pip</i>	13 (76%)	13 (76%)	17 (94%)	4 (22%)	15 (60%)	17 (68%)
<i>Len</i>	15 (88%)	10 (59%)	15 (83%)	7 (39%)	20 (80%)	19 (76%)

**down* is classified under tricky as the digraph /ow/ had not been taught.

In applying rules, the error range was varied between the intervention and comparison classes, with between 33% and 71% of student errors spelling split vowel digraph *kite*. However, errors in applying the Doubling Four Rule were fairly consistent (between 56% and 65%) across the intervention and comparison classes. Students' errors with tricky words were mainly consistent between the intervention groups on the same word, but varied for the comparison group who recorded fewer correct instances for the word *puts* (72%) and *down* (60%). Errors in using a

full stop were similar across the three classes. The comparison class had the most omissions (92%) in sentence three. Fewest errors were in the final sentence, where 12% of students in both intervention classes omitted the final full stop and 64% in the comparison class. Lastly, omission of a capital letter when spelling *Len* and *Pip* was relatively similar between classes, with the exception of 94% in one intervention class and 60% in the comparison class for the word *Pip*.

Dictation 2

Mean scores of the three classes in pre-dictation 2 were compared using a Univariate test. There was a significant difference ($p < .05$) [$F(2, 55) = 3.93$; $p = .02$]. Class CPS1B was significantly better than the comparison class CPS2 ($p = .04$). Mean results of intervention and comparison schools for pre-dictation 2 assessment were compared using a t test. There was a significant difference ($p < .05$) between the comparison and intervention schools ($t = 2.82$, $p = .01$) with the intervention school performing significantly better. This difference will be used as a covariate in later analysis.

A selection of student errors in pre- and post-dictation 2 is presented in Table 48. In pre-dictation 2, between 12% and 40% respectively of students in the intervention school and 32% and 48% in the comparison school were unable to accurately apply common letter-sound correspondences in encoding the cvc words *Pip* and *Len*. Errors spelling other regular structure words were also generally high. Fewest errors occurred spelling *frog* in the intervention classes (between 7% and 12%) with errors of 40% in the comparison class. Most student errors occurred spelling *sprang*, with between 61% and 67% in the intervention classes and 76% in the comparison class. Across both schools, between 39% and 76% of students were unable to accurately spell the split vowel digraph word *side*. In spelling base words plus morpheme *-ing*, most errors occurred in students applying digraph /ay/ plus *-ing* in *swaying* in one intervention class (87%) and the comparison class (76%), followed by the Doubling Four Rule plus *-ing* for the word *buzzing* (73%) in one intervention class.

There were fewer errors spelling *playing*, where intervention school students recorded between 17% and 27%, but the comparison school students 48%. In the

Table 48. Number and percentage of students making errors in pre- and post-dictation 2

Selection of words	School CPS1				School CPS2	
	*CPS1A 15 students		CPS1B 18 students		CPS2 25 students	
Regular structure:	Pre-	Post-	Pre-	Post-	Pre-	Post-
<i>Pip</i>	2 (13%)	1 (7%)	2 (12%)	0 (0%)	8 (32%)	3 (12%)
<i>Len</i>	6 (40%)	4 (27%)	3 (17%)	3 (17%)	12 (48%)	7 (28%)
<i>frog</i>	1 (7%)	0 (0%)	2 (12%)	1 (6%)	10 (40%)	3 (12%)
<i>lemon</i>	8 (53%)	7 (47%)	7 (39%)	7 (39%)	19 (76%)	13 (52%)
<i>flash</i>	6 (40%)	4 (27%)	5 (28%)	4 (22%)	14 (56%)	8 (32%)
<i>grass</i>	5 (33%)	4 (27%)	8 (44%)	6 (33%)	12 (48%)	13 (52%)
<i>spring</i>	6 (40%)	4 (27%)	3 (17%)	2 (12%)	9 (36%)	3 (12%)
<i>sprang</i>	10 (67%)	9 (60%)	11 (61%)	7 (39%)	19 (76%)	14 (56%)
Rule: Split vowel digraph <i>side</i>	10 (67%)	7 (47%)	7 (39%)	4 (22%)	19 (76%)	15 (60%)
Doubling Four Rule + <i>-ing</i> <i>buzzing</i>	11 (73%)	6 (40%)	13 (72%)	5 (28%)	14 (56%)	17 (68%)
Digraph /ay/ + <i>-ing</i> <i>playing</i>	4 (27%)	3 (20%)	3 (17%)	5 (28%)	11 (44%)	11 (44%)
<i>swaying</i>	13 (87%)	9 (60%)	12 (67%)	7 (39%)	18 (72%)	14 (56%)
Adding <i>-s</i> <i>bees</i>	3 (20%)	2 (13%)	2 (11%)	3 (17%)	8 (32%)	6 (24%)
Adding <i>-ed</i> <i>jumped</i>	9 (60%)	9 (60%)	9 (50%)	3 (17%)	17 (68%)	13 (53%)
Tricky words (high frequency or irregular): <i>were</i>	6 (40%)	5 (33%)	12 (67%)	7 (39%)	16 (64%)	9 (36%)
<i>along</i>	8 (53%)	8 (53%)	7 (39%)	3 (17%)	17 (68%)	12 (48%)
<i>their</i>	15 (100%)	10 (67%)	18 (100%)	10 (56%)	25 (100%)	25 (100%)
<i>then</i>	5 (33%)	2 (13%)	3 (17%)	0 (0%)	8 (32%)	7 (28%)
Punctuation: Full stop Sentence 1	13 (87%)	7 (47%)	17 (94%)	5 (28%)	19 (76%)	18 (72%)
Sentence 2	11 (73%)	4 (27%)	14 (78%)	4 (22%)	18 (72%)	14 (56%)
Sentence 3	11 (73%)	8 (53%)	15 (83%)	6 (33%)	20 (80%)	18 (72%)
Sentence 4	11 (73%)	7 (47%)	14 (78%)	0 (0%)	20 (80%)	17 (68%)
Sentence 5	5 (33%)	6 (40%)	7 (39%)	3 (17%)	18 (72%)	5 (20%)
Use of capital <i>Pip</i>	12 (80%)	7 (47%)	16 (89%)	4 (22%)	21 (84%)	14 (56%)
<i>Tip</i>	13 (87%)	12 (80%)	17 (95%)	15 (83%)	25 (100%)	23 (92%)

*Two (below average spellers) of the 17 students were excluded from this test as the class teacher deemed it too difficult.

word *jumped*, which involved applying base word *jump* plus morpheme *-ed* (/t/ sound), there were between 60% and 68% of errors across both schools. Student errors in commonly occurring words were also varied across both schools on the words *were* and *along*, except for the word *their* in which students in all classes across both schools recorded an error rate of 100%. Errors in using a full stop at the end of the first four sentences were similar across the three classes. One intervention class had the most omissions (94%) in sentence one. Fewest errors

were in the final sentence, where between 33% and 39% of students in the intervention classes and 72% in the comparison class omitted the final full stop. Lastly, omission of a capital letter when spelling *Pip* and *Tip* were consistent between groups, with the exception of the comparison class which recorded 100% of capital letter omissions in the word *Tip*.

6.5.2 Summary of student pre-intervention quantitative results, Research Question 4a

In pre-intervention dictation 1, there were no significant differences ($p < 0.05$) between classes CPS1A, CPS1B and CPS2 or schools CPS1 and CPS2. In pre-intervention dictation 2, school CPS1 performed significantly better than CPS2 and class CPS1B performed significantly better than class CPS2.

6.5.3 Student post-intervention quantitative dictation results

To facilitate precise comparison of the pre- and post-dictation 1 errors, the same assessment was given for the post-dictation. Please note, at no time were either of the assessment dictation passages made available to the teachers for students to practise writing during this research.

Post-intervention, the two dictations were repeated. A summary table of mean results post-dictation 1 and 2 interclass and interschool is provided in Table 49.

Table 49. Mean results in post-dictation 1 and dictation 2, interclass and interschool

Interclass and interschool	Mean dictation 1 score	SD dictation 1	Mean dictation 2 score	SD dictation 2
Class CPS1A	31.93	7.16	37.27	12.24
Class CPS1B	37.00	5.39	43.44	6.94
School CPS1 (Class 1A+1B)	33.34	8.63	40.64	10.04
School/class CPS2	24.52	7.98	32.76	10.96

Dictation 1

Mean results for classes post-dictation 1 assessments were compared in a Univariate procedure using pre-dictation 1 as a covariate. A significant difference ($p < .05$) was found [$F(2,55) = 13.57$; $p = .00$]. Class CPS1B performed significantly ($p < .05$) better than class CPS1A ($p = .01$). Mean post-dictation 1 results between intervention and comparison schools were compared using a Univariate procedure,

with pre-dictation 1 results as a covariate. There was a significant difference between these groups [$F(1, 58) = 14.72$; $p = .00$]. Results for the intervention school were significantly better than the comparison school.

Six percent and 22% respectively of students in the intervention school and 4% and 28% in the comparison school were unable to accurately apply common letter-sound correspondences in encoding the cvc words *Pip* and *Len* (Table 47). This was an overall decrease in errors. For other regular words, there was also a decrease in errors spelling *pink* (35% to 24% and 22% to 6%) in the intervention school but no change in the comparison school. There was a decrease in errors spelling *lunch* in all classes. In applying rules, the error range remained varied between classes. One intervention class had a decrease (71% to 35%) in errors spelling *kite* and the other recorded zero errors, whilst the comparison class had an increase in errors (44% to 72%). In applying the Doubling Four Rule, errors decreased (65% to 35% and 56% to 39%) in the intervention classes, but increased in the comparison class (60% to 80%).

Student errors with tricky word *puts* remained at 41% for one comparison class. The other showed a decrease (44% to 39%) as did the comparison class (72% to 40%). For the word *down* there was a decrease in student errors in the comparison class and one intervention class but an increase in the other (29% to 41%).

Omissions using a full stop varied across the three classes: there was a decrease in omissions in both intervention classes with the exception of one class in sentence four (12% to 41%), with the other class unchanged. Omissions in the comparison class were variable, but improved in sentences three and four. Lastly, there were varied decreases and one increases in capital letter omissions when spelling the proper nouns *Len* and *Pip*. The largest decrease in was in *Pip* (94% to 22%) followed by *Len* (83% to 39%) for one intervention class.

Dictation 2

Mean results for classes post-dictation 2 assessments (see Table 49) were compared in a Univariate procedure using pre-dictation 2 as a covariate A significant difference ($p < .05$) was found [$F(2,55) = 3.52$; $p = .04$]. However, when comparing individual classes, only Class CPS1B performed close to significantly ($p < .05$) better than class CPS1A ($p = .05$). Mean post-dictation 2 results between

intervention and comparison schools were compared using a Univariate procedure, with pre- dictation 2 results as a covariate. There was no significant difference between these groups [$F(1, 58) = 0.96$; $p = .33$].

Zero percent and 27% respectively of students in the intervention school and 12% and 28% in the comparison school were unable to accurately apply common letter-sound correspondences in encoding the cvc words *Pip* and *Len* (Table 48). The error range remained varied for other word structures in this group. Students in one intervention class had no errors in spelling *frog* whilst 6% of students in the other had errors. This was a decrease in both classes. The comparison class showed the greatest decrease (40% to 12%). Whilst there was a decrease in student errors spelling *sprang*, it remained one of the most misspelled words in this group, with student errors ranging from 60% in one intervention class, to 39% in the other and to 56% in the comparison class. Across both schools, there was a relatively consistent decrease of student errors spelling *side*.

In applying the Doubling Four Rule plus *-ing* in the word *buzzing*, there was a large decrease in errors in the intervention classes, but an error increase (56% to 68%) in the comparison class. In applying digraph /ay/ plus *-ing*, overall there was a decrease in the intervention and comparison classes in errors spelling *swaying*. The fewest student errors occurred spelling *playing* in the intervention and comparison classes. In the word *jumped* which again involved applying base word *jump* plus morpheme *-ed*, there was a decrease in student errors for the comparison class (68% to 53%) and one intervention class (50% to 17%). The other intervention class had no decrease in errors.

Student errors in tricky words remained varied, but there was a decrease in errors spelling *were* and *along* for all but one intervention class. All comparison class students misspelled *their*: both intervention class students had an error decrease (100% to 67% and 100% to 56%). There was an overall decrease in full stop errors in all classes, apart from one intervention class in which students making errors increased (33% to 40%) in sentence five. Finally, in both intervention classes and the comparison class, there was a decrease in student capital letter omissions when spelling *Pip* but little change in capital omissions in the word *Tip*.

6.5.4 Summary of student post-intervention results, Research Question 4a

Interclass results showed that class CPS1B did significantly better in dictation 1 than the other classes. Overall, school CPS1 performed significantly better than school CPS2. In dictation 2, class CPS1B again did significantly better than the other classes, whilst there was little difference in the performance of schools CPS1A and CPS2.

Effect size interclass and interschool

The effect size values for post-intervention word level spelling, morphemes, dictation 1 and dictation 2, interclass and interschool are provided in Table 50.

Spelling

The effect sizes for word spelling were varied. They ranged from weak for school CPS1 and class CPS1A to modest for class CPS1B.

Morphemes

The effect sizes for morphemes were varied. They ranged from moderate for school CPS1, class CPS1 and class CPS1B.

Table 50. Post-intervention effect size values using Cohen's *d* and probability of superiority (PoS) interclass and interschool

School or class	Spelling		Morphemes		Dictation 1		Dictation 2	
	<i>d</i>	PoS (%)	<i>d</i>	PoS (%)	<i>d</i>	PoS (%)	<i>d</i>	PoS (%)
School CPS1 (Classes A and B) vs CPS2	0.2	56	0.8	71	0.9	74	0.8	71
Class CPS1B vs CPS1A	0.3	58	0	50	1.0	76	0.6	66
CPS1A vs CPS2	0.1	53	0.8	71	0.4	61	0.3	58
CPS1B vs CPS2	0.4	61	0.8	71	1.8	90	1.1	78
Key to effect size: 0 - 0.2 = weak; 0.21 - 0.50 = modest; 0.51 - 1.00 = moderate; > 1.00 = strong (Cohen, Manion & Morrison, 2011).								

Dictation 1

The effect sizes for dictation 1 were varied. They ranged from modest for class CPS1A, moderate for school CPS1 and strong for class CPS1B.

Dictation 2

The effect sizes for dictation 2 were varied. They ranged from modest for class CPS1A, moderate for school CPS1 and class CPS1B and strong for class CPS1B.

Effect size intraclass and intraschool

The effect size values for post-intervention word level spelling, morphemes, dictation 1 and dictation 2, intraclass and intraschool are provided in Table 51.

Spelling

The effect sizes for word spelling were varied. They were modest for class CPS1A and schools CPS1 and CPS2 and moderate for class CPS1B.

Morphemes

The effect sizes for morphemes were varied. They were modest for school CPS2, moderate for school CPS1 and class CPS1A and strong for class CPS1B.

Table 51. *Calculations of post-intervention effect size values using Cohen's d and probability of superiority (PoS) intraclass and intraschool*

School or class	Spelling		Morphemes		Dictation 1		Dictation 2	
	<i>d</i>	PoS (%)	<i>d</i>	PoS (%)	<i>d</i>	PoS (%)	<i>d</i>	PoS (%)
CPS1A	0.4	61	0.8	71	0.2	56	0.4	61
CPS1B	0.7	69	1.5	86	1.4	84	1.2	80
CPS1(classes A and B)	0.4	61	0.8	71	0.6	66	0.9	74
CPS2	0.3	58	0.3	58	0.1	53	0.7	69
Key to effect size: 0 - 0.2 = weak; 0.21 - 0.50 = modest; 0.51 - 1.00 = moderate; > 1.00 = strong (Cohen, Manion & Morrison, 2011).								

Dictation 1

The effect sizes for dictation 1 were varied. They were weak for class CPS1A and school CPS2, moderate for school CPS1 and strong for class CPS1B.

Dictation 2

The effect sizes for dictation 2 were varied. They were modest for class CPS1A, moderate for schools CPS1 and CPS2 and strong for class CPS1B.

Research Question 4b: How do the Year 2 children feel about spelling and the teaching strategies used to teach spelling in their classroom during the term?

6.5.5 Student post-intervention qualitative results, Research Question 4b

A total of 27 randomly stratified selected students (18 from the intervention school and 9 from the comparison school) whose teachers deemed to be three under achieving spellers (BA), three average achieving spellers (A), and three above average spellers (AA) were asked to participate in a post-intervention interview. The consent form was read and the procedure explained to each child before they signed it (see Student consent form and interview guide questions Appendix H). One student declined an interview, therefore, another was randomly selected. Students' responses to their feelings about spelling in general, their preferred approaches to spelling unknown words, their usual spelling program and their feelings about particular spelling activities undertaken in Term 3 were posed in order to answer the above research question.

Qualitative data were analysed from recorded post-intervention student interviews with the 27 randomly-selected students. Interviews were transcribed and all students given a pseudonym. Responses from the post-intervention recorded interviews with the random selection of students were coded in the same manner as the teacher surveys (Creswell, 2014). Data were clustered into topics (*feelings and opinions about spelling, and feelings about the Term 3 dictation components*). Complete data gathered from the students were categorised into *participants and opinions*. Next, issues specific to the interview questions were grouped together and colour coded into related categories (*likes and dislikes of spelling, personal spelling strategies, perceptions of usual class spelling approach, and favourite components during Term 3*).

To address the research question and first, explore how the children felt about spelling, responses were coded and themed according to *students' feelings about spelling, and students' personal spelling strategies*.

Second, to facilitate comparison between spelling approaches used in The Project and those in the comparison class, data for each class is presented separately. Student responses were coded and core ideas themed according to *students' perceptions of usual class spelling approach, and students' feelings on the Term 3 spelling and dictation components*.

Students' feelings about spelling

Figure 27 summarises students' feelings across the intervention and comparison schools about spelling and their personal spelling strategies. Extracts from interviews provide clarification. Six of the nine above average spellers interviewed said they liked spelling. Three students expressed ambivalence. The following comments suggest these students have positive feelings on spelling.

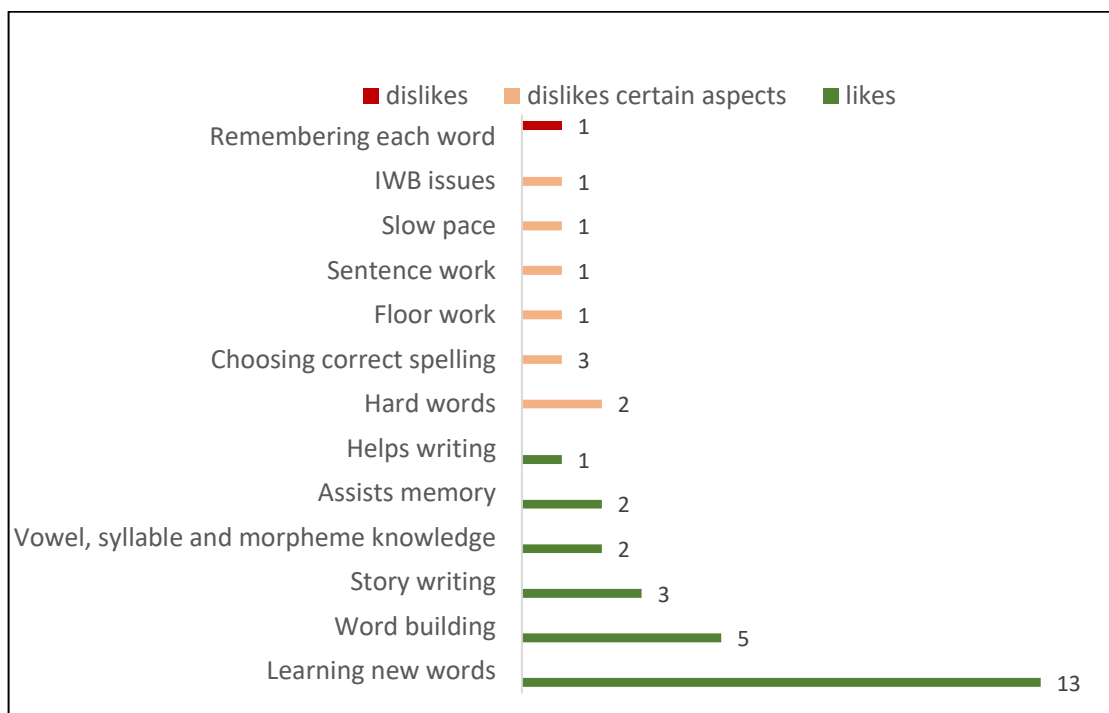


Figure 27. Students' responses to feelings about spelling.

Intervention school

I learn to spell new words and words inside it and bigger words and get to spell words correctly (Hugh, AA speller CPS1).

I learned a couple of new things like I didn't know that /ay/ was always at the end. *Researcher: Did you like the rules? Jarvis: Yes* (Jarvis, AA speller CPS1A).

When you spell it's kind a [sic] fun to see your results. It's actually pretty good because you can memorise the things and you know what you're going to spell. If you've done it once you might be able to spell it twice (Christian, AA speller CPS1B).

It helps with how to write and how to do different things in my life... (Toby, AA speller CPS1B).

Comparison school

I like the little tests on spelling. I like to spell things and to write lots of stories (Elke, AA speller CPS2).

I like the fact there's lots of different ways to spell words. Some words sound the same but have different meanings and different letters (Briony, AA speller CPS2).

The students ambivalent to spelling expressed the following concerns.

Intervention school

Sometimes it goes on for a bit too long. I get tired when I'm just do'en [sic] nothing (Jarvis, AA speller CPS1A).

I didn't like looking at the board, head down writing on the ground (Felicia, AA speller CPS1B).

Comparison school

How it takes forever to work out a word, for example *phone* you think is /f/ but it's /ph/. I don't like how teachers say "I don't know what that word is. It's not /f/ but /ph/." (Jeremy, AA speller CPS2).

Of the average spellers, all nine students expressed a liking of spelling. The following comments suggest these students have positive feelings about spelling.

Intervention school

I like when we write dictation in our books (Mia, A speller CPS1A).

I like learning new words. The ending part goes at the end of a word if there's two syllables ... that's useful (Corbin, A speller CPS1A).

I get to learn my base words so I can make bigger words and get my words right (Mae, A speller CPS1A).

It's fun ... with Hoop Stepping. You get to learn how to spell as you make a mistake, then you spell it every time that way. In case you have to write a

poem and it goes to someone else that reads it on stage and they get the word wrong because of how you wrote it (Fleur, A speller CPS1B).

You get to learn more words than you already know. We learn more about words, vowels and morphemes (Vincent, A speller CPS1B).

You learn a lot and get to figure out new words (Montana, A speller CPS1B).

Comparison school

I like it when you get to write (Murphy, A speller CPS2).

I like that there's all different words you can spell differently, and it doesn't matter how you spell them (Maryanne, A speller CPS2).

It gets your mind [sic] more information. It helps you with reading. If there's a word you can't spell that's in a book you can try to remember from your spelling test then you can read it out (Rohan, A speller CPS2).

Of the below average spellers, six students expressed a liking of spelling, two were ambivalent and one disliked it. The following comments suggest these students have positive feelings about spelling.

Intervention school

I like it. It's hard and easy (Shari, BA speller CPS1A).

I really like it! You have like a piece of paper that's in your memory. You can just read your memory when you forget about it. I like writing the words and stories (Madison, BA speller CPS1B).

I like the spell stuff. You get to learn more words (Flynn, BA speller, *low oral skills* CPS1B).

I like spelling, like the police, Hoop Stepping. I like to do whiteboards (Mahan, BA speller, *EAL/D student* CPS1B).

Comparison school

It helps you learn to remember the words (Annalies, BA speller CPS2).

I like that you learn new words (Grant, BA speller, *poor oral skills* CPS2).

Two students were ambivalent.

Intervention school

I don't really like it when the board mucks up and it gets freezed [sic] and I have to wait a little while. The good things I like are looking at the big words and learning (George, BA speller CPS1A).

I kind 'a [sic] like it. I don't really like do'n [sic] sentences. All the hard words. Doing the iding [sic] on the sheets (Kyle, BA speller *poor articulation* CPS1B).

One student disliked spelling.

Comparison school

I don't really like it. It's always really hard to understand the words and keep it in your head. *Researcher: Do you feel you've got to remember every word? Rose: Yes. Researcher: Are there any word patterns or bits of a word that you remember? Rose: No not really* (Rose, BA speller CPS2).

6.5.6 Summary of students' feelings about spelling

The majority of students (21) across the intervention and comparison schools reported liking spelling, learning how to spell new words and word building. Some students stated aspects such as slow lesson pace (1 AA speller), working on the floor (1 AA speller) presentation issues (1 AA and 1 BA speller), and struggling with correct spelling (1 AA speller and 2 BA spellers) were problematic. One student (BA speller) was ambivalent, stating writing sentences was a difficult. The student (BA speller) who disliked spelling cited whole word memorising as a main reason.

Students' personal spelling strategies

The students were then asked what strategies they use to spell unknown words. Their responses were coded and grouped into three core strategic approaches: using phonics and segmenting, visual strategies, letter names and other strategies as illustrated in Figure 28. The following extracts provide a sample of students' comments from all ability levels on personal use of these strategies.

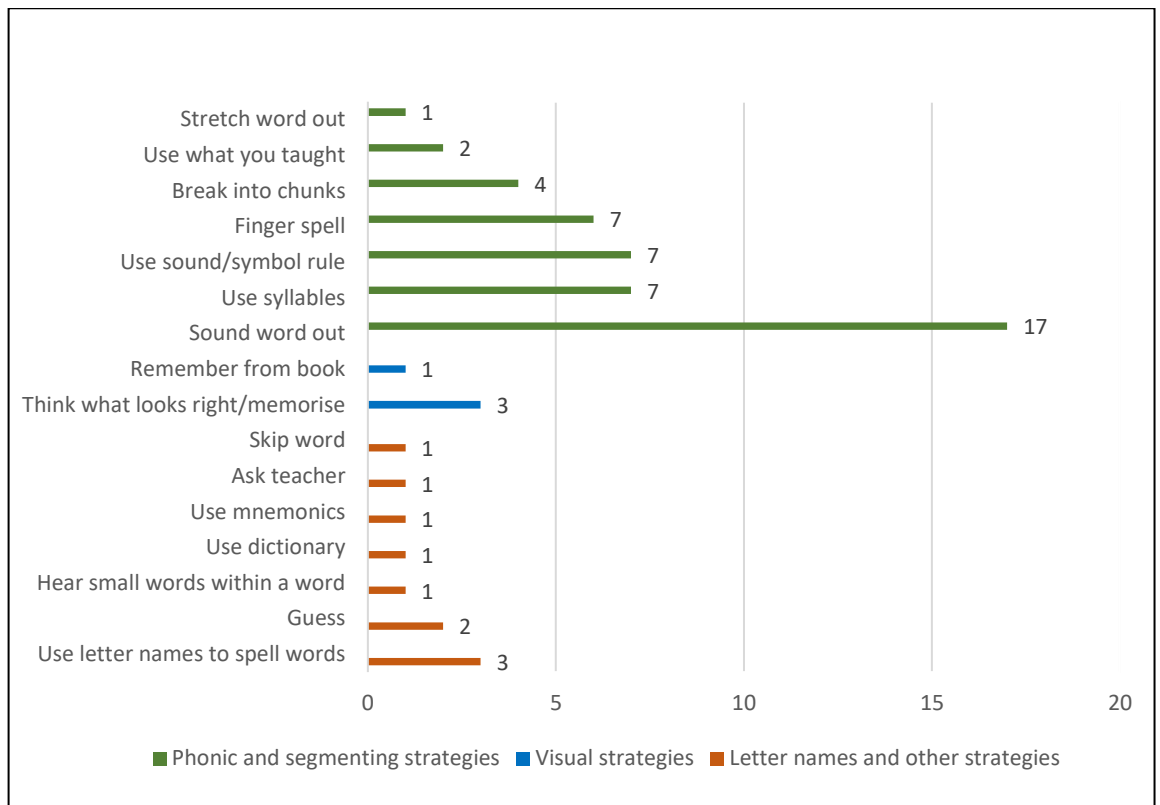


Figure 28. Students' responses to personal spelling strategies.

Phonic and segmenting strategies

Intervention school

I try to sound it out and break it up, like chunks, syllables (Hugh, AA speller CPS1A).

Use my fingers and use syllables in words like *h-eat* to help me get what the letters are in there so I work out what sound it is (Corbin, A speller CPS1A).

Sometimes sound it out or stretch the word in your head ... You take a bit then you stretch it and then you do another bit (Mia, A speller CPS1A).

Just what you've taught me. I use my fingers for the finger spelling ... and syllables (Montana, A speller CPS1B).

If I don't know I use my fingers and hands for the sounds (Flynn, BA speller CPS1B).

Comparison school

Just think about it. It doesn't matter how you spell them (Maryanne, A speller CPS2).

Many students (17) reported using phonic and segmenting strategies. However, most students in the intervention school (16) stated they had not used these approaches before The Project.

Visual strategies

The following extract provides a sample of comments from students who used visual and memorising strategies.

Intervention school

Think about the word. I know lots of words. So when I did *elephant* I thought *e-l-e* (*Oscar used the letter names*) I know it would probably be a /ph/. I used to spell it with /f/ (*Oscar, AA speller CPS1A*).

I usually sound it out. If I can I try to remember from a book 'cause [sic] I read lots of books. I know how to spell most words (*Jarvis, AA speller CPS1A*).

You can memorise the things and you'll know what you're going to spell if you've done it once you might be able to spell it twice ... Just try to see if I get it right (*Christian, AA speller CPS1A*).

Comparison school

I go through the alphabet and see which letter would look right in the word (*Briony, AA speller CPS2*).

Memorising how to spell words was used by some students (4). Some used 'does it look right' (3) or remembering from a book (1).

Letter names and other strategies

Intervention school

Sometimes I have little poems like "Boys eat crunchy apples under shady elephants" (*makes 'because'*) (*Jarvis, AA speller CPS1A*).

I just try. You just guess (*Felicia, AA speller CPS1B*).

Comparison school

Try to break it up and sound it out. Look at the dictionary at home. Try to remember what the letters are. I go through the alphabet and see which letter would look right in the word (*Briony, AA speller CPS2*).

Just skip the word. *Researcher: What if you can't skip it because you're writing a sentence? Grant: You would spell it out* (Grant, BA speller CPS2).

Other strategies students used were letter names (3), mnemonics (1), the dictionary (1), small words within a word (1), guessing (2), ask the teacher (1) or skip the word (1).

Combined strategies

The following extract provides a sample of comments from students who utilise combined strategies.

Intervention school

I usually sound it out. If I can I try to remember from a book 'cause [sic] I read lots of books. I know how to spell most words (Jarvis, AA speller CPS1A).

Break it into little pieces and go on with them. I'd sound it out, get the syllables then try to think of what they might be (George, BA speller CPS1A).

Comparison school

I try to sound it out and see how good I am. It's always really hard to understand the words and keep them in your head (Rose, BA speller CPS2).

6.5.7 Summary of student's personal spelling strategies

The data suggest that of the 27 students interviewed across the Year 2 intervention and comparison schools, sounding words out was the most utilised personal spelling strategy (17). Some said they used finger spelling (1 AA, 2 A and 4 BA spellers), sound-symbol rules (3 AA, 2 A and 2 BA spellers), syllable segmenting and chunking (3 AA, 2 A and 2 BA spellers). Students also incorporated visual strategies and 'what looks right' (3 AA spellers). Spelling with letter names was used by some (2 AA and 1 BA speller) and others guessed (1 AA and 1 A speller) or used a dictionary (1 AA speller), asked the teacher (1 AA speller), isolated small words within a word (1 AA speller), used mnemonics (1 AA speller) or skipped the word (1 BA speller).

The next section contains students' responses on their usual class approach to learning spelling.

Students' perceptions of the usual class spelling approaches

Students were asked about the usual approaches to teaching spelling in their class. As the two intervention class teachers and the comparison class teacher appeared to utilise different approaches, responses are presented by class.

Class CPS1A: Teacher Robyn

Nine students in CPS1A were surveyed. Examples of student responses are summarised in Figure 29.

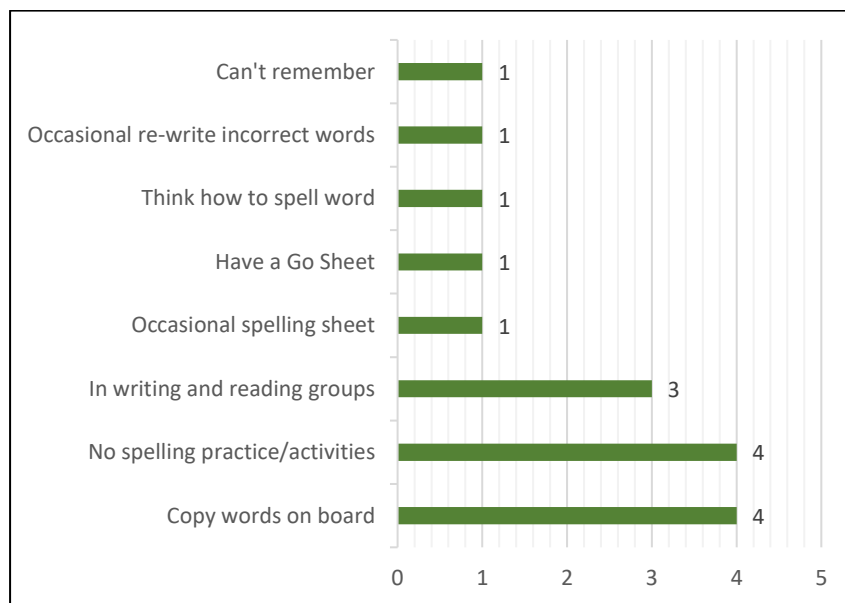


Figure 29. CPS1A students' perceptions of the usual class teaching approaches to spelling.

The following excerpts provide a sample of students' comments.

Just writing down and spell it. Once or twice, we did the spelling sheet which has got words and it goes all the way up to six syllable words. It starts at one and goes all the way up. It was a bit hard (Hugh, AA speller CPS1A).

The teacher gave us notepads. We write down how we thought to spell the word and we had to try three times at least. We'd go and give it to the teacher and then find out if it was correct or not (Oscar, AA speller, CPS1A).

She wrote the words up. We copied it and then we needed to spell it out. If we do a mistake in our writing, we do brackets around it and then write on the top of it. We had to think about it and if we knew it was wrong put brackets then write it on top (Corbin, A speller CPS1A).

We don't normally do spelling. Sometimes we re-write wrong words. Only sometimes (Mia, A speller CPS1A).

We did 'riding [sic]. I don't like 'iding [sic]. (*Unclear response, poor articulation*). List new words on board. I can't 'memba [sic] what we did (Kyle, BA speller CPS1A).

6.5.8 Summary of students' perceptions of the usual spelling approaches, CPS1A

Some students surveyed from class CPS1A stated they usually do spelling in reading and writing groups (1 AA, 1 A and 1 BA speller), with others expressing there was no specific spelling practice (2 AA and 2 A spellers). Some stated they occasionally copied words from the board (1 AA, 1 A and 2 BA spellers), used a Have a Go Sheet (1 AA speller), or were instructed to think about how to spell a word (1 AA speller) and occasionally re-write incorrect words (1 A speller).

Class CPS1B: Teacher Jan

Nine students in CPS1B were surveyed. The following extracts provide examples of student responses as summarised in Figure 30.

We do a test on Friday and get our results on Monday so we know what to write down in our homework book and try to remember those words. We have a spelling book. *Researcher: Is it Sound Waves? Christian: Ah yeah, I'm pretty sure* (Christian, AA speller, CPS1B).

We have a spelling book. We cover our books so no one can see and we have a sheet for how you think you write it and glue it in your book. You don't get hints you're just told write this word (Fleur, A speller CPS1B).

She tells the class to write it. We have a work book to work in (Montana, A speller, CPS1B).

I'm not sure, I forget. Just sound them out (Flynn, BA speller, CPS1B).

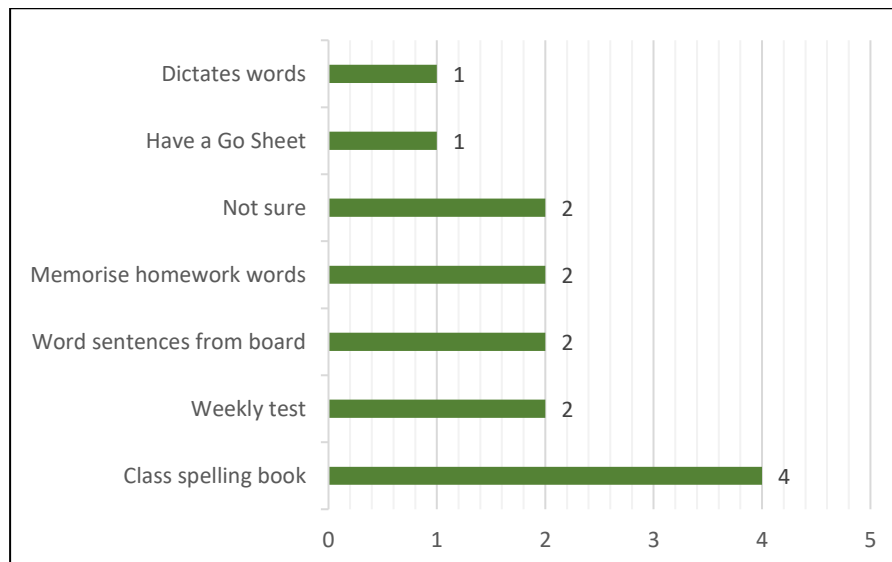


Figure 30. CPS1B students' perceptions of usual class teaching approaches to spelling.

6.5.9 Summary of students' perceptions of the usual spelling approaches, CPS1B

A few students from CPS1B stated they used a spelling book or program (2 AA and 2 A spellers), did a weekly test, then wrote down words to memorise for homework (2 AA spellers). Other approaches were writing 'word sentences' (1 AA and 1 A speller), writing dictated words (1 A speller) and using a Have a Go Sheet (1 A speller) to practise spelling. Some students stated they were not sure how spelling was taught (1 AA and 1 BA speller).

CPS2: Teachers Helen and Dana

The nine students in the comparison school were surveyed. A summary of responses is in Figure 31. The following excerpts provide examples of student accounts.

Normally we sound it out and break it up into pieces. We have words on the board and choose four or five and then put them into sentences (Briony, AA speller CPS2).

We have spelling sheets. *Researcher: Is there a program you use?*

Maryanne: No. They've got words you have to fill in (Maryanne, A speller CPS2).

We have activities phonemes and other things. I forget what it's called. Then we have to break down the words. *Researcher: Is there a program you use to help you spell? Murphy: I don't think so (Murphy, A speller CPS2).*

She usually puts stuff on the board. Then we write it down. Sometimes we do LCWC and write it yourself and we check to see it's right (Rose, BA speller CPS2).

We get activities like you get these letters and put them down to spell out words. *Scrabble*. You give a hint about this word and then if you get it right you move somfink [sic] up (Grant, BA speller CPS2).

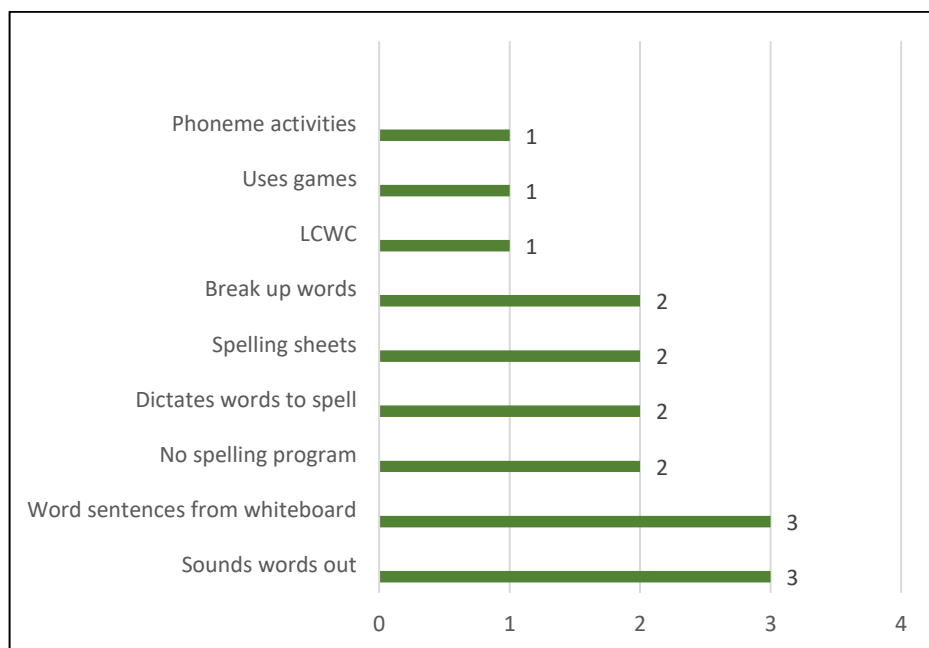


Figure 31. CPS2 students' perceptions of usual teaching approaches to spelling.

6.5.10 Summary of students' perceptions of the usual spelling approaches, CPS2

Some students in CPS2 reported they usually chose spelling words from the whiteboard and wrote them in a 'word sentence' (2 AA and 1 BA speller). A few stated the teacher also dictated a spelling word for students to break up words (1 AA and 1 A speller) or sound out (2 AA and 1 BA speller) before recording it. Some said there was no spelling program (2 A spellers) and others stated they used phoneme activities (1 A speller), games (1 BA speller), LCWC (1 BA speller) and spelling sheets (1 A and 1 BA speller).

The next section contains students' feelings on the spelling and dictation components for the term.

6.5.11 Intervention school CPS1: Students' feelings on The Project spelling and dictation components

Nine students from each intervention class were asked how they felt about the spelling, dictation (including poetic content) components during The Project. Nine students from the comparison class were asked if there had been any particular spelling activities they had enjoyed in Term 3 and how they found the dictation assessment at the end of the term. Each component is colour coded to match the data in the Figures 32, 33 and 34.

CPS1A: Teacher Robyn

The following excerpts provide examples of nine students' feelings from CPS1A about The Project and are summarised in Figure 32.

Spelling: Fun. I liked the syllables. Because before that I didn't really know what they were. **Dictation:** Yeah it was pretty good. I liked reading the poems with the whole class. **Poems:** It was a bit hard because you didn't know ... until the end. It was a good way to learn, yes (Hugh, AA speller CPS1A).

Spelling: Doing the policeman like when you say which one's the wrong word. It was fun. They helped me learn to spell. Like the Kung Fu *h-eat*. **Dictation:** A bit hard. But the second poem I was getting used to it. **Poems:** I liked the poems. *The farm spider* was best because it was 'she' and she needs to make a web. Yeah, to catch a fly (Corbin, A speller CPS1A).

Spelling: I liked the Policeman's Hat the most. The rules were pretty cool. I tried before but it's hard to pick up words and that really helped. I learned that way. **Dictation:** Pretty cute. **Poems:** I liked little *Fuzzy*. I can imagine him as a little circle with all his fuzzy things. I've got a cocoon from a caterpillar near my door (Mae, A speller CPS1A).

Spelling: I liked writing the words down on the mini-whiteboards. The Hoop Stepping and Policeman's Hat. **Dictation:** I liked the dictation. It was a bit hard. The ant one was a big one. I couldn't spell but eventually I figured

them out at the end. **Poems:** I liked the whole class reading the poem at the end. The writing was hard (Mia, A speller CPS1A).

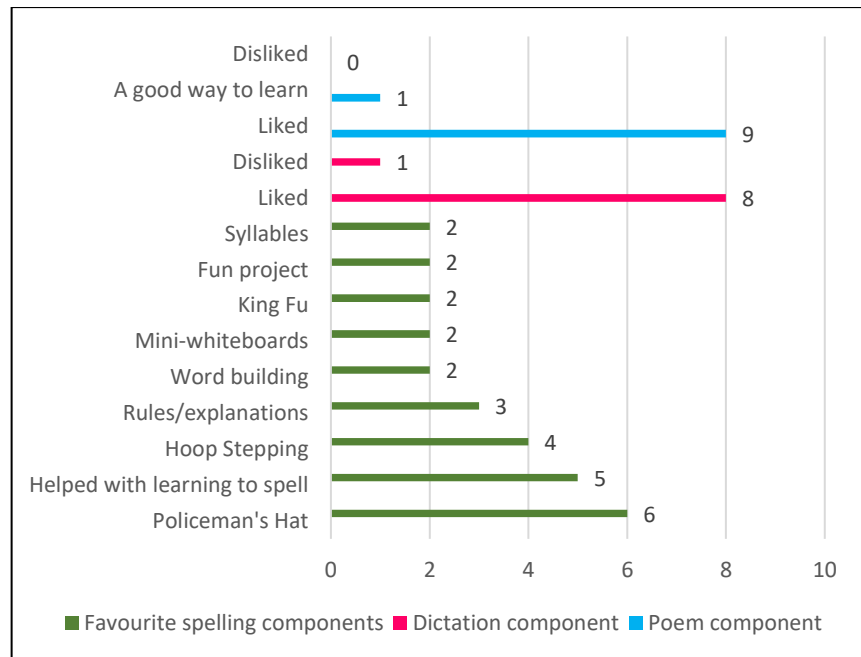


Figure 32. CPS1A students' responses to feelings on Term 3 spelling, dictation and poem components.

Spelling: I liked writing on the whiteboards. How you can do the hoops and the Policeman's Hat and writing the stories in your book. **Dictation:** I liked it sometimes 'cause [sic] they were funny. **Poems:** It was fun. The caterpillar was the best I thought (Shari, BA speller CPS1A).

Spelling: Looking at the big words and learning them. Playing the little games, Hoop Stepping, the police game. **Dictation:** I was feeling interested when I heard those poems. **Poems:** They're really good poems! I liked it how they made it so good with the bugs (George, BA speller CPS1A).

Spelling: I liked the Hoop Stepping and the policeman. What I also liked about spelling is the Kung Fu words. **Dictation:** I didn't really like them. Some words are too hard. **Poems:** I liked the poems, *The farm spider* poem (Kyle, BA speller CPS1A).

6.5.12 Summary of student's feelings on The Project spelling and dictation components, class CPS1A

Of the nine students in CPS1A, the majority of students liked the dictations (3 AA, 3 AA and 2 BA spellers) and all enjoyed the poems (3 AA, 3 A and 3 BA spellers),

stating it was a good way to learn (1 A speller) and a fun Project (2 AA spellers). One student (BA speller) disliked the dictation. All students reported enjoying the spelling activities, with most favouring the Policeman’s Hat (3 A and 3 BA spellers) and Hoop Stepping (1 A and 3 BA spellers). Other students stated the activities helped them learn to spell (3 AA, 1 A and 1 BA speller) and found the rules and explanations beneficial (3 AA spellers).

CPS1B: Teacher Jan

Students’ responses to feelings on the components in The Project from class CPS1B are summarised in Figure 33 and excerpts of their comments provided.

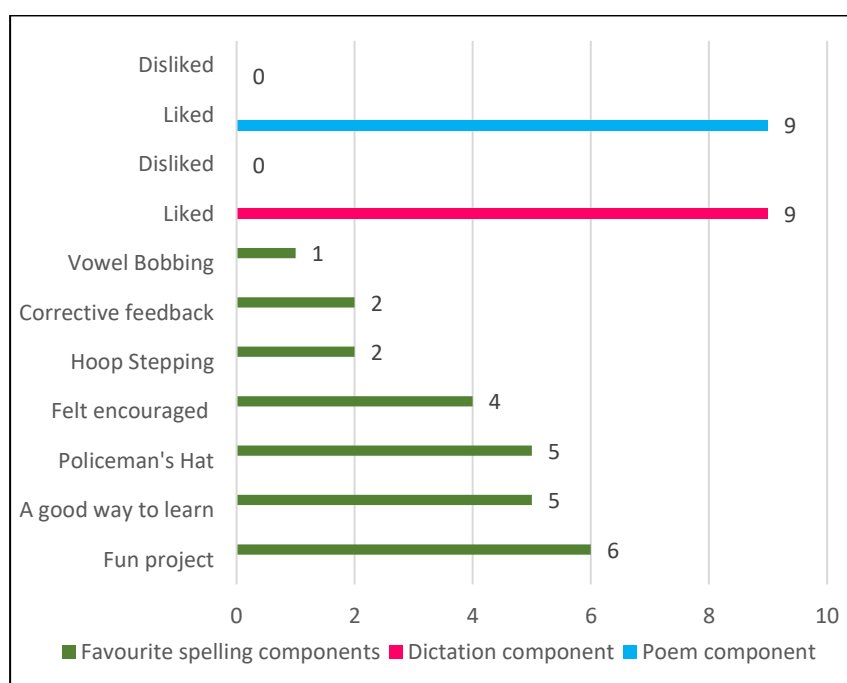


Figure 33. CPS1B students’ responses to feelings on Term 3 spelling, dictation and poem components.

Spelling: Liked them a lot. It’s fun to do things to encourage kids to spell better. You feel encouraged when you put on the Policeman’s Hat.

Dictation: I liked the dictations, but it was hard for me. *Researcher:* What was hard? *Toby:* Keeping it in my mind. **Poems:** I liked them, yes (Toby, AA speller CPS1B).

Spelling: Pretty good. Especially the cop one, that was pretty fun. **Dictation:** I really liked it. **Poems:** I really liked the names about them. Like Fuzzy and all those and the titles. They were pretty good (Christian, AA speller CPS1B).

Spelling: You get to learn how to spell as you make a mistake, then you spell it every time that way. **Dictation:** I liked them because I enjoy reading.

Poems: In case you have to write a poem and it goes to someone else that reads it on stage and they get the word wrong because of how you wrote it (Fleur, A speller CPS1B).

Spelling: I found Hoop Stepping really fun because you step them out, put all those letters together and it makes a word! **Dictation:** I felt good that we got to try something new. Every time there was a new word I thought 'have a go' I'd put my fingers under the desk and do the finger spelling. **Poems:** (*Vincent was hesitant*) *Vincent:* Hard. *Researcher:* What, was hard? *Vincent:* Have it in my mind, yes, (Vincent, A speller CPS1B).

Spelling: It was a really good way to learn. If you made a mistake you wouldn't get into problems about it. You'd just be happy. A good way to learn. **Dictation:** I felt happy that I can learn to write sentences with those morphemes. **Poems:** Oh good (Madison, BA speller CPS1B).

Spelling: It's fun and good to learn. You get to learn more words and how to spell them. **Dictation:** Yeah, real good. They make my brain feel better.

Poems: I liked the sentences (Flynn, BA speller CPS1B).

6.5.13 Summary of student's feelings on The Project spelling and dictation components, class CPS1B

All the students in CS1B liked the dictation and poem components. Students stated the spelling activities were a good way to learn (1 AA, 2 A and 2 BA spellers) and feelings of encouragement (1 AA, 1 A and 2 BA spellers) and fun (2 AA, 2 A and 2 BA spellers). Favoured activities were the Policeman's Hat (3 AA, 1 A and 1 BA speller), Hoop Stepping (1A and 1 BA speller), and Vowel Bobbing (1 AA speller).

6.5.14 Intervention school CPS1: Summary of students' feelings on The Project spelling and dictation components

Of the 18 students in the intervention school CPS1, many students across all spelling ability levels reported feelings of engagement with learning how to spell, stating they felt encouraged during The Project and that it was a good way to learn. The word spelling activities most enjoyed included the Policeman's Hat and Hoop

Stepping. All students stated they enjoyed the poems and all but one, the dictations.

6.5.15 Comparison school CPS2: Students' feelings on the Term 3 spelling content and dictation assessment

Responses to feelings on the CPS2 class Term 3 spelling content and dictation assessment for the comparison class are summarised in Figure 34.

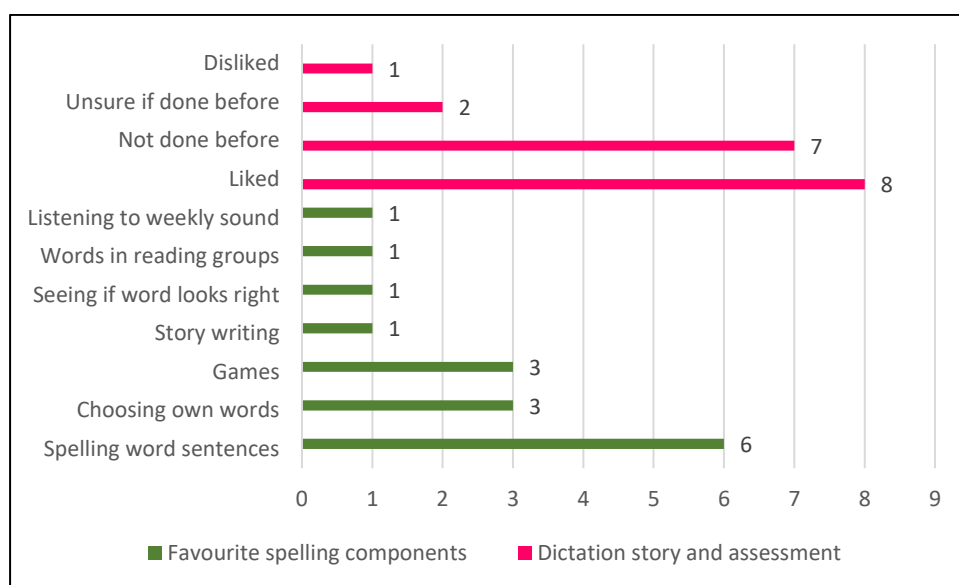


Figure 34. CPS2 students' responses to feelings on Term 3 spelling component and dictation assessment.

CPS2: Teachers Dana and Helen

Excerpts provide a sample of students' responses.

Spelling: I like spelling words sentence. You know I like the spelling words on the whiteboard. I like how you can take any word and make a sentence with them. **Dictation assessment:** I liked it because it was quiet in class. You know how in class when everybody's doing this 'aaah' and they're yelling. I don't like that. I like it when it's quiet and peaceful. I can concentrate (Jeremy, AA speller CPS2).

Spelling: I like that we get to write sentences. We get to do about whatever we like. **Dictation assessment:** I thought it was fun. I think you are really good at teaching us that. The little sorties were cute (Briony, AA speller CPS2).

Spelling: Um, yeah, I really like to write stories in my *Can Do Book*. **Dictation assessment:** I liked that we got to write some words (Elke, AA speller CPS2).

Spelling: The ones we do every day in the reading groups. When you do spelling sentences because you get to make up your own sentences.

Dictation assessment: I liked how we had to do them in a story (Murphy, A speller CPS2).

Spelling: *Memory*, Yeah, it's a game and whoever wins gets the cards.

Dictation assessment: Oh good. I like writing sentences, yeah, so you know what's happening (Rohan, A speller CPS2).

Spelling: We get activities like you get these letters and put 'em [sic] down to spell out words. *Scrabble*. You get to put blocks on the words. **Dictation**

assessment: Yeah I liked how it stup [sic] up the lemon tree. It was funny (Grant, BA speller CPS2).

Spelling: My favourite ... is spelling word sentences. I choose the words that I like. I get to choose the easy ones. **Dictation assessment:** I didn't like it because I had to spell some hard words. I liked the single words better than the stories (Rose, BA speller CPS2).

Spelling: Yes, the /y/ and the one's we're doing right now. We do spelling sentences. It's helping you. You have to listen to the words. **Dictation**

assessment: I like the story. It tells you who the names are and what they do (Annalies, BA speller CPS2).

6.5.16 Comparison school CPS2: Summary of students' feelings on the Term 3 spelling content and dictation assessment

Using spelling in their own 'word sentences' was the most favoured activity of comparison school CPS2 students (3 AA, 1 A and 2 BA spellers), as well as choosing their own words to spell (1 AA and 2 BA spellers) and spelling games (1 A and 2 BA spellers). Others enjoyed story writing in their *Can Do Book* (1 AA speller), using the alphabet to spell and see if the word looks right (1 AA speller), finding words in reading groups (1 A speller), and listening to the weekly sound (1 BA speller). When asked if they had done dictation before, whilst some were unsure (2 BA spellers), the majority (3 AA and 3 A spellers and 1 BA speller) had not. All but one of the

students stated they liked the dictation narrative assessment (3 AA, 3 A and 2 BA spellers).

6.5.17 Summary of post-intervention quantitative results, Research Question 4b

Research Question 4b addressed the Year 2 students' feelings about spelling and the teaching strategies that were used to teach it in their classroom during Term 3 of the intervention and their feelings about the dictation components. Results of the data gathered from the two intervention classes and one comparison class follow.

Students' feelings about spelling

Of the 27 Year 2 students interviewed across the intervention and comparison schools, the majority said in general, they liked spelling and learning how to spell and in particular, how to build new words. Some were ambivalent, citing issues such as a slow lesson pace and presentation issues, working on the floor, grappling with correct spelling choices or using spelling in writing. One student disliked spelling, saying she could not memorise all the words.

Students' personal approach to spelling strategies

From the 27 Year 2 students across the intervention and comparison school, many students stated sounding out words was their favoured strategy. Others used finger spelling, syllable segmenting, and chunking. Some students also utilised visual and memorising strategies including whole-word memorising and seeing 'what looks right'. Individuals used mnemonics, isolated smaller words in a bigger word, asked the teacher, guessed, or skipped the word.

Each of the three class teachers had a different approach to teaching spelling. Therefore, to facilitate comparisons, summaries for the usual class spelling approach and students' feelings on the Term 3 spelling and dictation components are presented separately.

Students' perceptions of the usual class spelling approach

Some students in intervention class CPS1A stated spelling was usually addressed through reading and writing groups. Others said there was no specific spelling practice. A few said they sometimes copied words from the board. Individuals said

they used a Have a Go Sheet, sometimes thought how to spell a word, or wrote out incorrect words.

In class CPS1B, whilst some were not sure how spelling was addressed, others said they used a spelling book and do a weekly test before writing words down for homework. Writing spelling in 'word sentences' was another approach stated. Individuals also cited using a Have a Go Sheet and writing down dictated words.

In the comparison school (class) CPS2, some students said the teacher dictated a spelling word for them to break up or sound out before writing it. Others said they chose their own words to write in a 'word sentence'. Some students said they did not have a spelling program. Individuals said they also used phoneme activities, games, LCWC and spelling sheets.

Students' feelings on the Term 3 spelling and dictation components

All students in intervention class CPS1A said they enjoyed the spelling activities during Term 3. Some said The Project was fun and a good way to learn. The most popular spelling components were the Policeman's Hat and Hoop Stepping. Many students said the activities helped them to learn to spell, and that the rules and explanations were useful. The majority stated they liked the dictations and all students enjoyed the poems. One disliked the dictations.

In Intervention class CPS1B, most students said the spelling activities during Term 3 were fun, that it was a good way to learn and that they felt encouraged. The most popular spelling activities were the Policeman's Hat, Hoop Stepping and Vowel Bobbing. Everyone stated they liked the dictation and poem components.

Most students in the comparison class CPS2 stated putting their spelling in word sentences was their preferred activity during Term 3. Others liked choosing their own words to spell or spelling games. Individuals stated they liked using the alphabet to spell a word whilst seeing if it looked right, hearing the weekly sound and story writing. All but one student interviewed said they liked the dictation narrative assessment. A few said the dictation stories were fun and some liked writing the spelling assessment in a story rather than spelling single words. One student disliked the dictation assessment, stating their preference was spelling single words.

The final research question addressed the Principal and teachers' overall feelings on the implementation outcomes of The Project.

6.6 Research Question 5: How well was the intervention taken up by the teachers and Principal at the rural, NSW primary school?

To address this research question, data gathered from the mid- and post-intervention teacher interviews were compiled, and a schema of themes that summarises the Acting Principal and teachers' responses to their engagement with The Project is provided in Figure 35. It depicts aspects they identified as having enabled or provided barriers to implementation. It conceptualises elements ascertained in the interviews which could have facilitated or constrained responsiveness to *The Spelling Detective Project*.

6.6.1 Summary of qualitative results, Research Question 5

The two Year 2 teachers and the Learning Support Teacher (LST) involved in The Project and the Acting Principal were asked for their thoughts on the intervention as a whole including their feelings on implementation enablers and barriers. One teacher stated she already covered much of the phonic and affix content. She disliked the semi-scripted approach as it was contra to her teaching style. The lesson also impinged on her guided reading and writing time. Three of the four staff (one Year 2 teacher, the LST and the Acting Principal) were enthusiastic about The Project, in particular the explicit instruction pedagogy including the semi-scripted content, props, activities and high student engagement.

The Acting Principal was enthusiastic about the pedagogy, the spelling content and the students' attentive behaviour. He came into one of the lessons and reported seeing the lesson targeting all students and benefiting lower achieving students who normally did not achieve. An extract from the report he wrote follows:

A lot of accuracy apparent ...It was pleasing to witness all students involved in the lesson including the students with learning needs. Students were provided with feedback from the peers and their teacher and were very involved throughout the lesson. They all shared knowledge they had picked up in previous lessons ...

The Acting Principal believed that the students probably knew more than he did about spelling at the end of The Project and felt such an approach would be of benefit in other KLAs. A full transcript of the report is provided in Appendix M. An

examination of how well the intervention was taken up by the teachers and Acting Principal is provided in the Chapter 7, Case studies.

Case studies

The case studies do not present new data. Instead, they facilitate the exploration of aspects the teachers found to either enable or hinder their engagement with The Project. The studies are interpretative of each teacher's attentiveness to the professional development, their professional opinions and experience, and their teaching role or administrative duties during The Project. They give an account of factors which may have assisted or impeded the teachers' engagement with The Project. The case studies are presented in the following chapter and provide a link to teacher quantitative and qualitative data results reported in this chapter.

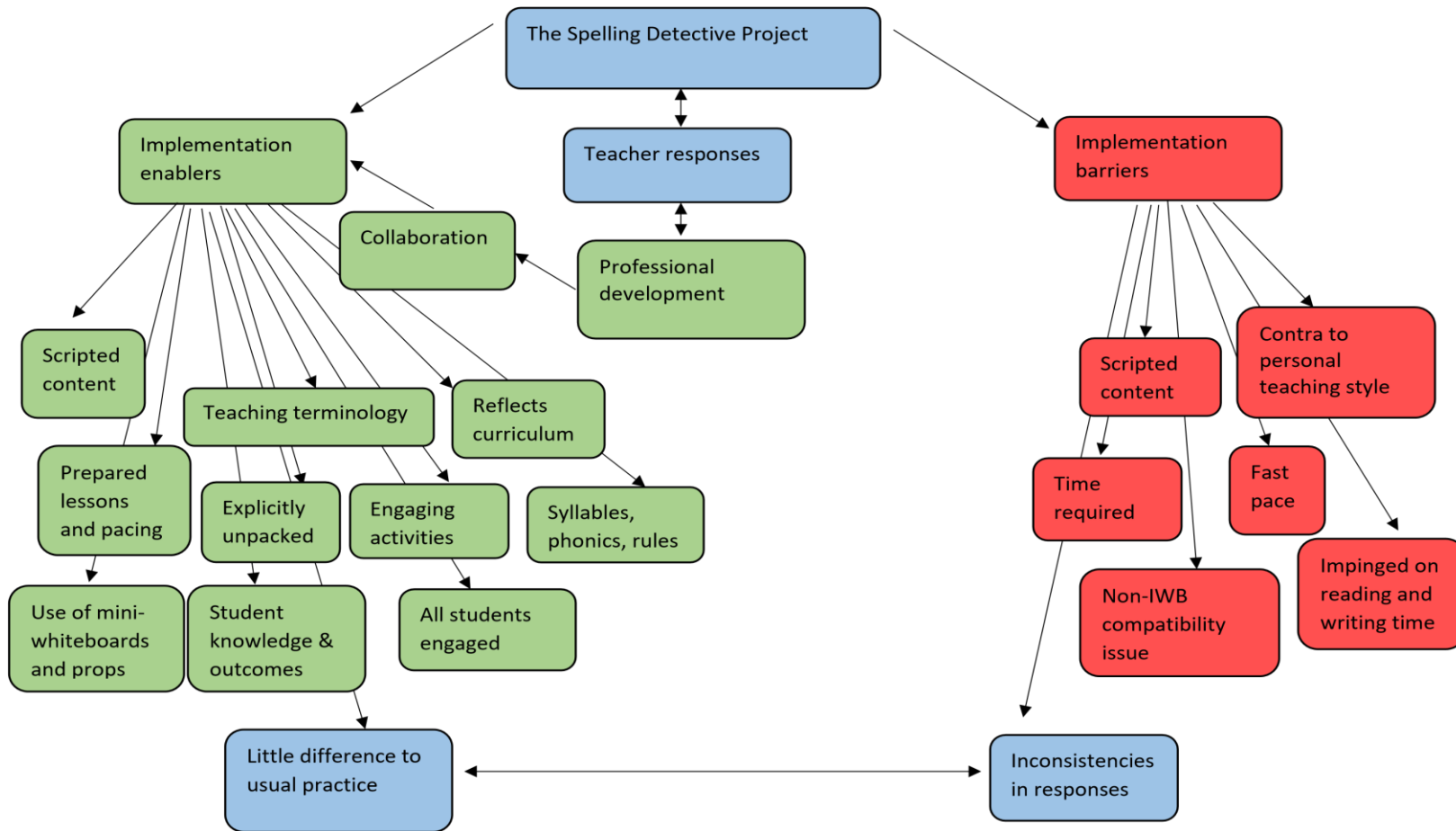


Figure 35: Thematic coding of teacher responses to teaching and engagement in *The Spelling Detective Project*.

Chapter 7 Case studies

The case studies in this section reveal factors which may have either enabled or hindered the individual teacher's engagement with the research project. Each study focuses on the information gathered from participation in the professional development (PD) session, the individual interviews and the Researcher fidelity observations during The Project. The studies form part of the mixed methods research and provide a link to the teacher quantitative and qualitative data in the Results chapter.

A professional life-cycle model for teachers developed from longitudinal research studies (Huberman, 1989) has been used to help explain the influences schools and education governing bodies may have on the views and pedagogical practices of teachers during their teaching career. Whilst this is not meant to be prescriptive, it is an attempt to make sense of the psychological and sociological variables that may affect teachers at different stages throughout their professional journey. The participants in these current case studies were the two Year 2 teachers who implemented The Project, the Learning Support Teacher who was initially teaching with one of the Year 2 teachers and the Acting Principal who was not currently in a teaching role, but reviewed a lesson during The Project. The first profile is now presented.

7.1 Robyn, CPS1A class teacher

Robyn had been teaching for 28 years and had been at CPS1 for 19 years. She held a Bachelor of Education (B. Ed.) degree. Robyn could be friendly towards students, but with the Researcher, often appeared disinterested and chose to say little in conversation. The Principal had recommended her as teacher who liked to come up with new teaching ideas, many of which she sourced from internet forums and social media. Professionally, according to Huberman's (1989) stage model of the professional life cycle of teachers, Robyn could be placed in the '*serenity*' and *affective distance* stage. This is typically associated with a feeling of self-acceptance that one is working effectively, the ability to anticipate occurrences, and being able to know how to respond. Robyn felt comfortable relying on *Twitter* professional dialogue for much of

her PD. She stated class teachers were offered little from the diocese, with the coordinators receiving most diocese-based PD.

Initially, Robyn had displayed willingness, more than enthusiasm, to participate in The Project. During the PD she was unwell and as such was understandably withdrawn in her interactions. However, she was critical of some of the spelling content, saying it was incorrect. For example, each participant was given a chapter from Henry (2010) that contained Anglo-Saxon spelling content and accompanying spelling rules. Robyn disagreed with the explanation of vowel teams /oy/, /ew/, and /aw/ and was adamant these were not vowel teams due to a consonant being present in each. Accordingly, the Researcher explained that a vowel team consists of two or more letters that represent one vowel sound (Moats, 2010). Robyn was concerned about the level of the initial spelling content, saying it was too easy for many of her better spellers. In addition, she felt the various fonts on the PowerPoint® slides would be difficult for the students to read. Robyn was also worried about the mini-whiteboard pens drying out during the lesson and the disruption it could cause. She also thought The Project would impinge on her guided reading and writing time with students and presenting each lesson would be difficult in her classroom set-up (see Appendix O for classroom layout).

Robyn had embraced inquiry learning which was a diocese priority for 2017. She displayed great creativity and enthusiasm in her classroom décor. She had created most of the teaching displays and instructions from letters in different fonts which she then assembled into words and sentences. The room contained many positive sayings, for example, *Keep believ'n* was displayed by the door. Displays of work samples, maths and literacy resources were beautifully presented. Student work areas included the following flexible seating choices: two traditional tables with student chairs or exercise ball seating; some bean bags; a tepee; a kidney-shaped desk with three stools and an adult chair on the opposite side; many floor cushions; some low stools; a lap writing frame; a children's couch; and some tables on stilts for students to stand at and work. Students were encouraged to work anywhere they chose.

In the pre-intervention interview, Robyn said she adopted more of a writing focus to spelling, stating “We do 20 minutes writing each day and then it will be coming through in conferencing, the spelling ...we do phonics based ... and vowel sounds...” Robyn said she might ask a child to look at a vowel sound such as /o/ in their reading. She felt the most important spelling activities were building on a student’s current knowledge by teaching phonics through reading. She stated her “good readers obviously are good spellers because of the vocab and their word attack skills.” She did not believe in work sheets, feeling they had no purpose apart from keeping students busy. Robyn explained, “I’m finding at the moment with their phonics, with their spelling, it’s coming through with the reading.” The strategies she favoured teaching her students to use were to ‘have a go’, seeing if the word looked right, using the computer to look up a spelling, and seeing if the word was “in a book or around the classroom.” She fostered independent learning, seeing herself as a last resort for students to call on. Robyn felt students who experienced spelling difficulties did not read much at home and, in class, were often not paying attention. She favoured getting them to sound out a word, however she stated poor speech was also an issue, saying “Australians are perhaps not the best, they’ll find a short cut to anything [sic] so the way they, you know speak, and I’m probably not the best example.”

Robyn thought spelling was important, but did not consider it played an important role in everyday writing. She wanted her students to take risks, stating they were often not writing because they would “stop their writing, come out and get their spelling checked.” If writing was to be published, then she would expect the student to edit incorrect spelling. When asked if her understanding of spelling concepts had changed over time, she said “I don’t think so. You need to spend every day reading ... every day writing. You’re not going to learn by osmosis, you need explicit, explicit in that [sic].”

Before The Project began, two students in Robyn’s class with learning difficulties (LD) and two struggling spellers, Nina and Cindy, were regularly withdrawn from the morning literacy session to attend reading lessons with Ella, the Learning Support Teacher (LST). Ella thought the learning progression in The Project provided essential skills development that would be excellent for Nina and Cindy, provided The Editor’s Desk and Poetic Dictation tasks were differentiated. Therefore, it was agreed that

during The Project, apart from the two LD students who would not participate in the lessons, Ella would support Nina and Cindy throughout in Robyn's classroom. During the demonstration lessons the Researcher gave to each teacher, Robyn was observed following the script and being attentive to the lesson content.

During The Project, whilst Robyn presented each slide, she was observed to not implement the lessons in accordance with the EI pedagogy and student engagement norms. This was most likely due to her dislike of the semi-scripted content as it was contra to her teaching style. Her display of spelling rules relevant to the lesson were not always visible. She did not use the random student selection, preferring to pick those who tended to provide the right answer, therefore little corrective feedback was given. In isolating, verbalising and counting the number of phonemes in a word, for example, f-r-ay-ed, Kung Fu was used to punch out each phoneme. Correct Kung Fu posture became the focus, not the target word. In The Editor's Desk sentence editing task, Robyn choose not to demonstrate the re-writing of each word in the sentence, preferring to insert spelling corrections into the sentence or write over the incorrect word.

Robyn presented each slide in the lesson but in choosing not to utilise much of the semi-scripted content, missed important student practice and limited the review of prior learning. She became concerned that two of her below average spellers would find the daily content too difficult. During the second week, she asked Ella, the LST (who at that time, was also the Acting Assistant Principal), to agree to Nina and Cindy being withdrawn from The Project. Robyn felt the content could cause them to feel stressed. The Researcher agreed to the request to eliminate any such situation. This resulted in Ella also being removed from The Project to provide both students with their usual reading program.

In the mid-intervention interview, Robyn stated that she felt there was too much in The Project to cover, that it impinged on her reading group time, and that she already covered most of the content, saying "I do phonics, phonics based spelling anyway." She thought the only knowledge she had gained was the technical terminology. Robyn continued to dislike the semi-scripted content stating "it's not my script and I can't deviate, so ok, I can't 'cause it's a project, so I have to stick to exactly what's there ... I

can't put my own personal way I teach into it." When asked if the students were responding to the lessons, she replied they were, but added:

I can sort of see that sometimes they start talk'n [sic] and getting a bit unsettled ... they sort of know what's coming up, they're going to do the Robot Walking, and you know, do the hoops sort of thing.

Robyn believed she could not comment on whether the students liked the activities and it would be best to ask them. In another lesson observation, when students made spelling mistakes on their mini-whiteboards, they did not always receive corrective feedback. Robyn sometimes provided incidental recap on the target written spelling, but was observed to give an incorrect definition of written /ch/ as being a phoneme instead of a grapheme. During editing and dictation tasks, the flexible student seating meant that not all students were able to see the whiteboard. Some students had their backs to the teacher, some were distracted bouncing on their exercise ball seat, whilst others were absorbed with their desk toy. During the lesson, when Nina and Cindy returned from a session with Ella, they were occupied with an iPad app.

In The Editor's Desk tasks, Robyn did not ask for an explanation of the spelling rule that required editing. During this task, the students were particularly unsettled, and immediate corrective feedback was often lacking.

The final fidelity observation saw Robyn's delivery more fluid. She provided good revision on the position of digraph /ai/ although the associated rule charts were still not displayed, and each teaching point throughout the lesson was shortened.

Pronunciation particularly during specific syllabification of words remained an issue. For example, *multiplication* was pronounced *mul-ter-pler-cation*. Towards the end of The Project, Robyn was observed to provide a good explanation for the separate syllable *-ed* in the word *grunted* which she drew from a semi-scripted slide. However, *grunted* is a two syllable word, and the second syllable, morpheme *-ed* has the schwa sound. Robyn did not follow the schwa pronunciation, saying the word was *grunt-ed* with equal stress on both syllables.

The Editor's Desk task was shortened, and Robyn either squeezed the edits in between words or wrote over the incorrect words on her screen. When a student made an error writing *theire* for *their* it was only picked up by another student calling out the correction. Robyn instructed another student to alter the word *here* to *there* but

placing a /t/ in front of *here*. This was problematic, as the purpose of the editing task was to engage students in discussion to provide the correct spelling for *there* before the teacher rubbed it out and demonstrated writing the whole word correctly.

The poetic dictation component was delivered whilst students were chatting before Robyn stopped and asked for attention. One student was observed rolling an apple around the room: this was also their fruit break time. Students did not read the previous or current content of the poem and the lesson finished abruptly to facilitate the components of Robyn's own literacy program.

Robyn was concerned about the random selection of students for the post-intervention interview. She felt some of her students would not want to take part, especially the less able spellers, however this did not occur. Unfortunately, apart from the pre-, mid- and post-interviews, Robyn was seldom available to discuss any aspects related to The Project with the Researcher.

In the post-intervention interview Robyn stated she felt more knowledgeable about spelling terminology and knowing more about syllables. She said "knowing your vowel sound goes with the syllable, sort of drumming that is a little bit more, um ... yeah, that's probably a good help." Otherwise the content was all "stuff that we cover."

When asked her views on barriers to implementing The Project, Robyn said the content was too great, which meant she could not do her usual literacy activities. She reiterated the semi-scripted lessons remained an issue. Another problem which had not previously been mentioned, was that she did not have an interactive whiteboard. Robyn was asked if she could elaborate. "I can't write on PowerPoints®. So every time that you had somethink [sic] in there to write on I had to go through those slides and made flip charts out of them." The Researcher asked Robyn why she chose not to write the editing tasks on the whiteboard next to her screen which was the usual practice. She stated, "that's like, you've got the interactive whiteboard there and you've got the other one right over so it's probably no smaller space than that, so yeah, I had to adjust all of the slides." The statement was puzzling. The Researcher had provided a portable whiteboard to place next to the screen and use during The Project, but both teachers declined to use it. Despite the Researcher explaining that a clear space was

required to write pair-share responses and demonstrate the edits, Robyn chose not to use the smaller whiteboard next to her screen and the point of using a separate whiteboard was missed.

Robyn had no particular view on approaches used that may have supported teacher and student engagement. She felt she had not changed her views on teaching spelling, stating that "... the phonics is the important part and learning some of those rules and what letters go together and the sound and all that, nup, that's important." When asked about student achievement during The Project, Robyn said they had just learned about the technical terms and said "They're sort of talk'n [sic] about things, so you know, okay, "What sound is it? Okay, it's an *-ed*." "What's the *-ing* word?" "So you know, they're sort of pick'n [sic] up on that."

Finally, Robyn was asked if there was any of The Project content she would consider using in the future. "Yes, ... so things like, you know, you've got your mistakes, so which ones, you know, point out the one. Like the syllables. That sort of thing."

7.2 Jan, CPS1B class teacher

Jan had been teaching for 22 years and had been at CPS1 for 15 years. She held a Bachelor of Education (B. Ed.) degree. She was friendly, approachable and caring towards her students. Jan was dissatisfied with the lack of PD currently available through the diocese for generalist teachers and the continued change in diocese literacy approaches. She said, "I guess they go with the current 'buzz,' and at the moment it's inquiry." Family matters were a priority in her life. Professionally, according to Huberman's (1989) stage model of the professional life cycle of teachers, Jan could be placed in the *stock-taking and interrogations at mid-career* stage. This is typically associated with dissatisfaction, for example, in a change of direction in school policy or constant change that occurs in the system and personal commitment to interests outside of school. Such events may contribute to a general decrease of career ambition. During the PD provided by the Researcher, Jan was wary of Explicit Instruction (EI) approaches, but pleased all the spelling lesson slides in The Project would be provided. She felt anything that she did not have to do would be one less

thing to plan. Her main concern was that the 40-minutes allocated to The Project may impinge on her guided reading and writing literacy components.

Jan's room was arranged with desks and chairs in a traditional fashion (see Appendix O for classroom layout). It included displays of student work samples and literacy resources. Jan had accrued many charts to support students' literacy and other KLAs but not all were hanging on the walls. There was a 'quiet' corner which was in keeping with the school's recent adoption of the inquiry learning philosophy. Jan questioned some aspects associated with this approach, such as being required to give up coveted space for a quiet corner, but she had insisted on retaining her traditional seating arrangements.

In the pre-intervention interview, Jan said she used the commercial spelling program *Sound Waves* which was an agreed school practice. She did not particularly like the program, preferring to focus on word families and vowel sounds. She felt the most important spelling activities were teaching letter sounds and word families, integrating taught spelling into a writing and grammar focus, and using sentence dictation. The strategies she favoured teaching the students to use were breaking words into syllables, correct articulation and looking for patterns in words. For the students who experienced difficulties with spelling, Jan focussed them on sounds and blending sounds in words. She specified:

It comes back to that language ... I do a lot of "Look at my mouth" ... "Where's your tongue when you say that sound? I want to hear a /ch/, /ch/." I probably should bring in some mirrors as well ... for them to actually see themselves.

Jan believed that spelling played a very important role in writing development. She explained:

Part of being a writer is being able to write for an audience and if you can't spell, well you know, you're going to have trouble, you know, as a reader, they'll have trouble reading what you've written and decipher.

When asked if her understanding of spelling concepts and strategies has changed over time, Jan thought her knowledge has "evolved over time and it's still evolving." During the Researcher demonstration lessons, Jan followed the paper copy of the script and joined in with the students, displaying enthusiasm and enjoyment. Whilst she was verbally enthusiastic about the intervention, during initial fidelity observations, she

was observed to be unfamiliar with the daily lesson content, reflecting a lack of preparation. There was minimal use of random student selection in preference to choosing students who volunteered. The Researcher noticed that sometimes both important concepts and nuances in the lesson were missed. This resulted in a slow pace and halting delivery, with students becoming unsettled. Jan could exhibit good classroom management skills, but sometimes was tolerant of poor student behaviour.

Throughout The Project, Jan was observed to slowly increase her knowledge on the phonological and morphological aspects required to teach spelling effectively, but punctuality and lack of preparation was a continuing issue. However, she was pleased of the Researcher's input and asked questions, appearing keen to continue developing her spelling knowledge. Jan displayed and referred to relevant weekly spelling and morpheme affix rules and following the slide sequence, reviewed prior learning each lesson.

In the mid-intervention interview, Jan stated that she found the explicitness of the pedagogy and student engagement norms, including the fast-pace and immediate corrective feedback, challenging. She felt she was being too demanding of the students asking them to rub out an error on their mini-whiteboard to write it correctly, and this approach was difficult for her to implement. However, overall, she liked The Project content, including reviewing previously taught concepts and teaching rules to accompany each new letter-sound sequence. She reported the students were motivated, liked the spelling rules, and enjoyed the activities, being particularly eager to be the policeman during the Policeman's Hat activity. Jan provided sound feedback to student questions. For example, when students were classifying words ending in morpheme *-ed* into a column for either a one, two or three syllable word, an above average speller, Christian stated "It's hard to know which column to put *cooked* in." Jan replied "Clap out the syllables. Do we say *cook-ed* or *cook(t)?*" Christian replied, "Oh yes, I see, it's one syllable." Providing this feedback to Christian demonstrated that Jan knew the *-ed* ending pronounced with a /t/ was not a separate syllable.

During The Editor's Desk component, Jan chose to do the editing tasks on her large conventional whiteboard, writing correct spelling above each sentence. She was observed to follow most of the semi-scripted content, discussing misspelled words

with students and recapping on taught spelling concepts. However, her general laissez faire approach to noise levels and overall slow lesson pace impinged on directing students' focus on the editing task at hand. As the Researcher revisited the importance of fast-paced delivery to keep students focussed, noise levels lessened and attention was seen to improve as Jan became more adept at delivering this component.

Jan felt comfortable with the poetic dictation as she often included sentence dictation in her spelling lesson. Nevertheless, initially she did not follow the protocol and dictate the sentences at the pace of usual speech, or ask the students to hold it in their memory. Instead, she read a few words and waited until they had been transcribed before proceeding. However, after discussion with the Researcher, during the course of The Project, Jan's dictation presentation improved and students were also observed reading the completed dictations.

In the post-intervention interview, Jan believed she now knew more about spelling terminology and understood that lessons needed to be explicit with new concepts presented in small amounts. She saw the value in EI and the related engaging activities. She enjoyed teaching this way, but "it took a big chunk of time, if you could make it a bit shorter" that would be good. Jan was then asked if there were any teaching approaches in The Project that she had not previously used. "Well, I don't know that I've been teaching anything different ... we would have looked at the rules and things like that but not so explicitly ... not as in-depth." Jan also had not previously used immediate corrective feedback, routine phoneme segmentation and phonemic awareness activities, or any of the associated movement strategies.

Jan was then asked for her views on factors that had either hindered or enabled engagement in *The Spelling Detective Project* (see Figure 35). She felt the only aspect that was a barrier was the length of the lesson. She enjoyed the EI pedagogy, and the semi-scripted content. "You knew there was a set – yeah, you knew exactly what the expectations were and what you were aiming to achieve and the children knew what they needed to do." She also said all the children were engaged and achieving, "even the more capable spellers, they didn't ever say "I don't want to do this, it's boring" ... "nobody ever said that ... they're thinking about it [spelling] ... it's starting to become a thoughtful thing."

Finally, Jan was asked if she had seen a change in her students' spelling. She said they were thinking about the concepts much more and using the terminology. "The resources that you've given us have helped and the training at the start of The Project." Having seen what the students could achieve, Jan wanted to continue with EI the following term.

7.3 Ella, Learning Support Teacher (LST)

Ella had been teaching for 16 years and had been at CPS1 for 12 years where she was the LST. She held a Bachelor of Education (B. Ed.) degree, but no special education qualifications. At the time of the intervention, she had also volunteered to be the Acting Assistant Principal and was undertaking leadership training. Ella was friendly, helpful and measured in her approach. She was well-spoken, encouraging and supportive of her students. Professionally, according to Huberman's (1989) stage model of the professional life cycle of teachers, she could be placed in the *diversification and change* phase. This is typically associated with embracing greater responsibility by volunteering for duties that prepare one for career advancement.

As the LST, Ella felt fortunate to attend regular learning support network meetings every term. Previously, she was the early learning initiative contact teacher in the school, and received regular PD through the diocese. If Ella required a specific resource for her students, she used the website *Spelfabet* (www.spelfabet.com.au).

Approximately five years ago, Ella had undertaken a short professional development session on the role that phonics, phonemic awareness, and the use that decodable texts play in teaching struggling readers. Previously, she had used meaning-based texts within a *Reading Recovery* (Clay, 2001b) focus and the outcomes were not particularly encouraging. She was delighted with the progress her students had made when changing her teaching to include phonemic awareness, phonics and decodable readers. In collaboration with the Principal and Year 2 teachers to be involved in the research, it was suggested that Ella support the struggling spellers in Robyn's class for the duration of The Project. The time spent in the classroom with these students would replace them being withdrawn for individual reading tuition.

During the PD session, Ella was enthusiastic about EI pedagogy, saying it would be excellent for her below average readers and spellers as well as her LD students, but was concerned with the fast-paced delivery. Ella also raised poor student handwriting as an issue and felt this should be taken into account during The Project. She offered to provide a handwriting proforma to slip into the plastic mini-whiteboard sleeve to assist students with correct letter placement. She agreed to take on the task of assembling the resource boxes for each Year 2 class that would contain both Researcher supplies and school picture books for the *Insect* theme.

In the pre-intervention interview, Ella talked about the strategies and activities she used to teach the Year 1 to Year 6 students she withdraws who struggle with reading and spelling. Ella said:

in preparation for being able to match letters to sounds ... I have the phonetic readers and books that I use ... they've all got holes in their reading, writing and spelling ... Teachers know ... that the texts are phonetic readers and that's their strength, they're not rich texts ... so they know that's not being covered ..."

She felt the most important spelling activities comprised sound manipulation and blending. "What I found really interesting is that they can now blend ... um, nonsense sounds and words ... because they're not trying to guess a real word, they'll blend what's there, irrespective." Ella thought that the fact that she had only been looking at sound manipulation was probably a short coming in the strategies she favoured teaching students to read and spell. She found students had the most difficulty with vowel sounds. Ella provided pictures on the tables in her classroom, preferring to focus on the visual strategy of looking at "the vowels with the short sound ... so I have an *apple* for /a/; *egg* for /e/; *igloo*, *umbrella* and *orange*."

Ella stated that her least able spellers and readers continued to have the most difficulty with blending sounds together, even though they knew each sound. She felt that was partly due to them often not knowing the meaning of the word. Furthermore, the allocated time she had with students was not sufficient to address all their literacy issues. Ella thought spelling plays a very important role in writing development, and stated she is a "victim of Whole Language and a terrible speller". She said poor spelling still constrained her choice of words when writing for an audience.

When The Project commenced, Ella provided specific support to Cindy and Nina during the editing and dictation tasks that had been differentiated to accommodate the below average students' spelling level. She also emphasised the importance of correct letter formation on the handwriting proforma. Ten days into The Project, Ella approached the Researcher requesting that Cindy and Nina be removed to return to their usual withdrawal reading lessons. As explained in Robyn's case study, this also meant Ella would no longer be able to teach on The Project and related fidelity observations would not be conducted.

In the mid-intervention interview, despite Ella no longer being directly teaching on The Project, her opinion on the spelling content and EI pedagogy was sought. She said she continued to support and use a similar approach. Nothing had changed for her, and there were "lots of similarities, it's just that mine is a lot slower ... and obviously withdrawing Cindy and Nina ... they, you know, have processing issues and they just can't keep up with it." Ella thought the rules were particularly helpful for her personally, but "sometimes above the children, um, so I wonder about their value... certainly for the kids I'm taking. She felt they would not remember them. However, Ella said she was now giving her older students rules such as the Doubling Four Rule and "Bossy e ... you know for them, they never knew why. It was a guess". She felt once they had the pattern it made sense.

Ella was asked if she had seen any difference in Cindy and Nina's spelling achievements so far. She thought it would be interesting to know if the blending work they did with her transferred to their writing, but said she did not know, as she was not their class teacher. There was no regular dialogue between Ella and Robyn on spelling and writing progress. When asked if she felt more knowledgeable about spelling concepts, including morphemes, Ella said "absolutely, definitely". When we started to use the slides and it said "a morpheme is ... I went, ah right!"

During the rest of the term, Ella attended four days of external professional training related to her Acting Assistant Principal role and was on sick leave for 10 school days. On her return, Ella, and the Acting Principal, Tim, became more involved in the administrative issues associated with finding replacement teachers in a regional country area due to the influenza epidemic and attending dioceses meetings. It was

unfortunate that during this teacher shortage, Cindy and Nina could not attend withdrawal lessons. They remained in Robyn's class, and continued to use an unrelated iPad app during The Project.

In the post-project interview, Ella reiterated that she supported The Project content and that none of her views on teaching spelling had changed. She felt she covered many of the teaching strategies and activities with the students she withdrew, but now tended to use more technical language to explain concepts to her older students. She saw no particular barriers that would hinder her implementing The Project in a mainstream class, but felt the pace was too fast for students with learning difficulties. Ella saw both the EI pedagogy and semi-scripted content as positive implementation factors.

7.4 Tim, Acting Principal

Tim had been teaching for over 25 years and had been at CPS1 for six years. He was the Assistant Principal and usually the K-Year 6 multi-age literacy groups' teacher: he held a Master's Degree in Education (M. Ed.). During this research project, Tim was the Acting Principal whilst the Principal was on leave. He was enthusiastic, hardworking and always friendly towards staff and students. It was difficult to place Tim at a particular professional stage according to Huberman (1989), but he could most likely be positioned in the *diversification and change* phase. He was extremely busy attending to diocese meetings and policy directives which would most likely increase the prospect of future promotion. In his current role as Acting Principal, Tim could be seen as enhancing his knowledge and effectiveness as a teacher and leader. Tim's preferred choice of PD was to research a topic he was going to teach often using internet sites. He had the occasional PD opportunity through the diocese, recently attending one called *The Learning Pit* (Nottingham, 2018) which he felt was excellent and an eye opening experience for his teaching approaches.

Tim attended the PD session the Researcher provided on The Project for just under one hour, leaving to attend a diocese network meeting. As a result, he did not have the opportunity to view the complete content. However, he supported implementing The Project. In the pre-intervention interview, Tim said he had not taught spelling for some

time, but felt it was important when applied writing, however, he did not see it as “an isolated area of education.” He felt some important strategies to support spelling development were the use of sentence dictation, and teaching etymology to increase vocabulary knowledge. Tim thought “giving out chunks of spelling words, for the sake of it” was ineffective and he would prefer to build on aspects such as homophone and etymology knowledge.

Preferred strategies for the students to use would be to look for patterns and sounds in word families. He thought students who struggle with spelling should take more risks as “they just spell words they know they can get right.” When asked about the role spelling plays in writing, Tim felt it was vital, saying he had been known to change a sentence himself because he wondered if a word he had used was correctly spelled. He said his understanding of spelling concepts had changed over time and was still evolving. When he first started teaching, Tim said he used “explicit teaching strategies, rules, theme words” but this view had changed. “I see it’s more important if it’s relevant to the students.” Tim felt he was not the best teacher of spelling, but realised spelling must apply to whatever a student was writing at the time. He was concerned that there were some Year 6 students who “don’t know all the strategies ... and sounds” and still required assistance and therefore, he was looking forward to seeing The Project in action. However, from mid-term onwards, the continuing influenza epidemic left the school with a dearth of regular administrative and teaching staff. Neither Robyn or Jan succumbed, but Ella did, and as a result, Tim’s increased workload did not allow for the planned three lesson observations or a mid-intervention interview. However, he managed to make time for one observation half way through The Project.

The Researcher arranged for Tim to observe a lesson in Jan’s classroom and he offered to provide a written report. Tim was greatly impressed with the lesson, in particular with the engagement and involvement of all students in each spelling ability level. In the post-intervention interview, the Researcher asked if his views on teaching spelling concepts had changed at all. Tim replied:

Definitely, especially using terminology. I would have been reluctant in the past to use morphemes and graphemes, but now after seeing the students be able

to relate to all those terms, I realise now in my own lessons, I could have been doing that, involving them more.

Tim thought the use of mini-whiteboards, Hoop Stepping, and the Policeman's Hat strategies and related activities were particularly impressive. When asked if he believed there were any barriers to implementing The Project content, he replied "No! I felt that all the students ... like ... Eric who tends to struggle a little and Donna, I noticed they were engaged and getting a lot of accuracy." Tim was asked if he felt more knowledge about components of spelling, such as morphemes. He said he did, but "I feel that even some of the other staff and some of the other students involved in the program would have struggled with [sic] certain aspects of the lesson until they're trained." Tim saw the value in The Project and stated that in the future, if he taught spelling, he would definitely use it again.

The four teachers who had attended the PD prior to The Project and the post-intervention interviews all said they usually obtained their professional learning from dialogue on *Facebook* groups and professional websites. Some comments were:

"I share what I'm doing in the classroom. People come up with stuff. I read blogs and websites ... everyone's just discussing, talking, it's good" (Robyn).

"I look at what others do ... Some are for spelling. It's a professional dialogue. I've never commented, just look at what others do in NSW. They're always asking about spelling. There isn't actually an explicit program in spelling ... There used to be more on offer [from the diocese]. Now they put the COSA (collaboration of student achievement) people into the schools. They go with the current buzz label. It's inquiry learning at present" (Jan).

"*Spelfabet* is good. Because I'm learning support I go to the meetings every term. I get to network" (Ella).

"I research a topic if I have to teach it ... Google to see what others are doing" (Tim).

These comments indicate a there is a lack of diocese based PD for mainstream teachers and that in general, these teachers felt more comfortable with internet forums to obtain their knowledge. Lack of critical examination of research-based

methods suggests that teachers favour quick answers from peers over engaging with evidence-based pedagogy to increase student outcomes. This sentiment was noted by Carter and Wheldall (2008) who explained that for some teachers “The word ‘research’ has been extended to mean almost any perusal of available source material, no matter how casual the approach or dubious the source, for what every purpose. ‘Surfing the net’ is commonly termed ‘research’, for example” (p. 5).

The major findings from this study and links to previous research are reported in the following chapter, the Discussion.

Chapter 8 Discussion

The aim of this study was to examine the effects of explicit instruction in the phonological and morphological aspects of word level spelling on Year 2 students' spelling performance. The research was conducted to identify and address long-term low spelling outcomes in rural NSW and used an intervention called *The Spelling Detective Project* (The Project). The research design involved collaboration with teachers who selected the science theme, *Insects* in which the English KLA was linked, and the intervention situated. The mixed methods approach used for this study collected quantitative data from teacher and student assessments, and qualitative data from interviews with teachers and students. Case studies provide a link to the teacher quantitative and qualitative data results.

The following discussion presents the major findings from this study in relation to previous research. Findings related to each of the five research questions are discussed in turn, together with possible explanations and implications. This chapter also outlines which findings add new knowledge to the field that may contribute to improving student spelling outcomes. A discussion summary is provided at the end of each research question section.

8.1 Research Question 1: a) Which phonological and morphological aspects of English spelling did all teaching staff in two rural NSW primary schools demonstrate? and, b) What were the current views and approaches to teaching spelling, specifically in Year 2?

Findings on teacher pre-intervention word level phonological and morphological knowledge in this study revealed that overall, all teachers in the intervention and comparison schools had limited knowledge of both these aspects of English spelling. These findings are consistent with other studies in which the participants also had a varied knowledge of components required to teach literacy successfully to all students (Chapman et al., 2018; Fielding-Barnsley, 2010; Fielding-Barnsley & Purdie, 2005; Loudon & Rohl, 2006; Mahar & Richdale, 2008; Meehan & Hammond, 2006; Meeks & Kemp, 2017; Moats, 2009a; Stark et al., 2015; Washburn et al., 2016).

Table 30 of the results shows that in terms of basic foundation aspects of spelling, all teachers in both the intervention and comparison schools correctly identified a short

vowel sound and correctly counted syllables in *unforgivable*. However, only just over half were able to identify the definition of a phoneme and a voiced and unvoiced consonant pair, and fewer than half correctly identified a statement defining orthographic awareness or selected the correct definition of a syllable. Very few identified a diphthong or a schwa. These results are comparable to previous research by Fielding-Barnsley and Purdie (2005), Meehan and Hammond (2006), and Mahar and Richdale (2008), who also found teachers' knowledge of these aspects of word structure was poor.

The teachers in the current study had between four and 37 years' teaching experience. Findings from previous research also showed that there was little difference between beginning, experienced or specialist teachers (Fielding-Barnsley & Purdie, 2005) being unprepared to teach spelling including phonics (Chapman et al., 2018; Louden & Rohl, 2006; Washburn et al., 2016). Teachers had greater knowledge of a short vowel sound and counting syllables in a word than identifying speech sounds in a word (Fielding-Barnsley & Purdie, 2005; Mahar & Richdale, 2008). They were also far less able to define a syllable, voiced and unvoiced sounds, a consonant blend, diphthongs, reverse the sounds in words (Fielding-Barnsley & Purdie, 2005; Meeks & Kemp, 2017), or identify a schwa (Fielding-Barnsley & Purdie, 2005; Mahar & Richdale, 2008; Meehan & Hammond, 2006).

Whilst some of the previous research was conducted with preservice teachers alone (Fielding-Barnsley, 2010; Louden & Rohl, 2006; Meehan & Hammond, 2006; Meeks & Kemp, 2017; Washburn et al., 2016) which differs from the sample in this study, many of the studies also surveyed beginning teachers (Stark et al., 2015), early childhood, and primary school teachers (Chapman et al., 2018; Moats, 2009a) including special education teachers (Fielding-Barnsley & Purdie, 2005; Meehan & Hammond, 2006). In this current study one of the Year 2 teachers was early-childhood trained, one primary trained and the Learning Support Teacher (LST) was also primary trained, but had no special education qualifications.

Fewer than half the teachers in the current study identified the syllables in all eight words tested. The most common words that teachers were unable to syllabify correctly were *attached*, *unbelievable* and *gardener*. This could imply that these

teachers were unaware that every syllable has a vowel, and that syllable breaks do not always correspond to the breaks used in speech (Moats, 2010). It is suggested that in such cases, spelling knowledge may be misleading when syllabifying speech (Moats, 2009b).

These results are consistent with previous research that showed whilst many teachers are able to identify syllables in given words, there are also many who stumble with identifying even the most common syllable, a closed syllable (a syllable with a short vowel followed by one or more consonants). Meeks and Kemp (2017) found fewer than half the teachers in their study identified the word *napkin* from a choice of five words as comprising two closed syllables. Knowing that every syllable has a vowel is important for both decoding (reading words) and encoding (spelling words) (Moats, 2010). Teaching students to identify each syllable and locate the vowel or vowel sound greatly assists them in reading and spelling (Meehan & Hammond, 2006; Moats, 2010). Breaking words into syllable chunks provides students with a tool to tackle the spelling of new words (Moats, 2010). “Teachers who know about syllables and the morphology of words will be more capable of explaining why words are spelled the way they are” (Meehan & Hammond, 2006, p. 6). Furthermore, without sound knowledge of syllables teachers are at risk of being unable to competently teach syllables as required by the AC: E (ACARA, 2015b) and *The NSW English K-6 Syllabus* (Board of Studies NSW, 2012a). The implications from the current research are that teachers cannot teach content they do not know and that many of the teachers in this study might experience difficulties in teaching spelling explicitly.

The majority of teachers in the intervention and comparison schools were unable to identify the morphemes in any of the eight words. Therefore, the findings from this study were no different to findings from similar research in which teacher knowledge of morphemes was limited (Chapman et al., 2018; Hinton Herrington & Macken-Horarik, 2015; Nunes & Bryant, 2006; Stark et al., 2015; Washburn et al., 2016).

Moats (2009) found that “the greatest knowledge gaps occurred on all questions having to do with knowledge of morphology” (p. 391). Meeks and Kemp (2017) surveyed 93 preservice teachers in their final year of study: as few answered the definition of a morpheme, it was removed from the survey. In a recent tutorial review

Castles, Rastle, and Nation (2018) included research that stated although morphological instruction has been part of curricula for many years, “teacher knowledge of morphemes is sparse and patchy” (p. 25). Many do not know how morphemes direct meaning and shape spelling. These researchers asserted “this seems to be a critical gap in teacher knowledge” (Castles et al., 2018, p. 25).

The implications from findings in this study are that there was a general lack of teachers’ word structure knowledge and this could impact on teaching effectiveness. Teachers need curriculum, subject and pedagogical content knowledge (Shulman, 1986, 1987) to effectively teach the word level components of English spelling. Results from this study also revealed a considerable dearth of metalinguistic knowledge (knowledge of language structures) which has previously been identified as important to enable teachers to correctly delivery linguistic structures (Fielding-Barnsley & Purdie, 2005; Mahar & Richdale, 2008; Meehand & Hammond, 2006).

8.1.1 Summary of discussion, Research Question 1a

To summarise the findings on teacher pre-intervention word level phonological and morphological knowledge in this study, teachers in both schools had limited knowledge of these aspects of English spelling. Whilst all teachers could identify a short vowel sound in a given word, and nearly all could count the syllables in a given word, many could not define a syllable. Around half of the teachers could identify each syllable in all of the eight given words, but none could identify each morpheme in the same words. These results are consistent with previous research that reported teachers had insufficient knowledge of the English spelling system to teach spelling explicitly to all students. Therefore, there appeared to be a mismatch between the curriculum and syllabus phonological and morphological spelling content and the teachers’ knowledge to deliver it effectively.

Research Question 1b: What were the current views and approaches to teaching spelling specifically in Year 2?

Table 32 summarises the teachers’ views from both the intervention and comparison school on their current approaches to teaching spelling. Overall, the responses revealed that teachers’ used various approaches, many of which reflected constructivist methods within a Balanced Literacy (BL) framework. Five of the six

teachers felt accurate spelling was very important, directly relating to writing development and quality. One of these teachers attributed her education under the Whole Language approach as contributing to her continued struggles with spelling and writing. Further, these teachers' views were consistent with previous findings that good spelling underpins reading and writing development (Bear et al., 2012; Berninger et al., 2002; Bowers & Cooke, 2012; Frith, 1985; Henry, 2010; Moats, 2006, 2009a).

Some teachers embedded their spelling instruction in the context of reading and writing. In particular, Robyn said that students who read well spell well. She wanted her students to be independent learners, using the teacher as a last resort. Robyn felt that when students were writing they needed to concentrate solely on composing, and not concern themselves with correct spelling, which required attention only if being published. Her views are consistent with previous constructivist views that concentrating on accurate spelling interrupts the flow of writing (Lowe & Bormann, 2012) and digital spell checkers can correct initial spelling inaccuracies (Krashen, 2002). Conversely, others have previously found that spell checkers do not detect written nuance and around 30% to 80% (Moats, 2006) of mistakes go undetected (Nicholson, 2017). Moats (2007) stated that whilst appearing attractive to teachers and students alike, those who use such constructivist or BL approaches do not recognise the importance of employing research-based principles and the need for explicit and systematic phonics instruction.

The diocese in which this study took place was committed to the *Literacy and Numeracy Strategy 2017-2020* (LNAP) (NSW Department of Education and Communities, 2017b) linked to the *DET Literacy Continuum K-10* (NSW Department of Education and Communities, 2017a). Two important syllabus aspects reflected in the continuum are that phonics and phonemic awareness are to be taught explicitly. However, the principles and elements of explicit instruction (EI) are not used in the LNAP learning strategies. This is contra to evidence and recommendations from *The National Inquiry into the Teaching of Literacy* (NITL) (Department of Education Science and Training, 2005) which wholeheartedly supported the use of explicit, systematic phonics-based instruction (Carter & Wheldall, 2008). Hammond and Moore (2018)

explained that the “interpretation of the term explicit instruction is very much in the eye of the beholder” (p. 112) and often misunderstood.

Some teachers in this study also endorsed using visual strategies such as seeing if spelling ‘looked right’. Previous research has found whilst visual memory does play a role in spelling development it does not reinforce developing accurate spelling (Joshi et al., 2008; Moats, 2006, 2010; Treiman, 2018; Westwood, 2014). In this study, Robyn encouraged her struggling spellers to read more, stating her good spellers were good readers. This view is also consistent with the constructivist approach to spelling acquisition (Goodman, 1989; Krashen, 1989, 2002), that spelling is learned naturally. However, there is previous research that argues the reverse: whilst spelling is connected to reading, it is a more complex process (Rayner et al., 2001). In spelling one is encoding (Moats, 2009c), in reading one is decoding print (Moats, 2006) and it is spelling development which assists reading development (Moats, 2009c; Serry, 2015). Spelling requires students to learn the alphabet principle, that sounds (phonemes) are represented by letters (graphemes) in spelling (Berninger & Fayol, 2008; Ehri, 2014; Graham & Santangelo, 2014; Joshi et al., 2008; Moats, 2010; Rayner et al., 2001; Schlagal, 2013) and how they are incorporated in reading and writing.

Robyn felt her weak spellers needed to pay better attention and listen to the speech sounds, although she thought Australian speech, including her own, was probably lacking. She thought an absence of home reading was also an issue. Her view was consistent with previous findings that many teachers attribute low achievement to issues such as low literacy levels and lack of books at home (Westwood, 1995). In previous studies, Westwood (1995) and Moats (2014) found that instead of combining effective pedagogy with curriculum content and operating in a more suitable classroom setting, teachers were often unwilling to change their pedagogy to accommodate struggling students. This appeared to be the case in Robyn’s classroom.

In this study, Tim felt students should take a risk. His view is also consistent with the constructivist approach that mistakes can be fixed later (Krashen, 2002; Lowe & Bormann, 2012). However, other research has found that using a “hit and miss approach” (Westwood, 1995, p. 20) can result in failure that consequently erodes both student “confidence and motivation” (Westwood, 1995, p. 20).

All teachers used different terms when referring to their particular teacher-directed approaches relating to teaching spelling sounds, blends or word building. Robyn said she taught *explicit* phonics and Tim used *explicit* teaching strategies, such as teaching rules. Ella said her teaching was *systematic*, Dana's was *teacher-directed*, and Helen liked following a *scope and sequence*. Hempenstall (2017) cites previous research on the differing terminology connected to teacher-directed approaches, stating that the terms *systematic* and *explicit* often overlap, with the latter usually meaning "controlled by the teacher's curriculum and teaching behaviour" (para. 2). In this current research, the teacher-directed approaches in both schools were usually connected to a commercial spelling program. Previous studies reveal that many programs do not use research-based instruction principles (Rosenshine, 2012) and there are few evaluation studies that schools can draw on when wanting to implement effective programs (Wheldall, 2007).

Ella, the LST in this study, mentioned using phonemic awareness activities and provided a phonemic manipulation example of changing the initial sound in *cup* to and /h/ to make *hup*. Both she and Dana were the only teachers to specifically say they taught syllabification. However, Ella stated her LD students struggled with vowels, and that she had not concentrated on those as yet. This is concerning, as previous research has shown that vowel patterns are difficult to learn and require specific practice, particularly long vowel sounds (ū and ō) and short vowel sounds (ă, ĭ and ŭ) (Henry, 2010). It is essential to develop and assess phonemic awareness ability to discriminate between long and short vowel sounds. Furthermore, finding the vowels reflects the number of syllables in the word. Breaking words into syllables provides students with "a tool for attacking longer unknown words" (Moats, 2010, p. 103).

In this study, three of the teachers' (Jan, Dana and Ella) preferred strategies for students experiencing spelling difficulties were focusing on sounds, segmenting and blending, with Ella using sounds manipulation (replacing beginning, middle or final sounds with another letter). Jan specifically stated spelling difficulties were connected to students not hearing the sounds and provided pronunciation exercises such as articulating voiced and voiceless /th/ to assist. Helen drew her students' attention to initial, final and medial sounds and segmenting syllables in words. Ella, Jan and Helen's

methods were consistent with previous research on effective pedagogical approaches for all students (Henry, 2010; Joshi et al., 2008; Low & Siegel, 2009; Moats, 2010) not just those with LD. Moats (2009a) stated that this has not been highlighted in previous teacher education programs.

Most teachers interviewed in this study did not use instructional language consistent with metalinguistic knowledge which is central to delivering accurate and effective pedagogy in spelling constructs. They referred to looking for patterns and sounds in words and breaking words into chunks. This was also consistent with previous findings (Fielding-Barnsley & Purdie, 2005; Mahar & Richdale, 2008; Moats, 2009b) where teachers were either not conscious of, or confused about, the language constructs needed to teach spelling explicitly. Previous research also found that effective teaching is reliant on three knowledge components: curriculum, subject and pedagogical content knowledge (Shulman, 1986, 1987). This includes metalinguistic language, knowledge of which is vital to effectively teach linguistic literacy concepts (Fielding-Barnsley & Purdie, 2005; Mahar & Richdale, 2008; Meehan & Hammond, 2006). The teachers interviewed in this study, did not demonstrate a developed metalinguistic knowledge that reflected curriculum or syllabus requirements. This has implications for both interpreting the curriculum and implementing effective spelling instruction.

In the final individual interview, each teacher in this study was asked if their understandings of spelling concepts and strategies had changed over time. Most said they used more systematic approaches to teaching spelling. Ella, Dana and Helen stated their views were still evolving. Robyn felt her views had not changed, that she had always concentrated on explicit strategies such as phonics including vowels and blends as the students were “not going to learn by osmosis.”

8.1.2 Summary of discussion, Research Question 1b

To summarise the findings on the views and approaches currently used to teach spelling specifically in Year 2, the teachers in both schools used various approaches, many of which reflected constructivist methods within a BL framework. Most teachers felt accurate spelling was very important, directly relating to writing development and quality. However, one teacher felt spelling was only important in writing. This view has

implications for addressing the spelling content of the curriculum and developing students' spelling knowledge and related metalanguage.

Some teachers embedded their spelling instruction in the context of reading and writing; some teachers also endorsed visual strategies, such as checking whether a spelling 'looked right'; one teacher taught syllabification; others preferred focusing on sounds, segmenting and blending. The teachers interviewed demonstrated limited metalinguistics knowledge related to the components of spelling and their pedagogical approaches. In general, their metalinguistic knowledge which is central to delivering accurate and effective pedagogy in spelling constructs appeared to be lacking.

8.2 Research Question 2: a) Did the teachers in both rural, NSW primary schools develop their phonological and morphological aspects of knowledge of English spelling? and, b) What phonological and morphological word level knowledge did teachers demonstrate after professional development?

Results of the pre-intervention knowledge survey (TKS) were given to each teacher in both schools in a confidential letter. This enabled them to see where their knowledge strengths and weaknesses lay. It was hoped that all teachers in both the intervention and comparison schools would be curious about their results and want to address knowledge gaps connected to word level, syllable and morpheme components in the TKS.

Results from the post-TKS showed that teachers in both schools demonstrated little change in their overall word structure knowledge. In the intervention school, there was an increase in the number of teachers who correctly identified a diphthong, voiced consonant digraph, and defined a syllable and orthographic awareness. However, fewer identified a voiced and unvoiced consonant pair and reversed sounds in a given word. In the comparison school, more teachers identified a diphthong and schwa but fewer identified a voiced and unvoiced consonant pair.

Moats (2014) reported from a five-year study that approximately 30 hours of professional development on topics such as phonology and phonics was required to make a significant difference to both teachers' knowledge and student outcomes. Moats also consistently found that some of the most difficult concepts for teachers to

learn were distinguishing “between speech sounds (phonemes) and the letter or graphemes that represent them” (p. 84) and concepts in “functional spelling units such as digraphs, blends, vowel teams, and silent-letter spellings” (p. 84). This finding has implications for the ability of experienced teachers to understand what it is that students struggle with, how this could impact on students’ developing fluent spelling, and how best to remediate it (Moats, 2014).

In this study, results from the post-TKS syllable and morpheme assessments showed a small increase in the number of teachers in the intervention school who identified the syllables in all eight words tested. However, in the comparison school, the increase was greater. Whilst teachers in both schools demonstrated a significant increase in their morpheme knowledge, their overall syllable knowledge remained superior. Just under half identified the morphemes in *prevented*, *unthinkable*, *cakes* and *jogger*, but fewer than a third identified the morphemes in *beautiful*, *thunder* and *psychologists*, and even fewer in the word *platypus*. Over one third were unable to isolate the morphemes in any of the eight words and none identified the morphemes in all eight words tested. Previously, Puliatte and Ehri (2018) investigated the linguist spelling knowledge of Year 2 and Year 3 teachers and found that whilst teachers performed well on measures that assessed their syllable knowledge, they had the most difficulty in identifying morphemes in words. They further found that most teachers did not approach the teaching of spelling from a linguistics instructional approach. However, those who had the most metalinguistic knowledge and used research-based spelling methods saw the greatest spelling improvement in their weaker spellers’ development. Results in this current study would suggest that of the 30 teachers who participated in the post-TKS survey, few felt the need to independently address their knowledge gaps from the pre-TKS results they received.

All teachers in the intervention school were informed that the Researcher in The Project was regularly at the school and available at any time for collaborative discussions. This offer reflected the approach in previous studies in which Anwaruddin (2015) found teachers need opportunities to collaborate and work together as a “professional learning community” (p. 11). However, when the Researcher was in the intervention school during this study, only one teacher engaged in regular professional

dialogue throughout The Project. There had been considerable discussion with the Principal prior to the intervention, and the teachers involved appeared positive. Yet, during the PD and throughout The Project, engagement was minimal. The Principal was on leave for most of the term and the Acting Principal (Tim) and Acting Assistant Principal (Ella) during The Project were often occupied with pressing administrative issues which may have affected their engagement. Building a collegial team at the executive level had been a leadership priority in the school: it appeared to reflect a transformational leadership style as described by previous researchers (Hattie, 2009; Robinson et al., 2008). This was reflected in the collaborative team Tim and Ella had developed. They dealt with challenges as they arose and attended to diocese directives, whilst teaching and learning responsibilities were largely left to the teachers.

There appeared to be a lack of interest through the school and, generally, the Year 2 teachers did not seem particularly enthusiastic or motivated to embrace change. Jensen and Sonnemann (2014) reported previous research on schools that had successfully implemented change. They found that commitment to drive change involves strong leadership, coupled with teachers collaborating and acquiring knowledge from research and each other. In this current study, it appeared that overall, very few of the teachers were motivated by the presence of the Researcher, knowing about curriculum and syllabus content, and EI pedagogy. This may have been due to two factors. First, the school was part of a diocese initiative that reflected the *NSW Literacy and Numeracy Strategy (LNAP) 2017-2020* (NSW Department of Education and Communities, 2017b). This initiative is based on approaches that do not seem to use elements and strategies associated with the principles of explicit instruction or EI. Second, the school had also implemented a diocese K-6 inquiry learning program for the year. In both these initiatives, the teacher is seen as a facilitator rather than an instructional leader. The implications are that those who are committed to this approach may find it difficult to accommodate pedagogical change (Dinham, 2009) and build associated knowledge, even for a small segment of the day. It is suggested that this may well have been the case in this research study.

8.2.1 Summary of discussion, Research Questions 2a

To summarise the findings on the post-intervention TKS word level phonological and morphological knowledge in this study, all teachers in both schools demonstrated little change in word structure knowledge. Results from the parallel syllable and morpheme assessments showed a small increase in syllable knowledge in the intervention school, but a larger increase in the comparison school. There was also a significant increase in teachers who could identify the morphemes in some of the words, but none identified the morphemes in all eight words tested. Results may have been influenced by long-standing constructivist pedagogical approaches to literacy teaching in both schools.

Research Question 2b: What phonological and morphological word level knowledge did teachers demonstrate after professional development?

The second part of this research question asked about the phonological and morphological word level knowledge the four teachers demonstrated after professional development (PD). Results showed that three of the four teachers had little or no change in word structure, syllable and morpheme knowledge. One teacher had a significant increase in word structure and morpheme knowledge and a perfect score in syllable knowledge (Table 38).

Despite their collaborative involvement with The Researcher in choosing the theme and selecting picture story books to link their class reading to The Project, teacher engagement in the in-service PD was limited. There was an overall indifference with most appearing to be wary of the EI pedagogy and the spelling and morpheme content. During the PD session, the teachers engaged little with the professional readings or the curriculum content. This was consistent with findings from previous research reviews summarised by Carter and Wheldall (2008) who reported that most teachers do not seek to increase their knowledge from readings in professional journals.

During the PD in this study, the teachers asked few questions about the constructs of spelling or EI pedagogy. One teacher was specifically concerned about the level of the initial spelling content which she felt was too easy, the EI pedagogy principles, the allocated lesson time, and the disruption it would cause to her inquiry-based classroom set-up. She also felt the various fonts on the PowerPoint® slides would be

difficult for the students to read whereas the other teachers thought students need to be exposed to a variety of fonts. Another teacher was hesitant about the EI pedagogy but she was pleased to be presented with a complete package that freed her from preparation and reflected the syllabus content. The Principal and Assistant Principal were keen to implement the intervention. However, their early departure may have left the teachers feeling the executive was not really part of the professional collaboration event. Previous studies have shown that effective change requires the Principal and senior teachers to be seen visibly driving and encouraging change and setting high expectations for teacher and student outcomes (Hattie, 2009, 2015; Jensen & Sonnemann, 2014; Neilson, 2017) “More is involved than just supporting or sponsoring other staff in their learning” (Robinson et al., 2008, p. 663).

Robinson et al. (2008) analysed findings from previous studies on the connection between leadership and student outcomes. They found that the most effective leaders proficiently handle the many distractions and crises that are imposed on them, so these do not come to dictate their workload at the expense of focusing on achieving student education goals (Robinson, 2008). During the implementation of this research project, the busy schedule of the current Acting Principal, Tim (usually the Assistant Principal) may have left the teachers feeling they were alone during The Project implementation. Strong leadership entails the setting and modelling of goals in order to harness change. It appeared there may have been a lack of understanding about the vital role executive staff play in both developing their own knowledge as well as supporting and recognising the implications of PD (Hattie, 2009, 2015; Jensen & Sonnemann, 2014; Robinson et al., 2008).

Of the three participants who completed the PD session, the Learning Support Teacher was the most positive about EI, the PD and The Project as a whole. However, she felt her pedagogical views were in the minority at the school. She said it would be interesting to see the students’ results, especially for the struggling students. Her comments reflected previous research findings from Guskey (2002) who subsequently developed a model suggesting that teacher pedagogy, beliefs, and attitudes change as a result of student outcomes, not as a result of the PD itself. The Researcher in this current study was aware of the difficulties associated with increasing knowledge in a

single day of initial PD: however, this was all the time the school could allocate. Moats (2014) cites previous studies where there is often insufficient time given to PD and accordingly close teacher knowledge gaps. Yoon, Duncan, Lee, Scarloss, and Shapley (2007) also suggest that change in beliefs is unlikely to occur as a result of PD that is under 49 hours.

These findings differed from reviews summarised by Carter and Wheldall (2008) and Scarparolo and Hammond (2017) in which teachers found an in-service mode of PD reliable and useful. Scarparolo and Hammond (2017) measured the effect that implementing a full day PD had on the teachers involved in their beginning reading project. The project had some similarities to this current study, in that teachers received PD on explicit instruction techniques, and it included a semi-scripted content. A difference was that in the Scarparolo and Hammond (2017) study, the teachers stated they felt supported by the executive who had initiated the schools' involvement in the project. The authors also incorporated on-going coaching during the research. However, in this current project, the Researcher provided an initial lesson demonstration during the PD and subsequent demonstration lessons at the commencement of The Project for both the Year 2 teachers.

During the PD in this research, the importance of further exploring the professional readings and curriculum requirements provided in the session was also emphasised. It was hoped the teachers would engage with the content during the holiday break, learn more about EI techniques that assist diverse learners, and the phonological and morphological aspects of English spelling. Moats (2014) previously found that many teachers undertook PD with the wrong ideas about what it is they actually need to learn to deliver successful pedagogy. Prior beliefs and "overestimating what they know... also get in the way of practicing teachers learning more about what struggling students need from them" (p. 87). This appeared to be the case in the current study as comments from the teachers during the individual interviews suggested that most felt they knew what it was that struggling students require. This included the need for better literacy practices within the home and to concentrate and listen more in class. These views suggest a lack of knowledge about what it is struggling students require in order to learn. Previous studies have found attributing low outcomes to home

background (Snow, 2016) or an inability to learn, may hinder teachers reflecting on the actual content and pedagogical knowledge they require to assist these students (Moats, 2014; Westwood, 1995).

The different reactions to engaging with the EI pedagogical content in this research study were consistent with a review of empirical research by Dagenais et al. (2012). They found that very few teachers engage with research and examine their own teaching practices. They reported attitudes ranging from teachers being sceptical, ambivalent or motivated influenced their willingness to engage with the content. Furthermore, as schools sit within their governing education bodies, implementing change may be influenced or constrained by the power of the overarching culture, which is likely to have been the case for the school in this current research project. This is also consistent with reviews by Carnine (2000) and Carter and Wheldall (2008) who found that education intuitions that are bound to constructivist approaches coupled with teacher ideology, contributed to lack of engagement with research-based principles. In this current research, the intervention school was not only involved in the targeted *NSW Literacy and Numeracy Strategy (LNAP) 2017 -2020* (NSW Department of Education and Communities, 2017b) but also an inquiry learning focus, both of which are based on constructivist pedagogical approaches. It is suggested that this most likely had a profound impact on engagement with EI principles.

Fidelity protocols were completed by both Year 2 teachers and the Researcher on alternative weeks throughout The Project (see Appendix D for examples of Researcher completed checklists). As far as possible, observations took place from the back of the room or whilst the Researcher was seated amongst the students. Both the Year 2 teachers placed a tick in each component outcome that indicated they had accurately applied every aspect of the fidelity observations in every lesson. These views were in contrast to the Researcher's fidelity check observations. To elaborate, in class CPS1A, the class teacher, Robyn, was always prepared and her classroom immaculate. However, from the outset of The Project she chose not to use many of the delivery techniques and specific engagement norms discussed in the PD session that reflect the elements of EI pedagogy. She did not to use random student selection, preferring to select the more able students to provide answers: little immediate corrective feedback

was demonstrated. The lessons were slow-paced and as a result the students were often talkative and not fully engaged. Previous studies have shown that using random student selection provides a more realistic picture of overall comprehension, as when asking for volunteers the most proficient usually respond (Hollingsworth & Ybarra, 2009, 2018). Corrective feedback is required (Dinham, 2009) so students do not keep incorrect concepts in their long-term memory, and a fast-paced delivery keeps students engaged (Rosenshine, 2012).

Robyn also chose not to use much of the semi-script that contained essential definitions for the linguistic spelling element being presented on the PowerPoint® slides. It is suggested that the overall shortening of the EI pedagogical elements may have contributed to lower CPS1A student outcomes compared to outcomes for students in CPS1B in the post-spelling and dictation assessments. Nevertheless, it could be suggested that some of the knowledge Robyn displayed in the individual post-teacher interview came from the lesson slides, as specific comments on syllable and morpheme definitions reflected quotes from the slides.

The CPS1B class teacher, Jan, was often not prepared and valuable teaching time was wasted setting up. However, she was keen to implement a fully prepared program and from its inception, she mostly used the pop sticks (each with a student name) for random-student selection. She initially found the immediate corrective feedback was demanding of the students, stating “because it’s fast-paced ... I take a softer approach, more of a trial and error thing” and the pace remained fairly slow throughout. Jan began with partially following the semi-scripted content, but along with random student selection, use of both techniques increased during The Project. She relied more on the semi-scripted content, and demonstrated a growing knowledge of concepts when providing corrective feedback. Previous researchers have found that the use of explicit instruction protocols which employ evidence-based pedagogy and include immediate corrective feedback (Dinham, 2009; Rosenshine, 2012) do not leave students wondering about the content and are effective for students of all ability levels (Hempenstall, 2016). Nevertheless, Hempenstall (2016) states, those who feel their teaching style is being compromised by using established protocols may reject them.

It was hoped that the Researcher would see an increase in the teachers' knowledge about spelling constructs during the mid- and post-individual teacher interviews. In a previous study, Scarparolo and Hammond (2017) had also provided teachers with results from a pre-TKS. These researchers drew on studies that showed teachers were generally more receptive to finding and accepting information when they knew where their knowledge gaps lay. In that study, responses from the post-TKS and exit interviews revealed the majority of teachers were motivated by the presence of the researchers and the pre-intervention findings that revealed their knowledge gaps. Further, they accepted the collaboration and knowledge development on teaching approaches that reflected curriculum content. During the mid- and post-individual teacher interviews in this study, Robyn felt she already had much of the phonics, prefix and suffix knowledge and had gained little from the content addressed in The Project apart from definitions of terms. Robyn said she learned:

Just the technical terms. We use prefixes and suffixes. I know what they are, a morpheme and digraph. I know two vowels, that's a digraph. I know morphemes suffixes and prefixes ... (Robyn).

The three other teachers felt they had built their knowledge:

Oh morphemes, oh yes! Just knowing the lingo. Early in the program I was just keeping building that knowledge. It's good, especially if it's in the syllabus! (Jan).

It's interesting this approach. Common terminology like digraph you have to know what they mean. I didn't know what they meant. I've been learning as I go. It's definitely been helpful to know. (Ella).

I would have been reluctant to use the terminology morphemes and graphemes. I saw the students relating to those terms. I could have been doing that in my own lessons! (Tim).

However, with the exception of Jan, the quantitative data from the post-TKS did not support the three other teachers' views. This was consistent with previous studies where teachers' perceived knowledge of language constructs often did not align with their demonstrated actual knowledge (Meehan & Hammond, 2006; Meeks & Kemp,

2017; Moats, 2009b; Stark et al., 2015). This has concerning implications, as teachers require: a) sound curriculum content knowledge; b) the subject content knowledge required to teach it; and c) the appropriate pedagogical knowledge to deliver it successfully for students of all ability levels (Shulman, 1986, 1987).

8.2.2 Summary of discussion, Research Question 2b

To summarise the findings on the teachers' demonstrated phonological and morphological knowledge after PD, with the exception of one teacher, the other two teachers involved in the PD did not demonstrate an improvement in their knowledge of these aspects of English spelling. All teachers interviewed stated they had increased their knowledge in varying degrees, but apart from one teacher, these views were not consistent with the qualitative results from their post-TSK. Whilst the executive staff encouraged the Year 2 teachers to implement The Project, other commitments during the term meant they were unavailable to be actively seen encouraging change. Due to the increase in administrative duties, The Acting Principal, Tim, was unable to attend more than 45 minutes of the PD or view more lessons during The Project. These constraints most likely contributed to a decline in his post-TKS results.

Furthermore, constructivist approaches to teaching were established throughout the school and reinforced through current diocese initiatives. Commitment to these initiatives may have contributed to some of the teachers' lack of engagement during the PD and to developing their knowledge of the spelling constructs contained in the session and professional readings. This has implications for ensuring that when providing PD, the length and model is specifically tailored to the depth of content and pedagogical knowledge being delivered. It is suggested that the PD and limited demonstration lessons provided in this research were likely insufficient. This may have hindered the teachers fostering spontaneous engagement on developing the necessary skills and knowledge to provide effective spelling instruction to students of all ability levels.

8.3 Research Question 3: To what extent did spelling performance improve when Year 2 children were taught explicitly about phonological and morphological aspects of words?

Pre-intervention spelling assessment

Results from this standardised spelling assessment that was conducted pre-intervention showed that the students' word spelling knowledge varied considerably in each of the four groups of words (see Table 42). Previous research by Westwood (2005) found that whilst standardised spelling tests do not "sample the full range of a student's knowledge of word forms, rules and exceptions to rules" (p. 222) they do: a) present a "rough indication of the level a student has reached" (p. 62); and b) provide an instant overview of the spelling ability in the class and identify those with specific spelling errors. In this current study, many students across all classes made errors in words that Year 2 students would be expected to have mastered (ACARA, 2015a).

Across all classes in the pre-intervention assessments in this research, almost half the students misspelled consonant-vowel-consonant (cvc) words in Group 1: *rag* (misspelled as *rarg*, *rage*, for example), *net* (misspelled as *met*, *mett*, for example), and *cap* (misspelled as *cat*, *capp*, *kap*, for example). Furthermore, almost half of those students misspelled three to six of the 11 consonant-vowel-consonant (cvc) words. Considering the percentage of students making errors in both pre-assessments, it was surprising to note that one Year 2 teacher felt revising previously presented concepts including the cvc content in The Project too easy for most of her students. In previous research, Moats (2006) emphasised the importance of ensuring students who have not grasped earlier content needing to do so before tackling more advanced concepts. She stated that a progression of spelling instruction is required and that "content should be introduced or reviewed in each grade" (Moats, 2006, p. 18). According to Henry (2010) a logical structure in introducing a spelling sequence is to "begin with the shortest and easiest words" (p. 88) and include building phonemic awareness before attempting longer and more difficult combinations. This also means it is important to develop syllable knowledge which was a central part of this study. Previous research reveals that teaching students to syllabify and find the vowel or vowel sound in each syllable is

of great assistance with spelling and reading (Meehan & Hammond, 2006; Moats, 2010).

In this study, the majority of students' letter formation in the pre-tests was poor. In a previous review of spelling and handwriting practices, Schlagal (2013) found that fluent handwriting combined with explicit spelling instruction assists spelling development. Although it was not a primary focus in this project, correct letter formation was emphasised in each lesson. Furthermore, developing handwriting "fluency and automaticity" (Board of Studies NSW, 2012a, p. 84) is a syllabus requirement.

To optimise improving spelling outcomes in this study, student errors that may have been partly due to poor phonemic awareness (PA) issues were addressed. Treiman (2018) reviewed earlier studies that found some students have difficulty in translating speech into phonemes, citing previous studies in which PA was linked to spelling development. In this research, important consideration was given to providing a sequence of all the letters of the alphabet and their corresponding sounds to build PA. This, and onset and rime exercises, were integrated throughout The Project.

In the word spelling pre-test, almost half the students also misspelled the Group 2 words: *doll* (misspelled as *dolle*, *dol*, *dole*, *dog*, *dool*, for example) and *ill* (misspelled as *il*, *eil*, *iel*, *erl*, for example) which follow the Doubling Four Rule. Therefore, students were taught the Doubling Four Rule, that is, when a short vowel is followed by /f/, /l/, /s/, or /z/, at the end of a one syllable word, then the consonant is doubled. Spelling rules were always taught in both the reviewed and introduced content. Researchers Joshi et al. (2008), Moats (2010), Westwood (2015), and Treiman (2018) have previously found that students greatly benefit from being taught the logic of the English spelling system. This is in contrast to Gabarró (2011) who advocates adopting the approach that spelling is unpredictable and must be learned by rote.

Group 3 words were high frequency or irregular words, and over a third of students misspelled the word *by* (misspelled as *bey*, *biy*, *buy*, *biye*, for example), and *your* (misspelled as *yore*, *yor*, *yuell*, *yoor*, for example). In this study these words were called tricky words and taught using either a visual whole word strategy and a rule, a mnemonic or grouped by spelling pattern and pronunciation. Previous studies have shown that as irregular words have some regular phoneme-grapheme

correspondence, students learn them more easily when they can already apply speech to print connections (Moats, 2006). Moats stresses the importance of learning high frequency words correctly from the beginning, as “unlearning it once a habit has been formed is more difficult than learning it the right way the first time” (p. 18).

In Group 4 words, the pre-test words included *may, cold, four, lowest, brain*. Although the words in this group followed different rules, they also caused difficulties for the students. Previous research states the need for teaching students about all the speech sounds relationships in the English spelling system in a logical sequence (Moats, 2006, 2010).

Pre-intervention morphological knowledge test (MKT)

Qualitative data obtained from the pre-MKT provided a more detailed picture of students morphological spelling knowledge that was not included in the first spelling test. Results also showed no significant differences between the scores for morpheme knowledge in the two intervention classes and one comparison class (see Table 43). Some common errors across all classes were: *remade* (spelled as *remad, reemayd, reermade, reymade*, for example) in which around a third of students misspelled *re-* and *made*, and *missing* (spelled as *mising, misn, misig*, for example) where again about a third misspelled *miss*. In the word *likely* around half the students misspelled *like* and over a third *-ly*. In the word *grateful*, well over half misspelled *grate* (spelled as *greafull, greatfull*, for example) and between one and two thirds *-ful*.

Previous researchers have found that developing student morphological knowledge “is essential in learning to read and spell” (Nunes & Bryant, 2006, p. 9). However, teaching about the role of morphemes has gained little classroom attention (Bowers et al., 2010; Henry, 2010; Wolter, 2009) despite being included in curriculum and syllabus documents. Castles et al. (2018) reviewed studies that were conflicting on the best age to begin developing morphological knowledge. Carlisle (2010) had previously conducted an integrative review that showed growing student morphological spelling and meaning knowledge early, even in kindergarten, supported literacy development. A meta-analysis by Goodwin and Ahn (2013) on research and teacher instruction situations from pre-school to Year 12 also found statistically significant larger effects with younger students up to Year 2.

In this study, the learning sequence for morpheme affixes commenced with single morpheme base words (Henry, 2010; Moats, 2010) followed by common affixes where the base word required no change. Previous research findings revealed student outcomes are greatly enhanced when they learn the phonological, graphological and morphemic elements simultaneously (Berninger & Richards, 2002).

Students do not have to completely master letter-sound correspondences (especially the vowel digraphs) before beginning to learn spellings for the prefixes and suffixes. This is extremely important. We want to touch children with the power of word expansion, and we can do this by adding common affixes. (Henry, 2010, p. 97)

Results from the pre-MKT in this study were consistent with results from previous studies cited by Castles et al. (2018) that showed:

Although children adopt morphological spelling patterns relatively early, they apply them incorrectly to irregular verbs (e.g., *keped* for *kept*) and even words that are not verbs (e.g., *sofed* for *soft*). It is not until a later stage of acquisition that children can apply this knowledge appropriately. (Castles et al, 2018, p. 23)

In the present study, many student errors reflected this research finding. For example, the error spelling *pushed* in which the *-ed* ending has a /t/ sound. Errors when spelling the word *grateful* are understandable, given that *grate* is a homophone with *great*, and *full* is a common word. Ehri and Rosenthal (2007) cited a study in which children who could “spell a word such as *interesting* segmented it into the four syllables represented in the spelling (*in-ter-est-ing*), whereas those who misspelled the word tended to find three segments (*in-tres-ting*” (p. 18), thus mirroring their pronunciation. They emphasised the importance of students being taught to pronounce new words, and for researchers to include orthography in their work (Ehri & Rosenthal, 2007). Therefore, in this current study, attention to syllables and accompanying pronunciation was incorporated in the lessons.

Post-word spelling and morpheme assessments

Results from the post-word spelling assessment (see Table 45) showed that, in the intervention classes CPS1A and CPS1B, there was a decrease of about half the number of the students who made errors in Group 1 cvc words compared to the pre-test. In Group 2 Doubling Four Rule words, there was a varied decrease in the number of errors from between half to three quarters of the students in both classes. (It should

be noted that in Group 3 and Group 4 words, the word structures assessed did not always parallel the pre-assessment structures). In Group 3 tricky words (high frequency and irregular words), student errors decreased by a similar percentage to Group 2 words with CPS1B students recording no errors spelling *good* and *from*. In Group 4 words, the range of errors post-test, decreased by about half. Overall, the majority of students from all spelling ability levels increased their post-spelling results. The greatest gains were for students classified as below average followed by those of average spelling ability.

Results from the post-MKT were significantly better for class CPS1B (strong effect size) than that of CPS1A (moderate effect size), the intervention school classes or CPS2 (modest effect size) the comparison class. As the same test was used pre- and post-intervention, it should be noted that none of the teachers or students had access to the MKT during this research project. In both the intervention classes, there was a large decrease in students making errors spelling the morpheme prefixes *re-* and *dis-*. No students made errors spelling prefix *un-* and there was one error spelling *re-*. There were about half the number of errors for base words apart from spelling *miss*, *mind* and *grate* in CPS1A where there was an increase in errors. Class CPS1B had the largest overall decrease in morpheme suffix errors compared to CPS1A except for spelling *-ful* which remained unchanged or slightly lower for CPS1A. Overall, the majority of students from all spelling ability levels increased their post-morpheme results. The greatest gains were for students classified as average spellers, followed by those of below average spelling ability.

In the comparison class CPS2, errors in morpheme prefixes *un-* and *-re* fell considerably but remained the same for *dis-*. There were varied errors in base words ranging from an increase in *fit*, *miss*, *love*, *like* and *grate* to a decrease or little change in errors in the other five words. There was a moderate decrease in four of the morpheme suffixes but an increase in errors spelling *-ing*, *-ly* and *-ed* (schwa).

8.3.1 Summary of discussion, Research Question 3

It was anticipated that students in the intervention school CPS1 may have overall superior results to those in the comparison school. It is suggested that this was because the weekly cycle structure and instruction sequence in *The Spelling Detective*

Project was developed around the six major principles of effective instructional strategies for diverse learners (Carnine et al., 2006) (see Chapter 4 for details). It was also anticipated that students in class CPS1B may achieve better results than class CPS1A due to the *Project* being delivered with a higher degree of fidelity than class CPS1A. The weekly spelling sequence contained a progression of well-sequenced linguist spelling instruction that emphasised developing students' phonological, morphological and orthographic skills and knowledge. Previous researchers have stressed the importance of providing such a sequence that is taught explicitly (Berninger et al., 2010; Garcia et al., 2010; Westwood, 2018).

In all post-assessments, intervention class CPS1B had superior results to the other intervention class, CPS1A. The Researcher fidelity observations showed that the CPS1B teacher, whilst not strictly adhering to the Explicit Instruction (EI) semi-script, mostly implemented random student selection, usually provided immediate corrective feedback and mostly used clear speech. She also paid attention to the editing component, eliciting student responses and scaffolding pertinent details. Researchers in previous studies have shown that effective EI comprises a set of instruction principles that included random student selection, immediate corrective feedback and clear presentation to support the skill being taught (Clark et al., 2012; Hollingsworth & Ybarra, 2009, 2018; Rosenshine, 2012). Research has shown this approach is good for all students and does not leave them wondering about concepts they may have missed (Hempstall, 2016). In this study, whilst the CPS1B teacher was initially hesitant in adopting pedagogical change, she saw her students' spelling and confidence improving during lessons. During *The Project* she showed willingness to embrace EI, and demonstrated a growing subject content knowledge throughout the term. In her post-intervention interview she stated feeling more knowledgeable about spelling and EI and had realised that concepts need to be taught explicitly and in small amounts. This change drew a parallel with previous research by Guskey (2002) who found that when teachers see "practical ideas" (p. 382) that work with their class they are more likely to adopt it.

From the Researcher fidelity observations, the CPS1A teacher adhered to the PowerPoint® presentation sequence but as discussed in the previous research

question, seldom used random student selection, preferring to choose volunteers. She appeared not to follow much of the semi-scripted teaching points and often had poor articulation. Many of the instruction strategies were shortened, including important student practice and detail associated with editing. Students were also frequently unsettled. Carnine et al. (2006) summarised previous research literature that showed effective instruction strategies require the teacher to accurately explore and present the skill being taught whilst interacting and connecting with students. Hollingsworth and Ybarra (2009, 2018) also found that by picking volunteers (usually the most proficient students) valuable checking for overall student understanding is compromised. Furthermore, in this study, the CPS1A teacher felt the content was too difficult for the below average spellers and arranged for two of the students to be withdrawn by the LST. This teacher's lack of adherence to EI instruction details may have reflected what Hempenstall (2016) has previously summarised as a feeling of disempowerment, or that EI instruction is not a major contributor to literacy growth. Previous studies have revealed that belief in one particular pedagogical approach can affect a teacher's will to embrace change (Dinham, 2009; Moats, 2014; Pajares, 1992; Tschannen-Moran & Woolfolk-Hoy, 2001; Westwood, 1995; Westwood et al., 2005) and may jeopardise student needs (Shulman, 1987), including those who struggle (Westwood, 1995).

Students in the comparison school continued with their commercial spelling program and usual meaning-based literacy unit during the term. That both classes in both the intervention and the one class in the comparison school increased their spelling and morpheme results is not surprising. Previous meta-analysis relating to student achievement found that even with minimal guidance students are likely to advance, but less so than with explicit instruction approaches (Hattie, 2009; Kirschner et al., 2006). Empirical studies over the last 50 years have shown "not only is unguided instruction normally less effective; there is also evidence that it may have negative results when students acquire misconceptions or incomplete or disorganized knowledge" (Kirschner et al, 2006, p. 84).

In this study, student results in the intervention school, in particular in CPS1B, appear to reflect the benefits EI principles have to offer for below, average and above average

achieving students. Kirschner et al. (2006) also previously found that “strong instructional guidance” (p. 8) that comprises three stages; introduction to the new content, the main lesson, and finally student practice with immediate teacher feedback was more effective than constructivist approaches. The performance of the below average, average and above average spellers will be discussed in Research Question 5.

8.4 Research Question 4: a) How does the implementation of explicitly targeted spelling instruction about the phonological and morphological aspects of words impact on Year 2 children’s sentence dictation? and, b) How did Year 2 children feel about the teaching strategies used to teach spelling in their classroom?

The quantitative data from the dictation assessments and qualitative data from the teacher and student interviews were used to answer this research question. Pre-intervention, students were given two specifically adapted dictation passages (see Appendix G for transcripts) from decodable readers that measured their pre-intervention sentence transcription skills. Each dictation was delivered in accordance with the procedure explained in the Chapter 3, Conceptual framework.

Pre-intervention dictation 1 and 2

Pre-dictation 1 included split vowel digraphs and consonant digraphs, common sound-letter relationships and words following a rule that reflected Early Stage 1 (Board of Studies NSW, 2012) content. It assessed the automaticity of regular structure words, split vowel digraphs, a Doubling Four Rule word and common function words. Results showed there were no significant differences between the intervention classes or comparison class in pre-dictation 1. Almost all students made spelling errors, and all had omissions in capital letters and full stops. While the focus of this research question is word level spelling as measured by dictation, students lost points for not demonstrating capital letters and full stops in their writing and this impacted on the overall dictation scores for the majority of students.

As seen in Table 47, in both the intervention classes and the comparison class, about one third to half of students made errors in spelling regular structure words. About one third to three quarters of students made errors spelling words that follow a rule and tricky words. Most students did not use capital letters where required or full stops

at the end of the first three sentences. Apart from the comparison class, only a few students in the intervention classes omitted the full stop in the final sentence. This could imply they knew about the need for a final full stop.

The English sequence of content for the *Australian Curriculum: English (AC: E)* (ACARA, 2015b) Year 1 strand *Language*, sub-strand *Spelling: English: Sequence of content F-6* states that students will “understand how to spell one and two syllable words with common letter patterns (ACELA1778)” (p. 7). The strand *Alphabet and phonic knowledge* states students will “use short vowels, common long vowels, consonant blends when writing ...” (p. 6).

A recommended progression of spelling instruction by previous researchers who drew on decades of investigation (Henry, 2010; Moats, 2010) is consistent with the AC: E content. The *NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) states that “the Australian curriculum achievement standards underpin the syllabus outcomes and the stage statements for Early Stage 1 to Stage 5” (p. 7). It would be reasonable to expect Year 2 students have learned these basic spelling conventions. However, students in this study made considerable spelling errors in words that reflected these constructs.

Pre-dictation 1 was followed by pre-dictation 2. It comprised split vowel digraphs, consonant digraphs, common sound-letter relationships and blends, and words following a rule. Words containing a morpheme affix content were also included. The dictation reflected the Stage 1 (Board of Studies NSW, 2012a) spelling content. CPS1B performed significantly better than intervention class CPS1A and comparison class CPS2 with a strong effect size. CPS1A had a modest effect size compared with CPS2. Table 48 shows that about one third to three quarters of students made errors spelling regular structure words. There was a similar range of errors in words following a rule, with most errors occurring in words with a morpheme affix. There was an overall high error rate in spelling tricky words. In particular, every student in each class made an error spelling the tricky word *their*. Full stop omissions were slightly higher than in pre-dictation 1. The omission of a capital in the proper nouns remained similar.

The English sequence of content for the AC: E (ACARA, 2015b) Year 2 strand *Language*, sub-strand *Spelling: English: Sequence of content F-6* states that students will “understand how to use knowledge of digraphs, long vowels, blends ... to spell one and

two syllable words including some compound words (ACELA1471)” (p. 7) and “build morphemic word families using knowledge of prefixes and suffixes (ACELA1472)” (p. 7). This content is reflected in *The NSW English K-10 Syllabus* (Board of Studies NSW, 2012a) and is consistent with the recommended progression of spelling instruction by previous researchers (Henry, 2010; Joshi et al., 2008; Moats, 2010). Echoing the curriculum statement, Year 2 students should understand how to use their spelling knowledge of /ay/ and /ai/ digraphs to spell the base word before adding the affix *-ing*. However, whilst about half the students in this study made errors spelling *playing* approximately two thirds were unable to spell *swaying*. Many students from both the intervention and comparison school spelled the base word *swaing*. This suggests that those who could spell base word *play* (a common word students would likely use in their writing), did not know the related spelling rule: digraph /ay/ goes at the end of a word and /ai/ at the beginning or middle of a word.

Overall, spelling results from the Year 2 students in both pre-dictation 1 and 2 reflected the similarly low NAPLAN Year 3 spelling results in the intervention school which had either remained static or increased during the 2012 to 2016 period (see Table 9). Unlike the few students in this study who were able to generalise their spelling knowledge into unfamiliar dictation tasks, it is suggested that the majority of students had not achieved automaticity in the same spelling constructs. In turn, lack of spelling automaticity impacted on their ability to transcribe the dictations. Previous research (Rosenshine, 2012) has found that to gain automaticity in a new skill, it should be rehearsed past the “point of initial mastery” (p. 13). Guided practice should be followed by independent practice in order to reach automaticity:

When material is over-learned, it can be recalled automatically and doesn't take up any space in working memory. When students become automatic in an area, they can then devote more of their attention to comprehension and application. Independent practice provides students with the additional review and elaboration they need to become fluent. (Rosenshine, 2012, p. 18)

In this study, all teachers used constructivist approaches in their literacy program. None used a logical progression of sequenced spelling development that reflected the components of words. Whilst some used a commercial spelling program, one teacher taught spelling only through reading and writing activities. Previous studies have found

that relying on developing accurate spelling skills through reading and writing is not sufficient to ensure students develop either functional spelling or knowledge about spelling patterns (Bear et al., 2012; Henry, 2010; Joshi et al., 2008; Moats, 2006, 2010; Westwood, 2008, 2014). Garcia et al. (2010) conducted a four-year longitudinal study with students Years 1 to 6 that recorded students' phonological, orthographic and morphological spelling growth. It showed considerable growth in these linguistic elements in the first three years. The researchers concluded that providing students with explicit instruction in these three components and how they connect was likely to be beneficial during the first three years of primary schooling. Developing students' linguistic spelling knowledge and skills in these components has also been found effective by other researchers (Apel & Lawrence, 2011; Apel et al., 2012; Berninger et al., 2010; Bowers et al., 2010; Treiman, 2017).

In presenting the findings of *The National Inquiry into the Teaching of Literacy* (NITL) in Australia, Rowe (2006) revealed that for disadvantaged students and those from EAL/D backgrounds, where phonological knowledge may be comprised, constructivist approaches to teaching new concepts can have "the effect of compounding their disadvantage..." (p. 101). More recently, Treiman (2018) reviewed research on developing spelling skills through reading and found that children may absorb some spelling information through reading, but it is not sufficient: "as people read, they typically attend to the meaning of a passage, not to the spelling of words" (p. 2). It is suggested that the constructivist approaches used in both schools in this study did not reflect best practice to optimise spelling outcomes for students from either mainstream, disadvantaged or EAL/D backgrounds.

In the discussion on the pre-intervention assessment and survey data gathered from the teachers in this study, results showed they had limited knowledge in: a) the phonological and morphological aspects of spelling; b) the spelling content in curriculum and syllabus documents; and that c) they were unfamiliar with explicit instruction techniques and mainly used meaning-based pedagogy when teaching spelling. Previous research from Shulman (1987) revealed that if teachers had restricted subject and curriculum knowledge and an allegiance to one pedagogic approach (Dinham, 2009) they were not equipped to meet the diverse needs of all

their students. In the more recent *Review of the Australian Curriculum* (Donnelly & Wiltshire, 2014), the reviewers found that the dominance of constructivist pedagogical approaches were concerning, especially seeing that the preponderance of research argues that explicit instruction delivers superior outcomes in many instances.

To summarise the results, in pre-dictation 1 there were no significant differences between classes or schools. Many students in both the intervention and comparison school made errors spelling regular words including cvc words, split vowel digraphs, words following a rule, and tricky words. In pre-dictation 2, class CPS1B performed better than the other intervention class and the comparison class. Again, many students made errors in each word group as those in dictation 1. In the words containing a base word and a morpheme affix, in general, over half the students in both schools made errors. The majority of students did not use capital letters or full stops in either dictations apart from at the end of the final sentence. Therefore, it would appear that most students in this study had not yet attained automaticity in many of the spelling and basic punctuation constructs stated in the curriculum content. This may have been partly due to the teachers' limited knowledge of spelling constructs, curriculum requirements and explicit instruction techniques required to teach spelling effectively.

Dictation during the intervention Project

A defining feature of this study was the use of daily sentence dictation in which to practise revised and taught spelling. In earlier research, Berninger and Richards (2002) stated spelling instruction design principles should not only include developing phonological and morphological aspects of spelling through explicit instruction in the alphabetic principle but also daily sentence dictation. They hypothesised that formulated dictation would provide practice for students to spell taught words and spelling patterns. They called for more investigation to see if dictation could assist in developing taught spelling concepts to automaticity (Berninger & Richards, 2002; Berninger et al., 2000).

In this study, the Researcher used daily dictations for the independent student practice component in which to embed, practise and assess reviewed and taught spelling concepts. Previous research on spelling interventions was appraised by Moats (2009c)

who found that for students to remember how to spell words, the best lessons provided practice in two areas: a) developing awareness of spelling components; and b) developing unconscious remembrance of words. “Generalization into written composition will not occur automatically but must be engineered through scaffolding and self-monitoring strategies such as supported proofreading and editing, dictations, with immediate feedback ...” (Moats, 2009c, p. 275).

Allal (1997) examined research literature on alternative approaches to teaching spelling that included dictation. She found that delivering a dictation relies greatly on the teachers’ skill to model and explain what is to be transcribed and how they read the text. To ensure optimal delivery of the daily sentence dictations, the teachers in this current study were provided with dictation presentation guidelines described in, Chapter 4, Developing *The Spelling Detective Project*.

Post-intervention dictation 1 and 2 results

Post-intervention, students were given the same two dictation passages. A summary of each student’s pre- and post-score in both dictations is located in Appendix M. Results from post-dictation 1 show that the intervention school CPS1 did significantly better than the comparison school CPS2. The effect size for class CPS1B was strong and moderate for class CPS1A.

Data presented in Tables 47 and 48 reveal that overall, there was a considerable increase in the number of intervention students who could spell regular structure words, split vowel digraph words, words where the accompanying rule was taught, and tricky words. There was also a significant increase in students’ usage of full stops and capital letters. This was emphasised during The Editor’s Desk tasks, and before each dictation commenced. It is suggested that this writing practice, that incorporated basic punctuation, may have transferred to many of the students’ poetic dictations, and as a result, contributed to the increase in their overall spelling outcomes in the dictation assessments.

Prior to the intervention, teachers in both schools were asked to rank their students’ spelling ability level as below average (BA), average (A) or above average (AA). There were varied results from students in each category. In class CPS1A about one third of

the students from each ability level scored slightly less in the post-dictation 1 compared to pre-dictation 1. The greatest increases occurred with Rachel (A speller) who had a perfect score and Oscar (AA speller). A particularly noteworthy change was seen in Kyle's (BA speller) post-dictation score. In pre-dictation 1, he scored significantly less than Nina and Cindy (BA spellers) who were subsequently withdrawn (at the request of the teacher) to attend reading lessons with the LST. However, in the post-dictation, Kyle increased his score significantly compared to Nina who had almost no change and Cindy who had a regressed. George (BA speller) also increased his post-score considerably.

In class CPS1B all students scored higher in both post-dictation assessments. In post-dictation 1, Christian (AA speller) had a notable increase and a perfect score. Anton (AA speller) and Harvey (A speller) had an almost perfect score. Parker (BA speller) also had a notable increase. Of all the students in each class, Mahan (BA speller), an EAL/D student, had the greatest gains, increasing his score on post-dictation 1 considerably. Mahan demonstrated a keen commitment to learning to spell and was clearly motivated during the lessons. Low and Siegel (2009) reviewed previous pertinent literature and presented examples for educators to draw on when analysing how English Language Learners (ELLs) best learn spelling. They found that students from other language backgrounds are quite able to learn to spell in English and require the same explicit instruction as all students.

The key to spelling success for ELL children is the quality of instruction, as opposed to differentiated instruction ... they incorporate what is taught in their cognitive toolkit, including the use of spelling strategies that may be appropriate for a particular word, sometimes based on how the word looks and sometimes on how it sounds. (Low & Siegel, 2009, p. 304)

In the comparison school, there was mostly a considerable increase in the number of students who correctly spelled some simple regular structure words. There was also an increase in students correctly spelling words following a rule, with the exception of words following the Doubling Four Rule, where there was an increase in student errors. There was little change in punctuation errors with the exception of full stop usage at the end of the passage. Harry (AA speller) had an almost perfect post-dictation 1 score, but other spellers the teacher had grouped in that category either

regressed or showed little change in their post-scores. The majority of students grouped as below average spellers also regressed or had little change in their post-scores. These results would suggest that, as Kirschner et al. (2006) reported from previous studies, the mainly constructivist teaching approaches used during the usual literacy program in the comparison class were not as effective as the EI approaches used in the intervention school.

In post-dictation 2, class CPS1B had considerably better results with a stronger effect than intervention class CPS1A, with a modest effect. There was little difference between school CPS1 and CPS2. The data in Table 48 show both intervention classes had a similar varied increase in the number of students who could spell regular structure words. However, in general class CPS1B students had a greater increase in correctly spelling words following a rule, in particular those with a morpheme affix, and tricky words. There was also a considerable increase in these students' usage of full stops and capital letters compared to class CPS1A.

In class CPS1A, a third of students showed a noteworthy increase in their post-dictation 2 scores. Other students' scores remained similar or regressed. Hugh (AA speller), Mae (A speller) and Ash (BA speller) had a considerable increase but Kyle (BA speller) regressed slightly. Oscar (AA speller) had an almost perfect score. In class CPS1B, all students showed an increase in their post-scores. Christian (AA speller) and Anton (AA speller) had an almost perfect score whilst Harvey (A speller) and Gina (A speller) had a considerable increase. The sizeable improvement in scores for Parker (BA speller), Eric (BA speller), Madison (BA speller), and Mahan (BA speller) was noteworthy. In particular, Mahan the EAL/D student, almost doubled his score in the post-assessment.

The change in students' spelling scores over the nine-week intervention adds to previous findings in research literature. It demonstrated that spelling outcomes can be enhanced when effective instructional strategies summarised by Carnine et al. (2006) include: a) understanding how children learn; b) dissecting the skill to be taught and placing it in a guided lesson sequence; and c) engaging with the students during each lesson. It is suggested that the superior results of class CPS1B to class CPS1A may also reflect the teaching process in which a greater knowledge of spelling constructs,

clearer speech and dictation techniques, and enthusiasm to The Project were more advanced than those of the class CPS1A teacher.

In the comparison school post-dictation 2 assessment, there was an overall increase in the number of students who correctly spelled regular word structures, but less so in spelling words following a rule and in some with a morpheme affix. There was a slight increase in the correct spelling of tricky words, apart from *their* where all students made an error. There was a modest overall improvement in punctuation. Harry (AA speller) had an almost perfect score, Elke (AA speller) more than doubled her score, and Maryanne (A speller) had a considerable increase. Ruby (BA speller), Logan (BA speller) and Annalies (BA speller) all correctly spelled around half or more of the words in the post-assessment compared to none in the pre-assessment.

That the comparison school increased their spelling and morpheme results was not unexpected. Previous findings from Hattie's (2009) meta-analysis explained that much improvement in learning can be contributed to students maturing. Furthermore, even with minimal guidance students are likely to advance, but less so than with explicit instruction approaches. It is suggested that in this study, the lesser increase in class CPS2 compared to the intervention classes could most likely be contributed to the continuation of constructivist spelling and literacy teaching approaches. A previous analysis of empirical studies by Kirschner et al. (2006) showed that minimal instruction outcomes are usually less substantial than explicit instruction outcomes.

These results suggest that spelling outcomes can be greatly enhanced through employing a progression of EI in a guided lesson sequence using engaging student activities. Results also suggest that including phonological, morphological and orthographic aspects of language within an EI pedagogy framework was effective. The poetic dictations required students to exercise phonemic awareness when listening to each word before they transcribed the taught spelling as well as remember sentence punctuation. Furthermore, most students interviewed post-intervention from all ability levels enjoyed the content of the daily dictations. Results suggest that dictations provided an effective and enjoyable way for students to practise taught spelling. The superior results for intervention class CPS1B are likely to have been facilitated by the positive attitude of the class teacher towards The Project, her willingness to

implement the EI lesson sequence and her increased knowledge of spelling constructs and related rules.

As expected, comparison class CPS2 had a modest improvement in dictation 1 and a moderate improvement in dictation 2. Factors including the increase in each students' age and including spelling instruction from a commercial program within the usual meaning-based literacy program were likely to have contributed to the increase.

8.4.1 Summary of discussion, Research Question 4a

To summarise, Year 2 students in the intervention school who received explicitly targeted spelling instruction about the phonological and morphological aspects of words had superior post-dictation 1 and 2 results than comparison school students. Class CPS1B did significantly better than CPS1A in both post-dictations with moderate to strong effect sizes. Comparison class CPS2 had a modest improvement in both post-dictation results. Student maturation during the term and spelling instruction alongside the usual meaning-based reading and writing literacy program likely contributed to the increase. However, relying on developing accurate spelling skills through reading and writing is insufficient to ensure students develop either fluent functional spelling or a sound knowledge of spelling patterns. The superior change in students' spelling scores in the nine-week period in the intervention school adds to findings in previous research literature on the benefits of EI. It demonstrated that spelling outcomes can be greatly enhanced when a sequence of effective EI instructional strategies in the phonological and morphological aspects of words is put in place for students of all ability levels.

Daily poetic dictations in the intervention study provided the independent student practice component in which reviewed and taught spelling was practised and assessed. Previous researchers had called for more work to see if sentence dictation could assist in developing taught spelling. Results from these dictation assessments provide new evidence to support the benefits that sentence dictation may play in supporting students to practise and develop taught phonological and morphological aspects of words. This may have contributed to improving spelling outcomes for these students.

Superior results for intervention class CPS1B were also most likely enhanced by the positive attitude of the class teacher towards The Project; her willingness to implement the EI lesson sequence; and a growth in her knowledge on the phonological, morphological and orthographic aspects of words and related spelling rules. The teachers' feelings about The Project are further discussed in the Research Question 5 section.

Research Question 4b: How did the students feel about the spelling and teaching strategies used in their classroom during the term?

As described in the Conceptual Framework in Chapter 3, the qualitative post-intervention student interviews provide important insight into the students' feelings about spelling and possible clarification on their spelling performance. Prior to commencement of the study, students had been classified by their teachers as having a below average (BA), average (A) and above average (AA) spelling ability. During each interview, the Researcher was aware of the need to make each student feel comfortable and avoid them seeing the interview as a test. It was also important to elicit "honest responses" (Cohen et al, 2011, p. 434) rather than the student giving an answer they thought the Researcher wanted to hear.

The majority of the 18 students interviewed in the intervention classes said they liked the spelling strategies and activities used during The Project. Most students reported feeling encouraged and engaged by the activities presented. Tschannen-Moran and Woolfolk-Hoy (2001) reviewed previous literature that showed student motivation was closely aligned to a teacher being enthusiastic and committed to teaching approaches aimed at improving outcomes for students of all ability levels within their classroom. In the current study, the detective theme in The Project was adopted from a previous study by Bowers et al. (2010) who reported this strategy was likely to foster student enjoyment and motivation. These researchers hypothesised that involving students in this manner might also heighten their focus on words and support them acquiring long-term knowledge. Some research has also inferred that as the cognitive load is controlled with EI, student motivation and engagement may be increased (Centre for Education Statistics and Evaluation, 2017).

In this study, some students disliked certain aspects, such as sitting on the floor with the mini-whiteboard whilst looking up at the presentation, and in one class, waiting whilst the teacher adjusted the PowerPoint® slides, which contributed to a slow-paced lesson. Previous research has emphasised the importance of keeping the pace and delivery tight, thereby minimising student off-task behaviour and disengagement (Hollingsworth & Ybarra, 2009, 2018; Rosenshine, 2012). Hattie's (2009) synthesis of meta-analyses also showed that methods supporting active and direct student instruction and involvement work best. In this study, all students in The Project stated they enjoyed and were motivated by many of the active strategies and accompanying activities, such as donning the Policemen's Hat or Hoop Stepping out the phonemes in base words and accompanying morpheme affixes. Many said these approaches helped them to learn to spell and build longer words. Some comments follow:

I learned to spell new words and words inside it. And bigger words and get to spell words correctly (Hugh, AA speller).

Sometimes [in the past] I used to get a bit confused when they were big words, but it's easier now (Oscar, AA speller).

I like learning new words. The ending part goes at the end of a word, if there's two syllable one syllable. That's useful (Corbin, A speller).

It was good looking at the big words and learning about them (George, BA speller).

You get to learn more words than you already know. We learned more about words, vowels and morphemes (Vincent, A speller).

I liked how you figure out to make new words (Montana, A speller).

Some students commented that the immediate corrective feedback was valuable. Madison (BA speller) said it was "a really good way to learn. If you made a mistake you wouldn't get into problems about it. You'd just be happy." In drawing on previous informational processing research, Rosenshine (2012) found that good instruction used by successful teachers included providing effective feedback to optimise students' storing correct information in their long-term memory.

Other students in The Project said they had not previously known about syllables and rules and this knowledge was very helpful. In a previous study, Dymock and Nicholson (2017) conducted research on the effects of teaching Year 3 students spelling strategies. It included teaching spelling rules, and syllabification strategies compared to Look, Cover, Say, Write, Check (LCSWC) with a control who received no spelling support. They found the rule and syllable group “had great transfer to spelling of new words for both proficient and less proficient spellers” (p. 171). Furthermore, students also reported enjoying “learning spelling strategies like the doubling rule, the silent e marker, syllable breaking, and common spelling patterns for short and long vowel sounds” (Dymock et al p. 185). In this present study, Mia (A speller) said “the rules were cool. I tried before but it’s pretty hard to pick up words, and that really helped.”

In an overview of research literature from an extensive range of experts, de Lemos (2002) found that developing fluent reading and writing skills is dependent on students acquiring a sound knowledge of “the set of spelling and sound correspondence rules of the language ...” (p. 5). These views are also supported by other literacy researchers (Apel, 2011; Henry, 2010; Moats, 2010; Westwood, 2018). In this current study, the majority of the students interviewed stated they like learning about the spelling rules, syllables, and long and short vowel sounds which also suggests they appreciated increasing their knowledge about how the English spelling system works.

All the students but one in The Project liked the poetic dictations. One student, Kyle (BA speller) liked the poems, but found the dictation difficult. Interestingly, he had a considerable gain in the first of two post-dictation assessments. Some students commented that they found the dictations difficult, but overall interesting and enjoyable and better than spelling single words. Previous research found that dictation had often been delivered in a boring manner: it was consequently disliked by students (Chiang, 2004; Davis & Rinvolutri, 1988) and fell out of favour in the 1960s (Stansfield, 1985). The meaningful poetic dictations used in the current study were enjoyed by the students, reflecting results from a comparison of dictation methods research by Chiang (2004) who found to the contrary. Chiang found that when dictation is connected to a meaningful context, students felt motivated and engaged, and appreciated that it supported their learning.

Of the nine students interviewed in the comparison class, the spelling activity students most favoured using during the term was choosing words to spell and write in their own word sentences.

I like that we get to write sentences. We get to do it about whatever we like (Briony, AA speller).

Yes, the /y/ and the ones we're doing right now. We do spelling sentences. It's helping you. You have to listen to the words (Annalies, BA speller).

My favourite is spelling sentences. I choose the words that I like. I get to choose the easy ones (Rose, BA speller).

Others enjoyed finding spelling words during a class story whilst some favoured playing spelling games. These partly guided or unguided activities may be appealing to a student's sense of discovery. In an analysis of previous research studies, Kirschner et al. (2006) synthesised research on the effects of guided versus unguided instructional approaches on student outcomes. They reported that when novice learners needed to marry new and prior knowledge, "exploration practice (a discovery technique) caused a much larger cognitive load and led to poorer learning than worked-examples practice" (p. 80). In this study, the favoured student activities used in class CPS2 required minimal or no teacher guidance, which previous research has found "less effective and less efficient than instructional approaches that place a strong emphasis on guidance of the student learning process" (Kirschner et al. 2006, p. 75).

In this research, all students but one that were interviewed said they liked or preferred the dictation assessments to single word spelling tests: some said it was because they enjoyed the narrative story line. Jeremy (AA speller) said he liked it because it was quiet in class and he could concentrate. This comment was interesting. It reflects previous findings from Davis and Rinvoluceri (1988) who stated one of the many benefits of using dictation was that as students must concentrate and listen to the oral presentation, the class needs quiet and calm. Rose (BA speller), the student in this study who disliked spelling in general and particularly the dictation, said she found it hard to memorise how to spell each word and preferred spelling single words. Her statement reflects previous research cited by Westwood (2014) that found students

who use whole-word memorising strategies are likely to experience difficulties when faced with more advanced morphological complex words. They found it easier to do a single word spelling assessment than produce a written piece, which may have been the case for this student.

8.4.2 Summary of discussion, Research Question 4b

In summary, the majority of Year 2 students interviewed in the intervention classes were very positive about the teaching strategies used to teach spelling during *The Spelling Detective Project*. Most reported they liked learning how to spell and build new words. All students liked the poems and all but one, the dictations. They felt knowing more about the role of vowels and syllables in words, how to build words with morphemes, and the rules and explanations were valuable. Many expressed the activities helped them learn to spell. They were motivated and engaged, enjoying the routine, in particular the Policeman's Hat and Hoop Stepping.

These views are contra to previous studies that reported research which found methods such as repetition of content that were shaped by DI destroyed student motivation (Hempenstall, 2013) and were demoralising (McMullen et al., 2014). A few students disliked some aspects such as sitting on the floor and technical presentation issues. Overall, it would appear that the EI pedagogy and the progression of linguistic spelling instruction that used motivating student engagement activities during The Project made a substantial contribution to the students' post-intervention spelling knowledge and assessment results.

Many of the students interviewed in the comparison school stated their favourite activities during the term were choosing their own words to spell and write in sentences. Some liked spelling games and seeing what 'looked right' whilst others said they liked story writing. All but one stated they liked the dictation narrative assessment, that the stories were fun and better than writing single words. One student disliked the dictations and preferred writing single words: she said she disliked spelling in general. Some disliked certain aspects such as working out how to spell a word and writing sentences. Many of these comments would suggest that these students preferred choosing fun activities associated with constructivist approaches to

spelling. Overall these students' responses did not reflect them developing a particular knowledge of spelling constructs.

8.5 Research Question 5: How well was the intervention taken up by the teachers and the Principal at the rural NSW primary school?

Mid- and post-intervention teacher interviews explored their views and responses to teaching and engagement in *The Spelling Detective Project*. Figure 35 provides an overview of their responses. Case studies in the previous chapter offer an understanding of the factors that may have contributed to how well the intervention was taken up by each teacher and the Acting Principal. Results revealed that overall, the majority were supportive of the EI pedagogy and the spelling components that comprised The Project. However, there were inconsistencies in what the three teachers and the Acting Principal considered either assisted or hindered them taking up or supporting the intervention.

In pre-intervention consultations with the executive and Year 2 teachers, all appeared keen to implement a project that would provide them with an explicit instruction spelling program. However, during the PD session, it became evident that with the exception of the Learning Support Teacher (LST), Ella, the Year 2 teachers were unfamiliar with the specific structure and terminology associated with EI pedagogy. The literacy program throughout the school was based on constructivist and balanced literacy approaches. Explicit instruction in spelling skills is lacking in these approaches. Favouring constructivist approaches reflects the findings in a review of *The Australian Curriculum (AC)* (ACARA, 2014). Donnelly and Wiltshire (2014) reported an imbalance towards constructivist teaching approaches at the expense of teachers choosing “models of teaching and learning, depending on what is being taught ...” (p. 246). In this current research, whilst teachers regularly used the term *explicit instruction* they appeared unaware of what it actually entailed. Ella had adopted some explicit teaching principles when she replaced her meaning-based reading program for struggling students with a program of phonics instruction using decodable texts. She had stated she was in the minority of staff in the school to use this approach.

During the PD most appeared wary of EI and the structured learning progression and as such, were reluctant to engage with the accompanying research readings. Previous

studies by Guskey (2002) found PD often fails due to lack of teacher motivation to engage with the content. In this study, the CPS1A Year 2, Robyn's attitude toward The Project was not positive. She felt the EI pedagogy was incompatible with her teaching approach or classroom set-up which she had planned to accommodate inquiry learning. Significantly, in view of her concerns, the Principal gave Robyn the opportunity to withdraw from The Project, but she chose to continue. It would appear that Robyn's commitment to inquiry learning may have influenced her attitudes about the EI delivery and lesson content during The Project. In a previous study, Dinham (2009) summarised meta-analytic research on effect size which found whilst Direct Instruction has a superior effect size to meaning-based instruction, many teachers had a negative attitude towards implementing the important steps associated with this pedagogy. This included steps such as stating learning intentions, and providing guided practice with corrective feedback before students undertook independent practice of taught concepts.

During this intervention, Robyn was observed not to follow many of the steps associated with EI that were in the fidelity protocols. In the guided practice section of the lesson, she often used a meaning-based approach to her teaching, such as choosing specific students to answer questions or step out a word in the hoops. The diocese and school meaning-based approaches to teaching meant the teacher made personal decisions on the choice of pedagogy repertoire in a lesson. This demonstrated an absence of instructional leadership described in previous research (Robinson et al., 2008) by the diocese and school. In professions such as aviation and medicine, evidence-based protocols are strictly followed. However, Snow (2016) has previously stated that whilst the consequences of not following such protocols in the classroom have a more gradual effect on student outcomes, they can stifle a student's education development, the results of which are blamed on other causes. In this study Robyn had a strong commitment to meaning-based approaches and her explanations for the reasons students did not achieve reflected views from Snow's (2016) findings, including factors such as their lack of ability to pay attention, spending insufficient time reading, or their home background.

Robyn also felt that using the semi-scripted content was contra to her teaching approach, restricting her personal teaching style. Her views reflected those of Luke (2014) and Radosh (2004) who stated scripts stifle teacher imagination. In this intervention, the fidelity checks show that Robyn was sometimes seen to provide inaccurate corrective feedback on word structure constructs. Such errors may have been avoided with consistent use of the semi-script which provided precise definitions of each spelling concept currently being addressed. Moats (2014) previously reported results from a significant body of research which found “teachers often know little more than their students, especially about speech sounds in words, word structure, and its relation to meaning, the organization of orthography ... None of us are born with these insights” (Moats, 2014, p. 87).

In the post-intervention interview, Robyn cited the following issues as barriers when implementing The Project: the EI pedagogy and the semi-scripted content; the length of each lesson that impinged on her guided literacy components; non-interactive whiteboard presentation problems; and that she already taught much of the spelling content. She said aspects that she found positive were providing students with more knowledge about, and practice in, the structure of a syllable, and using more spelling terminology.

During the PD session, Jan, the CPS1B Year 2 teacher, was somewhat ambivalent about the structured EI pedagogy and the length of the lessons, but liked the fully prepared lesson content. It was during the intervention when she saw her students motivated and achieving success that she became more engaged with the EI model. Jan’s views reflected those previously reported by Guskey (2002): when teachers do not engage with the content during PD, if they subsequently see a change in their students’ knowledge, motivation and behaviour they are more likely to use the techniques that worked. In the post-intervention interview in this study, Jan stated the only barrier to implementing The Project was the length of each lesson, which she felt left her less time to teach reading and writing. Jan cited the following aspects of The Project that enabled her engagement: the PD that reflected syllabus content; the package of student resources that accompanied The Project; the explicit unpacking of engaging student activities; and the professional collaboration opportunities. During the

interview, Jan was critical of the lack of PD available to classroom teachers through the diocese as well as a diocese tendency to follow what she called “the current buzz label” such as an inquiry learning focus. Her comments reflected the findings of Robinson et al. (2008) who stated that the role of leadership at all organisation levels is to endorse teachers’ involvement in professional learning that facilitates them to set goals and make change to optimises student outcomes. Without these goals, initiatives risk dissolving into a muddle of “conflicting priorities” (p. 666) and over time, this can result in “burnout, cynicism, and disengagement” (p. 666).

Jan saw the benefits of having a semi-script to follow and a fully prepared suite of lessons. She said both she and the students knew what to expect, what the routine required them to do, and the aim of each learning outcome. McMullen and Madelaine (2014) reported on previous Direct Instruction (DI) research which found scripts enabled teachers to concentrate on delivering the program content. Barbash (2012) also cited research that found teachers delivering scripted programs reported it frees them from preparation, allowing time to concentrate on “the give and take with students” (p. 40). In this current project, it is suggested that as Jan’s presentation skills improved, use of the semi-script freed her up to answer incidental student questions and deal more effectively with management issues. Jan also liked knowing more about the terminology, teaching the spelling component and associated rules, using the engaging activities, and the fact that the content reflected the curriculum and syllabus requirements.

Jan continued to find the fast-pace of each lesson difficult to adopt, but could see the benefits of EI which included the concepts having “to be more explicitly unpacked and broken down” (Jan). She saw the students starting to think about the process involved when spelling and thought consistently reviewing previously taught concepts probably contributed to their knowledge growth. These comments reflected a certain knowledge of some of the instructional principles that had been demonstrated and discussed in the PD and mirrored in each lesson. The principles were further detailed in the Rosenshine (2012) article given to each teacher to examine before The Project commenced. Jan admitted not having had time to read the article during the holidays. It is suggested that the other teachers involved or associated with The Project also may

not have studied the article, as during and after The Project, they did not demonstrate any particular knowledge growth in the principles of explicit instruction.

In the PD session, Ella the Learning Support Teacher (LST), who was also the Acting Assistant Principal during most of the intervention, was positive about The Project and the semi-scripted presentation. Ella's particular role in this intervention was to support two students who Robyn was concerned would require more direction during each spelling lesson. However, as Ella subsequently was asked to withdraw these two students to provide them with their usual targeted reading program, she was no longer available to teach on The Project.

Ella felt that whilst she personally supported EI in spelling, she was in the minority throughout the school. She stated the structured approach and the time devoted to implementing teaching specific skills would be unpopular with many teachers who would feel it impinged on their meaning-based reading and writing program. This view was consistent with findings from previous research by Westwood (2005). These researchers interviewed experienced teachers and found those who favour a meaning-based approach to literacy learning are usually averse to approaches "that are more teacher-directed and highly structured. They are also likely to be very critical of devoting specific time within the school day to the specific teaching of phonics", and "spelling ..." (p. 78). Ella saw no particular barriers to implementing The Project in a mainstream classroom: she found both the EI pedagogy and semi-scripted content were implementation enablers. However, she felt the lesson pace was too fast for students with specific learning difficulties.

During the seventh week of The Project, the Acting Principal, Tim, attended and reported on a complete lesson in Jan's classroom. Tim was most enthusiastic about the content and learning taking place. A copy of his report is provided in Appendix L. He was impressed by seeing all students, including the lower achieving spellers, accurately completing tasks and growing their spelling knowledge. In the post-intervention interview, Tim stated he felt he knew less than the students and that other teachers in the school would also grapple with many aspects of the spelling content he saw being taught. He thought that they would require specific instruction in order to teach this content. His statement reflected Moats' (2014) findings from previous research on

teachers' lack of spelling construct knowledge. As Meeks and Kemp (2017) and Westwood (2018) have recently reported, this has implications concerning the importance of teachers receiving specific training in spelling constructs in their undergraduate teacher training programs to enable them to teach the spelling content reflected in curriculum and syllabus documents. In this study, Tim said he had changed his view on the value of teaching spelling constructs, including the terminology and now saw it as important. He did not see any barriers to implementing The Project content, was supportive of the EI approaches, and felt EI pedagogy would be of benefit if applied to other key learning areas (KLAs).

8.5.1 Summary of discussion, Research Question 5

Results revealed that overall, the majority of teachers and the Acting Principal were supportive of the EI pedagogy and the spelling components that comprised *The Spelling Detective Project*. All staff involved stated knowing more spelling terminology before teaching it to the students was beneficial. However, there were inconsistencies in what teachers found to be other barriers or enablers during the intervention. Three of the four teachers reported more positive than negative factors influenced their engagement with The Project. These included being more knowledgeable about spelling terminology, using EI pedagogy including the semi-scripted content, having fully prepared lessons that targeted and engaged all students, teaching spelling rules, and using the engaging student activities. One teacher thought the PD that reflected syllabus content, the package of student resources that accompanied The Project, and the professional collaboration opportunities were also beneficial.

Barriers to implementing The Project reported by two of the teachers were the length of the lessons that impinged on other literacy activities and three thought the fast-paced lessons were too demanding for struggling students. One teacher considered there was little difference in The Project spelling content to what she usually taught, but found knowing and teaching more about syllables was helpful. She cited implementation barriers as being the EI pedagogy and semi-scripted content which were not compatible with her teaching style, not having an interactive whiteboard, and the length of the lessons that impinged on her other literacy activities. None

commented on the professional readings each received to upskill their subject and pedagogical knowledge before The Project began.

Limitations of this research study, implications for practice and future directions are provided in the final chapter, the Conclusion.

Chapter 9 Conclusion and implications

In concluding this thesis, an overview of the research is provided. It includes the significance of the research on teacher knowledge of the phonological and morphological aspects required to teach spelling explicitly. Key findings for the research are discussed as well as the research limitations, implications and recommendations.

9.1 Research overview

The research was born from concerns that many students are not remembering taught spelling, appear unable to apply taught spelling concepts in their writing, and are achieving continuously low Year 3 NAPLAN spelling outcomes. There has been continued interest in improving student spelling outcomes because fluent spelling is an important contributor to developing fluent reading and writing outcomes (Joshi et al., 2008; Moats, 2006; Treiman, 2018; Westwood, 2018). Importantly, there is much evidence to suggest that in general, poor spelling outcomes may be due to two factors: a) a general dearth of teachers' linguistic knowledge about the constructs of the English spelling system (Louden & Rohl, 2006; Mahar & Richdale, 2008; Meehan & Hammond, 2006; Meeks & Kemp, 2017; Stark et al., 2015); and b) a lack of use of explicit instruction pedagogical approaches (Berninger & Fayol, 2008; Ehri, 2014; Joshi et al., 2008; Moats, 2010; Schlagal, 2013; Westwood, 2015, 2018), including EI which have shown to deliver the greatest impact on spelling outcomes for students of all ability levels.

Previous research studies have shown that many teachers feel it is important to teach spelling, including phonics (Meehan & Hammond, 2006; Mahar & Richdale, 2008; McNeill & Kirk, 2014): stated preferred approaches were to provide explicit instruction and code-based instruction together with meaning-based instruction (Fielding-Barnsley, 2010). However, in practice few teachers from the research actually used explicit instruction strategies, probably due to several factors, including a lack of teachers' linguistic spelling knowledge, school policies and reading program choices (Fielding-Barnsley, 2010).

Research on the use of dictation, as a tool to practise and assess learned spelling words, fell out of favour in the 1960s with the implementation of constructivist

approaches to teaching spelling (Stansfield, 1985). Almost forty years later, researchers found that developing student phonological, morphological and orthographic components of spelling played a central role in fostering the writing and reading process (Berninger, 1999; Berninger et al., 2000). Suggestions arising from these studies were that if taught words are dictated, practised and recalled in sentences that connect word components, dictation would reflect written composition, be more beneficial than single word spelling and as a result, may assist in developing spelling automaticity (Berninger, 1999; Berninger et al., 2000).

In this study, the Researcher used mixed methods that combined both numerical and narrative data and analysis. It provided the Researcher with the opportunity to utilise the most suitable tools to answer the research questions, integrating findings from statistical and thematic data (Teddlie & Tashakkori, 2009). Forming case studies (Creswell, 2014) enabled the main themes from the qualitative data to be interpreted and framed within the context of each teachers' engagement with professional development, their professional viewpoints, classroom experience and role during the intervention.

9.2 Summary of answers to Research Questions

Research Question 1: a) Which phonological and morphological aspects of English spelling did all teaching staff in two rural NSW primary schools demonstrate? and b) What were the current views and approaches to teaching spelling, specifically in Year 2?

Findings in this study showed that none of the teachers in either the intervention or comparison schools had sufficient knowledge of the phonological and morphological aspects of English spelling required to teach spelling explicitly to students of all ability levels. These results support previous international and Australian findings that the majority of teachers lack sufficient knowledge about language and the components of literacy to teach reading and spelling explicitly (Louden & Rohl, 2006; Mahar & Richdale, 2008; Meehan & Hammond, 2006; Moats, 2009b; 2014; Stark et al., 2015). In this study there was a disparity between the curriculum and syllabus spelling content and the teachers' knowledge of these components.

The majority of Year 2 teachers interviewed in this research thought teaching spelling was important and that spelling directly relates to writing development and quality.

However, they demonstrated a lack of metalinguistic language on the components of spelling and pedagogy that is central to providing effective spelling instruction. They used various constructivist approaches to teach spelling, generally embedding it in their reading and writing program. School policy meant some teachers used a commercial spelling program but the weekly content and instruction approaches did not appear to be developed on research-based principles. For students that struggle, some teachers preferred to focus on segmenting, blending and sounds manipulation, methods consistent with effective pedagogical approaches for all students. However, most thought struggling students require better home literacy practices and, in class, should pay better attention and have a go, taking a risk at spelling.

Policies from governing education bodies have a great influence on the pedagogical practices in schools. Balanced literacy approaches are endorsed in state and federal literacy policies (Buckland & Fraser, 2008) and the terms *explicit*, *systematic*, *balanced* and *integrated* are used to describe the teaching approaches teachers are expected to implement (Department of Education and Training, 2009a). Many NSW schools have adopted a state education department literacy intervention program for students K-2 that was designed to reduce poor literacy outcomes, especially for at risk students (NSW Department of Education, 2016). Whilst it is stated that the spelling component in the program is taught *explicitly*, the pedagogy does not include explicit instruction approaches. To date, the program appears to have delivered less than optimal student outcomes (Buckingham, 2018; Neilson & Howell, 2015; Singhal, 2018).

Previous researchers have stated that teachers and the role they play in implementing effective instruction are the most valuable assets a school can have. Therefore, they should be provided with the linguistic spelling knowledge and the best research-based teaching strategies to teach spelling explicitly (Rowe, 2005). However, there are conflicting views and approaches to teaching spelling that have consequences for teachers to effectively deliver spelling instruction. A review of recent research found many Australian teacher education courses lack sufficient content on the constructs of spelling and how to teach it explicitly (Meeks & Stephenson, 2018). In general, there is a dearth of important research-based instruction content and linguistic spelling constructs that includes phonological awareness, phonics and the alphabetic principle,

whilst balanced literacy approaches are emphasised. Furthermore, conflicting views and content in important literacy documents have serious implications that could affect teachers developing crucial knowledge and providing effective spelling instruction. Preservice and practising teachers need to be provided with the knowledge and training that are essential to deliver all the components of spelling that are curriculum requirements (Westwood, 2018).

Research Question 2: a) Did the teachers in both rural, NSW primary schools develop their phonological and morphological aspects of word level knowledge of English spelling? and b) What phonological and morphological word level knowledge did teachers demonstrate after professional development?

Post-intervention, whilst more teachers in both schools identified the number of syllables and morphemes in words tested, the majority demonstrated little change in word structure knowledge. These results suggest that in the intervention school, the general lack of interest in the principles of EI used during The Project may have affected teachers engaging with the Researcher during the term. This was most likely due to two factors. First, the morning literacy program that was a diocese literacy initiative reflected constructivist approaches and, second, the instigation of an additional diocese initiative that was a whole-school inquiry teaching and learning focus. Previous research has found that when commitment to a particular approach has been established, even when student outcomes are less than optimal, many teachers find it difficult to embrace pedagogical change (Dinham, 2009; Moats, 2014; Pajares, 1992; Tschannen-Moran & Woolfolk-Hoy, 2001; Westwood, 1995; Westwood et al., 2005). It is suggested that in this study, the whole-school commitment to both these constructivist teaching approaches may also have generally restrained the teachers' interest in explicit teaching techniques. This has practical implications as a mismatch between teacher subject knowledge and the pedagogical knowledge best suited to delivering the curriculum spelling content can greatly affect student outcomes (Shulman, 1986, 1987).

During the PD session with the teachers involved in The Project, there was a general hesitation and concern about EI approaches to teaching spelling. Most teachers seemed to engage little with the professional readings about explicit instruction techniques and accompanying learning sequence designed to support diverse learners.

Although the Year 2 teachers had reported they had quite a few below average spellers, they were generally satisfied with their current teaching practices for students of all ability levels. This is consistent with earlier findings that teachers often overestimate their knowledge on what struggling students require to achieve success (Moats, 2014; Westwood, 1995). This has implications for the necessity of teachers acquiring the knowledge to analyse spelling problems and provide suitable instruction to address deficits.

The Year 2 teachers who taught The Project, the Learning Support Teacher and the Acting Principal involved in The Project said they had increased their knowledge of terminology and constructs such as graphemes and morphemes after PD and during the intervention. However, apart from one teacher, their perceived knowledge of language constructs did not align with their demonstrated post-intervention assessments. The one teacher who demonstrated a significant improvement in her knowledge stated she kept growing her understanding of concepts and terminology during the term whilst teaching the sequence of EI lessons and seeing all students of all spelling ability levels achieving. Previous research has found that PD often fails due to a lack of teachers engaging with change, but when they see their students succeed, they are more likely to adopt the techniques that worked (Guskey, 2002). This has implications for ensuring that the model and duration of professional training is tailored to the specific needs of teachers and their students. It is suggested that in view of the established constructivist approach to teaching throughout the school, the PD provided in this study was likely insufficient to achieve optimal teacher engagement.

Research Question 3: To what extent did spelling performance improve when Year 2 children were taught explicitly about phonological and morphological aspects of words?

Pre-spelling and pre-morpheme results showed that many students made errors in both the spelling and morpheme assessments. There was no significant difference between the scores for either spelling or morphemes in either of the three classes or the two schools. Previous research (Engelmann & Carnine, 1991; 2016; Hemenstall, 2015b; Joshi et al, 2008; Moats 2007, 2009c; Kirschner et al., 2006; Rosenshine 1997; 2012) and reports from prominent state education bodies (Donnelley & Wiltshire,

2014; National Reading Panel, 2000; Rose, 2006; Rowe, 2005) have stated the most effective and efficient approaches to obtaining high student performance are the use of explicit teaching practices. Therefore, the students in the intervention school were provided with a progression of a structured weekly spelling cycle and semi-scripted EI teaching sequence developed around the major principles of effective instruction for diverse learners. The comparison school continued with their usual meaning-based literacy routine.

As expected, post-intervention, all classes improved their spelling and morpheme results. However, post-spelling and post-morpheme results were significantly better for one of the intervention school classes (ES moderate to strong) than the other class (ES modest to moderate) or the comparison school class (ES weak). The superior increase in results in the intervention school classes compared to the comparison school class most likely reflects previous meta-analysis that found as students mature, they are likely to advance even with minimal guidance, but less so than those who receive explicit instruction (Kirschner et al., 2006). In this study, the marked increase in student results in the intervention classes appears to reflect the benefits EI offers for students of all ability levels. The vast majority of students classified as above average, average, and below average spellers by their teachers improved their word spelling and morpheme results. In general, students who made the greatest gains were those classified as below average or average spellers. These results add weight to previous research which has consistently found the most effective teaching methods that underpin the principles of EI (Archer & Hughes, 2011; Clark et al., 2012; Hollingsworth & Ybarra, 2009, 2013, 2018; Rosenshine, 2012) achieve the greatest success for students of all ability levels (Carnine et al., 2006; Kame'enui et al., 2011).

Research Question 4: a) How does the implementation of explicitly targeted spelling instruction about the phonological and morphological aspects of words impact on Year 2 children's sentence dictation? and b) How did the Year 2 children feel about spelling and the teaching strategies used to teach spelling in their classroom during the term?

In this study, daily sentence dictation was the independent student practice component. Students used their listening and spelling skills to write: a) revised and taught spelling; b) introduced morpheme components; and c) reinforced punctuation

and transcription skills during the lesson. Post-results showed that overall, both the intervention school classes did better than the comparison school class, with results from one intervention class being significantly better (ES moderate for dictation 1 and strong for dictation 2) compared to the other intervention class. The majority of students from all ability levels improved their written spelling fluency. These results provide a major contribution to research literature. Of particular note was the significant improvement in scores for students who had been classified as below average spellers, particularly those in the better performing intervention class. By embedding a controlled sequence of revised and introduced spelling content into daily dictated connected sentences, students received scaffolded practice in writing these spelling concepts.

A random selection of Year 2 students from below average, average, and above average spelling ability levels were asked how they felt about the strategies their teachers used to teach spelling during the term. The majority of students in the intervention school reported feeling encouraged, enjoying the detective theme routine and physically active lesson sequence. They stated the approaches used including the associated rules helped them to learn to spell and build longer words. During the individual interviews, many students used metalinguistic language, saying that learning about vowels, syllables and morphemes was helpful. Some particularly liked receiving corrective feedback. The majority of students also enjoyed the daily dictations. Contra to some previous studies, which reported the repetitive content of DI destroyed student motivation (Hempenstall, 2013), responses from these students that displayed their new knowledge about spelling constructs reflected other previous research that showed methods employing active and direct student instruction have the best results (Barbash, 2012; Bowers et al., 2010; Hempenstall, 2013; McMullen & Madelaine, 2014). The majority of students interviewed in the comparison school favoured unguided activities such as choosing their own words to spell and write in sentences. Their comments did not reflect a knowledge of spelling constructs. Interestingly, the majority of these students enjoyed the narrative dictation assessments, preferring them to single word spelling tests. This study dispelled the myth that students dislike the instructional routines of direct instruction (McMullen & Madelaine, 2014).

Research Question 5: How well was the intervention taken up by the teachers and Principal at the rural, NSW primary school?

The final research question in this study provided another major contribution to research literature. It sought the reactions of the teachers and the Acting Principal involved in the study to the EI pedagogical approaches used during The Project. The governing bodies in many NSW schools have a great deal of influence over the literacy programs and teaching approaches that are implemented in schools. Through the diocese, the school was committed to a constructivist literacy routine, and teachers were free to implement spelling pedagogy as they saw fit. This is important to note, as commitment to a particular pedagogical approach may have consequences that affect willingness to implementing an intervention using alternative approaches (Dinham, 2009) with fidelity (Hempenstall, 2016). Furthermore, it brings into question the role of school leadership, which is critical if leaders and teachers are to work together to appraise their practices and improve student outcomes (Jensen & Sonnemann, 2014; Hattie, 2015a, 2015b; Robinson et al., (2008).

In this study, there were inconsistencies in the aspects teachers reported they found challenging or appealing during the intervention. In particular, the EI pedagogy and semi-scripted content was considered to be a barrier to one teacher, but conversely, an implementation enabler to the others interviewed. Other barriers cited were the fast-pace and length of the lessons. Appealing aspects included the EI sequence, knowing more spelling terminology, teaching students the spelling rules and the suite of engaging students activities.

During The Project, as all the teachers and the Acting Principal saw students achieving, their comments about the EI approaches used became more positive. This reflected previous research that showed a substantial change in attitude towards pedagogical techniques that work often only occurs after teachers see their students succeeding (Guskey, 2002). School leaders and teachers are more likely change their views about the benefits of EI and a semi-scripted sequence when they see students of all ability levels engaged and developing their spelling skills and knowledge about the components. This has important implications for the future planning and implementation of such programs in schools.

9.3 Limitations

It is important to recognise the limitations in this study. First, the research took place with a small sample of students in two NSW rural schools representative of an average level of socio-economic and educational community advantage. Whilst schools that are representative of a regional demographic were selected for this study, school and class settings across Australia differ. The findings from this study support the benefits of using Explicit Instruction (EI) to teach Year 2 students the phonological, morphological and orthographic aspects of English word spelling and is consistent with other international and Australian research. It also contributes to the contemporary body of knowledge on the benefits of using sentence dictation to practice taught spelling (Berninger 1999; Berninger et al., 2000; Berninger & Richards, 2002). However, these outcomes might not be duplicated in other schools and populations.

Second, the research was limited to a small student sample in a Year 2 setting. Generalisation of findings would be increased if such research was conducted in other primary school year levels across a variety of school settings and populations, particularly those with a higher proportion of students from non-English speaking backgrounds.

Third, only a small sample of teachers was involved in teaching *The Spelling Detective Project* (The Project). Findings showed that in general, teachers had limited knowledge of the phonological and morphological components of English spelling, thus reflecting previous research findings. However, these findings cannot be generalised to other teacher populations. Future research in other Year 2 classrooms in different locations, that involved a greater number of teachers and students, would increase generalisation.

Fourth, the professional development (PD) that the teachers received before The Project on implementing pedagogy was limited to one day. In the Researcher's opinion, and in line with other previous findings (Moats, 2014; Robinson et al., 2008; Yoon et al., 2007), it is likely this was insufficient time for the teachers to fully explore and engage with EI techniques. A model that incorporated more PD would have strengthened the research.

Finally, the nine-week intervention period was a limited time frame in which to conduct the research and extrapolate findings. Other Australian intervention studies in different settings and of a longer duration would add weight and confidence in its application.

9.4 Implications and recommendations

This research was born from concerns that many students are not remembering taught spelling, appear unable to apply taught spelling concepts in their writing, and demonstrate continuously low Year 3 NAPLAN spelling outcomes. Students and teachers from schools in an average level of socio-economic and educational community advantage in rural NSW were represented in this research study.

Despite the best intentions of all the teachers involved in this study, the majority of students did not appear to be receiving sufficient practice in spelling concepts that is required to underpin the development of fluent spelling skills. The literature review in Chapter 2 of this thesis revealed that many school literacy programs are based on constructivist or minimal guidance approaches as was the case in this study. Whilst Principals and teachers continue to report dissatisfaction with student spelling outcomes, it is understandably difficult for them to embrace change and adopt research-based explicit instruction approaches that are contra to the meaning-based literacy programs their governing bodies continue to promote. Therefore, a future study could combine spelling instruction with Big Book reading. Teachers and students may see the value of spelling more clearly if the target words appear in the texts they are reading. One of the teachers in the study was not enthusiastic and this might have assisted her if she combined the previously taught concepts with reading. Whilst each class was given a laminated spelling rule sheet for each revised or new spelling rule, providing an individual book mark for each child may have been of added benefit.

Results from this study contribute to the body of research knowledge from controlled studies that has found whilst minimally guided instruction approaches are appealing, when new skills are to be taught, explicit instruction that provides clear guidance during learning is more effective for students of all ability levels (Kirschner et al., 2006). This has implications for the following: a) the importance of analysing the needs of students prior to implementing the skill to be taught; b) delivering a well-sequenced

explicit teaching and learning progression; c) activating prior knowledge before the new content is introduced; and d) providing students with a repertoire of sequenced tasks that enables them to practise and develop knowledge and skills to foster mastery learning.

Furthermore, consistent with results from previous studies cited in the literature review in this thesis, is the need for initial teacher education programs and professional development initiatives to provide teachers with essential knowledge of the phonological and morphological components of the English spelling system (Meeks & Stephenson, 2018; Westwood 2018). This knowledge is crucial in order to deliver the progression of spelling skills and knowledge that students need to attain during their primary schooling and as stated in curriculum documents.

Future research

Future research needs to address how best to unite all the stakeholders involved in improving student literacy and spelling outcomes. Findings from previous literature reviews indicate that recommendations from a national inquiry and ministerial directives stating the importance of implementing explicit teaching methods to improve spelling and reading outcomes appear to have been largely ignored (Carter & Wheldall (2008). Such perplexing situations require the forging of strategies to urge governing bodies to embrace and promote research-based instructional approaches and establish common connections between universities, school leaders and teachers.

Currently, policy documents containing conflicting and unclear directions, especially with regards to explicit instruction, are confusing and unhelpful for governing bodies, school leaders and teachers alike. At the school level, school leaders need to be encouraged to actively support programs that are central to implementing the use of research-based instructional principles to optimise student spelling outcomes.

Research that explores this further would provide additional incentives for schools to adopt research-based spelling instruction methods.

9.5 Concluding comments

The pragmatic framework of this study situated the research in classroom practice and teachers were provided with a fully prepared sequence of Explicit Instruction teaching

and learning steps. This equipped them with delivery consistency and a platform for valuable continuous formative assessment. The guided student practice and motivating activities used during the study contributed to a significant increase in student spelling outcomes. From this study, it is clear that those who have no experience in using explicit instruction techniques can benefit from implementing practical interventions that work, and as a result, change their perceptions about Explicit Instruction approaches, and the benefits a semi-scripted content has to offer. It is also clear that the teachers in this study had an incomplete understanding of spelling or language structure. It is recommended that future research studies provide more demonstration lessons and coaching to improve teachers' spelling and language structure knowledge as well as the use of various techniques of explicit instruction, in particular Explicit Instruction (EI).

The re-emergence of dictation as a proposed effective method to foster spelling development was a feature of this study. It is suggested that daily sentence dictations used for independent practice during the study contributed to a significant improvement in student spelling outcomes. Future research projects are needed to explore the benefits of using sentence dictation in engaging activities to scaffold student practice to write revised and taught spelling concepts in connected sentences that may generalise into future writing tasks.

The pragmatic nature of this study advocates the importance of continuing to engage schools in research that marries professional development with day to day teaching methods that reflect best practice. There is a pressing need to continue to design and implement effective research-based programs into real-world classroom teaching and learning models. The demonstrated value of using Explicit Instruction techniques to grow spelling outcomes cannot be stressed enough.

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Appendix A: Spelling lesson plan

Term 3: Year 2 Lesson Plan Week 3, Lesson 1: Long and short vowel sounds; one and two syllable words; the morpheme *-un*

Teacher Notes: The target spelling words are in three levels of difficulty for differentiation.



The 'buzzing bee' icon appears above the level 3 words on the slides.

NSW Syllabus Stage 1 Spelling Outcome: "Uses a variety of strategies including knowledge of high frequency words and letter-sound correspondences to spell familiar words (EN1-5A)" (NSW Board of Studies, 2012, p. 63).

Learning Objectives:


- "understand that regular one-syllable words are made up of letters and common letter clusters that correspond to the sound heard (ACELA1778)
- understand how to use digraphs, long vowels, blends ... and use morphemes and syllabification to break up simple words and use visual memory to write irregular words (ACELA1471)
- recognise common prefixes and suffixes and how they change a word's meaning (ACELA1455, ACELA1472)
- begin to understand how knowledge of word origins supports spelling and vocabulary" (NSW Board of Studies, 2012, p. 63).


Length of lesson: 40 minutes.

Materials: Pop sticks in container for random student selection; rules charts; coloured hoops; student mini-whiteboards with lined sheet insert; felt pens with eraser; student work books; PowerPoint® lesson sequence; large whiteboard for teacher.

<p>Duration of each component</p>	<p>Student Preparation</p>
<p>1 minute</p>	<p>Ready to learn Teacher: "Detectives are always looking and listening. Everyone sit quietly, eyes on me." Teacher: "Yesterday, we revised long and short vowel sounds, bossy <i>e</i> words and the morpheme <i>-s</i>. What did we revise yesterday?" Teacher and students say: "Long and short vowel sounds, bossy <i>e</i> words and the morpheme <i>-s</i>".</p>
<p>6 minutes</p>	<p>Activate prior knowledge and check for understanding (CFU) Daily review</p> <p>Syllables Teacher: "Syllables are beats in a word. Everyone, say this with me, syllables are beats in a word." "Watch me. These are the syllables in <i>maggie</i>. Clap it with me, mag-pie. Everyone do it with me. Now robot walk with me." Repeat four times. Use pop sticks to select a child to do it on their own. Repeat for the words <i>river, crocodile, turtle, eggs</i>.</p>

8 minutes	<p>Alphabet</p> <p>Consonants</p> <p>Teacher: "What is a consonant?" The students and teacher say: "A consonant is any letter in the alphabet that is not a vowel." Teacher: "Here's the first consonant. The name of the letter is ... but the sound it makes is ..."</p> <p>Teach all consonant sounds and letters with all children responding then randomly select five children for individual turns and testing.</p> <p>Vowels</p> <p>Teacher: "When you hear the long vowel sound, say the sound and stand up tall with your hands in the air. When you hear the short vowel sound, say the sound and bob down low. Repeat routine with all children responding then randomly select five children for individual turns and testing.</p> <p>CFU: Teacher: "What does a short vowel say? (the letter sound). What does a long vowel say? (the letter name)."</p> <p>Review of digraphs /ay/ and /ai/</p> <p>Students use mini-whiteboard to spell these words.</p> <p>Teacher and students read the instructions together.</p> <ol style="list-style-type: none"> 1. Write neatly so we can clearly see your work. 2. When you are finished flip over your board to show you are a fast worker. 3. Put your pen lid on. <p>Teacher: "When I say 3-2-1 chin it, flip over your whiteboard and put it under your chin."</p> <p>Teacher: "The first word is <i>pay</i>. Long digraph /ay/ goes at the end of a word. Say the word with me <i>pay</i>. Spell it then write it. 3,2,1, Chin it."</p> <p>Repeat for <i>paid</i>. Long digraph /ai/ goes at the beginning or in the middle of a word.</p> <p>Tricky words</p> <p>Teacher: "The next word is <i>said</i>. What letters are missing on this slide?"</p> <p>Students: "/ai/."</p> <p>Teacher: "In some parts of England people say 'say-id' just like it sounds. So, what letters are missing? Digraph /ai/. Spell it out loud. Write it. 3,2,1, Chin it."</p> <p>Teacher: "Say the next word with me: <i>friend</i>. Say this little rhyme: I am your friend to the end."</p> <p>Students and teacher repeat the rhyme together.</p> <p>Teacher: "Sound it out with me f-r-e-n-d.</p> <p>What do we have to add before the /e/? An /i/. Let's say that three times. Add an /i/ before 'end'. Write it. 3,2,1, Chin it."</p> <p>Review digraph /ea/</p> <p>Digraph /ea/ at the beginning or in the middle of a word usually makes the long 'e' sound.</p>
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	<p>Phoneme Fingers Teacher: “Read the word <i>net</i>. Show me your Phoneme Fingers and sound out <i>net</i>. Find the vowel in <i>net</i>. Is it long or short? Say with me, short. Clap the syllables in <i>net</i>. One.” Teacher: “Read the word <i>neat</i>. Find the vowel in <i>neat</i>. Is it long or short? Say with me, long. Clap the syllables in <i>neat</i>. How many syllables are there in <i>neat</i>? One.” Repeat for each word (<i>net, neat, led, lead, met, mat, Len, clean, stem, steam</i>).</p> <p>Hoop Stepping Teacher: “Here is a picture of a bird’s <i>beak</i>. Show me your Phoneme Fingers. Tap the sounds in <i>beak</i>. b-ea-k.” Teacher randomly selects students to step out each word in the hoops. Teacher: “What’s the first sound, next sound, last sound? What’s the vowel sound in <i>beak</i>? Long digraph /ea/. Does it need any other help to say its sound? No.” (Repeat for <i>bean, read</i>).</p> <p>Phonics spelling: Phoneme Fingers Teacher: “Here is a cup of <i>tea</i>. Show me your Phoneme Fingers. Tap the sounds in <i>tea</i>. What’s the vowel sound in <i>tea</i>? It is long or short? It is long digraph /ea/. Does it need Bossy <i>e</i> to say its sound? No. Write <i>tea</i> on your whiteboard. 3,2,1 chin it.” Repeat for <i>leaf, heat, meal</i>:  <i>peach, bleak</i>.</p>
5 minutes	<p>Explicit presentation of new material and skills development (I do)</p> <p>The teacher provides a statement of new material (We are Learning To (WALT)) and what the students will be able to do at the end of the lesson (What I am Looking For (WILF)). In this lesson, students will:</p> <ol style="list-style-type: none"> 1. Learn about base words and the morpheme <i>-un</i>. 2. Spell words correctly. 3. Write two dictation sentences for our poem <i>Ants</i>. <p>Mighty Morphemes Teacher: “A morpheme affix is one or more letters at the beginning or end of a word that changes its meaning. The prefix morpheme <i>-un</i> means <i>not</i>. Say it with me.” The students repeat the above statement three times. The word <i>un+fit = unfit</i> (not fit). Repeat for <i>undo, unable</i>.</p> <p>Check for understanding (CFU) Teacher: “What did we just do?”</p>
12 minutes	<p>Student guided practice (We do)</p> <p>Phonemic awareness Hoop Stepping Teacher: “Here is a picture of a boy who is <i>well</i>. Show me your Phoneme Fingers. Tap the sounds in <i>well</i>.” The teacher randomly selects a student to step the sounds out in the hoops.</p>

	<p>Teacher: "What's the first sound, next sound, last sound?" (Children respond in unison). Teacher: "Clap the syllables in <i>well</i> (1 syllable)."</p> <p>Teacher: "Here is a picture of a boy who is <i>unwell</i>. Show me your Phoneme Fingers. Tap the sounds in <i>unwell</i>." The teacher randomly selects another student to step the sounds out in the hoops. Teacher: "What's the first sound, next sound, next sound, next sound, last sound?" (Children respond in unison) Teacher: "Clap the syllables in <i>un-well</i> (2 syllables)." Repeat with different students for <i>real</i>, <i>unreal</i>.</p> <p>Phonics spelling: Building words with morpheme prefix -un Words in the Air Teacher: "This bread is <i>uncut</i>. Put the Word in the Air (children put their hand above their head). Pull down the first two sounds /u/, /n/. Write /un/. Pull down /c/, /u/, /t/. Write it. Say <i>uncut</i>. 3-2-1 Chin it."</p> <p>Repeat with a random selection of students for <i>unbox</i>, <i>unkind</i>, <i>unwell</i>, <i>unclean</i>, <i>unseal</i>. </p>
7 mins	<p>Student Independent practice (You do)</p> <p>Students sit at their own desk to write the dictation.</p> <p>Dictation This is the beginning of a new poem entitled <i>Ants</i>. The title is written in each student's Spelling Detective Book.</p> <p>Dictation sequence The teacher asks students to listen carefully, keeping the sentence in their mind and remembering the structure of a sentence. The teacher reads the whole dictation using clear pronunciation and expression. <i>I say are not these ants unreal.</i> <i>What will ants do to get a meal?</i></p> <p>The teacher then dictates the first sentence at the usual pace of speech, then reads it a second time. The students write the first sentence independent of any teacher assistance. The second sentence is then dictated and written in the same manner.</p> <p>CFU These two sentences are read by the whole class before one student is randomly selected to read the completed dictation.</p>
1 minute	<p>Final review</p> <p>The teacher and students recall the concepts and skills taught during the lesson. Students ascertain whether they achieved the learning intentions (WILF).</p> <ol style="list-style-type: none"> 1. Learned about base words and the morpheme <i>-un</i>. 2. Spelled words correctly.

	3. Wrote two dictation sentences for our poem <i>Ants</i> .
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Reference

Board of Studies NSW. (2012a). *NSW English K-10 syllabus* (Vol. 1 English K-6). Sydney, Australia: Board of Studies NSW.

Appendix B: Teacher Knowledge Survey (TKS) A and B

Teacher Survey A

Part A

The following questions concern knowledge of the English language. These questions are multiple choice. Please indicate the correct response by circling the appropriate letter.

1. Which word contains a short vowel sound?:
(a) treat (b) start (c) slip (d) paw (e) father
2. A pronounceable group of letters containing a vowel is :
(a) phoneme (b) grapheme (c) syllable (d) morpheme
3. A diphthong is found in the word:
(a) coat (b) boy (c) battle (d) sing (e) been
4. A *voiced* consonant digraph is in the word:
(a) think (b) ship (c) whip (d) the (e) photo
5. How many speech sounds are in the word “**lamb**”?
(a) one (b) two (c) three (d) four
6. Why may students confuse the sounds /b/ and /p/ or /f/ and /v/?
(a) Students are visually scanning the letters in a way that the letters are misperceived.
(b) The students can't remember the letter sounds so they are randomly guessing.
(c) Speech sounds within each pair are produced in the same place and in the same way but one is voiced and the other is not.
(d) The speech sounds within each pair are both voiced and produced at the back of the mouth.
7. Orthographic awareness would be most related to:
(a) Acquiring a sight vocabulary
(b) Sounding out words
(c) Learning to spell words with irregular sound symbol correspondence
(d) Learning to type
(e) Both (a) and (c)
8. A schwa (non-distinct vowel sound) sound is found in the word:

(a) cotton (b) phoneme (c) stopping d) preview (e) grouping

9. Count the number of syllables in the word **“unforgiveable”**

(a) 4 (b) 5 (c) 6 (d) 7

10. If you say the word, then reverse the order of the sounds, **“enough”** would be:

(a) fun (b) phone (c) funny (d) one

11. After completing the last 10 questions, what do you predict your score out of 10 to be?

1 2 3 4 5 6 7 8 9 10

12. Please identify where you gained your knowledge about language. (Please tick the appropriate box)

- a) University study
- b) Experience in the classroom
- c) Professional development
- d) Primary or secondary education
- e) Other, please specify

Part B: Syllables and Morphemes

For each word on the left, determine the number of syllables and the number of morphemes:

	<i>Syllables</i>	<i>Morphemes</i>
salamander		
crocodile		
attached		
unbelievable		
finger		
pies		
gardener		
psychometrics		

Thank you for your time spent completing this questionnaire. Your effort is truly appreciated!

Teacher Survey B

Part A

The following questions concern knowledge of the English language. These questions are multiple choice. Please indicate the correct response by circling the appropriate letter.

2. Which word contains a short vowel sound?
(a) braid (b) fawn (c) draw (d) trot (e) rather
3. What is a pronounceable group of letters that contains vowel?
(a) phoneme (b) morpheme (c) grapheme (d) syllable
4. Which word contains a diphthong?
(a) seen (b) bring (c) rattle (d) coin (e) boat
4. A *voiced* consonant digraph is in the word:
(a) weather (b) chop (c) where (d) blink (e) phrase
9. How many speech sounds are in the word “known”?
(a) one (b) two (c) three (d) four
10. An example of a voiced and unvoiced consonant pair would be:
(a) b-d
(b) p-b
(c) t-f
(d) g-j
11. Which statement is false?
(a) Orthographic awareness involves sounding out words.
(b) Orthographic awareness involves acquiring a sight vocabulary.
(c) Orthographic awareness involves leaning to spell words with irregular sound symbol correspondence.
(d) Orthographic awareness comprises meaning, pattern and alphabet knowledge.
12. A schwa (non-distinct vowel sound) sound is found in the word:
(a) product (b) mutton (c) chopping (d) prescribe (e) growing
9. How many syllables in the word “reinvigorating”?
(a) 4 (b) 5 (c) 6 (d) 7

10. If you say the word, then reverse the order of the sounds, "ice" would be:

- (a) easy (b) sea (c) size (d) sigh

11. After completing the last 10 questions, what do you predict your score out of 10 to be?

- 1 2 3 4 5 6 7 8 9 10

Part B: Syllables and Morphemes

For each word on the left, determine the number of syllables and the number of morphemes:

	<i>Syllables</i>	<i>Morphemes</i>
beautiful		
platypus		
prevented		
unthinkable		
thunder		
cakes		
jogger		
psychologists		

Thank you for your time spent completing this questionnaire. Your effort is truly appreciated!

Appendix C: Teacher interview guide questions

Teacher Interview 1: Teaching spelling, guide questions

- Do you think spelling is important?
- If I walked into your room today, during spelling, what would I see?
- What spelling approach does your school currently use? (if unsure, prompt)
 - Do children choose their own words?
 - Do children work in groups or on their own?
 - Do you choose the words based on a theme or topic?
 - Do you choose the words based on a particular spelling pattern or rule?
- Do you use a particular program?
 - Is it working? Do you like it?
 - Have you used other programs in the past?
- What activities do you think most appropriate for teaching children spelling?
- What do you consider to be three of the most important spelling activities you would use?
- Which spelling strategy do you favour teaching the children to use?
- Do your students have difficulties with spelling?
 - What do they find hard?
 - What do you do to help?
- What role do you think spelling plays in the development of writing?
- Has your understanding of concepts and strategies on teaching spelling changed at all?
- If so, at what point did they start to change?

Teacher Interview 2: Teaching spelling, guide questions

The purpose of this interview is to ask you whether your views about teaching spelling have changed at all.

- What's different in this approach to teaching spelling?
 - What are you teaching now that you weren't teaching before?
 - Are you doing activities that are different to last term?
 - What's hindered or helped you to take up this new approach?
 - Are you finding any aspect of the approach difficult?
 - Are you enjoying teaching spelling in this way?
 - How are the children responding – do they like it?
 - Are they engaged?
 - Have you noticed anything about your students' spelling achievement?

- Do you feel more knowledgeable about spelling concepts?
 - For example, syllables and morphemes?
 - If your understanding of concepts and strategies on teaching spelling has changed, at what point did they start to change?

Teacher Interview 3: Teaching spelling, guide questions

Now that you have been involved in this project for a term, do you think spelling is important? Have your views changed?

- What's different to last term?
- Has your approach to teaching spelling changed?
 - If so how? What are you teaching now that you weren't teaching before?
 - Are you doing activities that are different to last term?
 - What's hindered or helped you to take up this new approach?
 - Are you finding any aspect of the approach difficult?
 - Are you enjoying teaching spelling in this way?
 - How are the children responding – do they like it?
 - Are they engaged?
 - Have you noticed anything about your students' spelling achievement?
- Do you feel more knowledgeable about spelling concepts?
 - For example, morphemes and syllables?
- Will you teach this way in the future?

Appendix D: The fidelity checklist and extracts from fidelity checks

Fidelity protocols for the Spelling and Writing Project components.

Code: CPSIA Date: 10/8/2017 Observer: S. Robinson-Koc

Observation	Fidelity of Instruction			
	Spelling Instruction	The Editor's Desk (ED)	Dictation	
Number of lessons per week	4 x 40 minutes of explicit instruction (ei) lessons in spelling are undertaken each week.	2 x weekly ei Editor's Desk writing components are undertaken each week.	4 x weekly teacher directed dictations comprising words using taught spelling are undertaken each week.	N/A
Duration of lesson	Spelling component lasts for approximately 10 minutes or 15 minutes without ED component	Editor's Desk component lasts for approximately 10 minutes.	Dictation component lasts for approximately 10 minutes or 15 minutes without ED component	N/A
Introduction To each component	Spelling component introduced to whole class.	Editor's Desk introduced to whole class.	Dictation introduced to whole class.	N/A
	Children are focused and actively listening to spelling component.	Children are focused and actively listening to Editor's Desk component.	Children are focused and actively listening to dictation components.	N/A
Learning activities	The script and Scope and Sequence provided is adhered to each week.	Each Editor's Desk activity is accompanied by the following ei scaffolds:	Each dictation is accompanied by the following scaffolds:	N/A
	Ei targeting syllables takes place in each lesson.	Teacher provides clear explanation of spelling rule that requires editing.	Dictations contain taught spelling words and are in poetic prose related to the literacy theme.	N/A
	Ei targeting phonemic awareness and phonics takes place in each lesson.	Teacher provides clear explanation of punctuation rule that requires editing.	Students write each dictation in Spelling Detective Journal.	N/A
	Ei targeting spelling words for the week using mini whiteboards takes place in each lesson.		Whole class and individual students read completed dictation.	N/A
	Teachers follow the scripts provided.	Students independently write the edit.		
	Teachers provide immediate correction to misspelt words and students rewrite correctly.			
	Children stay focused and responsive during the activities, responding and joining in when required.	Children stay focused and responsive during the activities.	Children stay focused and responsive during the activities.	N/A
Classroom setting and climate	Teachers display long and short vowel charts and spelling rule charts in prominent position.	Teachers are observed to discuss misspelt words with individual with students.	Teachers and LST are observed to speak clearly and with expression during dictation activities.	N/A
	Teachers and LST are observed to model clear speech and speak with expression.	Teachers and LST are observed to model clear speech and speak with expression.		
	Teachers and LST are observed to discuss misspelt words with individual students.	Teachers and LST are observed to incidentally or opportunistically recap on taught spellings		

Fidelity protocols for the Spelling and Writing Project components.

Code: CPS18 Date: 28.8.17 Week 7 Observer: Sally Robinson-Lee

Observation	Fidelity of Instruction		
	Spelling Instruction	The Editor's Desk (ED)	Dictation
Number of lessons per week	4 x 40 minutes of explicit instruction (e.i.) lessons in spelling are undertaken each week. ✓	2 x weekly e.i. Editor's Desk writing components are undertaken each week. <i>n/a today 28/8</i>	4 x weekly teacher directed dictations comprising words using taught spelling are undertaken each week. ✓
Duration of lesson	Spelling component lasts for approximately 10 minutes or 15 minutes without ED component. ✓	Editor's Desk component lasts for approximately 10 minutes.	Dictation component lasts for approximately 10 minutes or 15 minutes without ED component. ✓
Introduction To each component	Spelling component introduced to whole class. ✓	Editor's Desk introduced to whole class.	Dictation introduced to whole class. ✓
	Children are focused and actively listening to spelling component. ✗	Children are focused and actively listening to Editor's Desk component.	Children are focused and actively listening to dictation components. ✗
Learning activities	The script and Scope and Sequence provided is adhered to each week. <i>partial</i> ✗	Each Editor's Desk activity is accompanied by the following e.i. scaffolds:	Each dictation is accompanied by the following scaffolds:
	E.i. targeting syllables takes place in each lesson. ✓	Teacher provides clear explanation of spelling rule that requires editing.	Dictations contain taught spelling words and are in poetic prose related to the literacy theme. ✓
	E.i. targeting phonemic awareness and phonics takes place in each lesson. ✓	Teacher provides clear explanation of punctuation rule that requires editing.	Students write each dictation in Spelling Detective Journal. ✓
	E.i. targeting spelling words for the week using mini whiteboards takes place in each lesson. ✓		Whole class and individual students read completed dictation. <i>usually</i> ✓
	Teachers follow the scripts provided. <i>partial</i> ✗	Students independently write the edit.	
	Teachers provide immediate correction to misspelt words and students rewrite correctly. ✗		
	Children stay focused and responsive during the activities, responding and joining in when required. ✗	Children stay focused and responsive during the activities.	Children stay focused and responsive during the activities. ✗
Classroom setting and climate	Teachers display long and short vowel charts and spelling rule charts in prominent position. ✓	Teachers are observed to discuss misspelt words with individual with students.	Teachers and LST are observed to speak clearly and with expression <i>Sometimes</i> during dictation activities. <i>yes not</i>
	Teachers and LST are observed to model clear speech and speak with expression. <i>partial</i> ✓	Teachers and LST are observed to model clear speech and speak with expression.	
	Teachers and LST are observed to discuss misspelt words with individual students. ✗	Teachers and LST are observed to incidentally or opportunistically recap on taught spellings	

Fidelity protocol for the Editor's Desk component in the Spelling and Writing Project.

Code: CPS 1 A Date: 14.9.17 Wky Observer: S. Robinson - K. Lee

Observation	Instruction Type	
	The Editor's Desk	
Number of lessons per week	2 x weekly e.i. Editor's Desk writing components are undertaken each week.	✓
Duration of lesson	Editor's Desk component lasts for approximately 10 minutes.	✓
Introduction To the daily edit component	Editor's Desk introduced to whole class.	✓
	Children are focused and actively listening to Editor's Desk component.	X Poor behaviour was corrected, but returned
Learning activities	Each edit is accompanied by the following e.i. scaffolds:	
	Teacher provides clear explanation of spelling rule that requires editing.	X Poorly executed. X (see below)
	Teacher provides clear explanation of punctuation rule that requires editing.	X see below
	Students independently write the edit.	X
	Children stay focused and responsive during the activities.	X Chaffing - students "playing" with skin
Classroom setting and climate	Teachers are observed to discuss misspelt words with individual with students.	X sometimes desk "495"
	Teachers and LAs are observed to model clear speech and speak with expression.	X poor speed - "What's that but?"
	Teachers and LAs are observed to incidentally or opportunistically recap on taught spellings.	X sometimes

Notes: * Teacher did not write above the sentence or use a complete word when editing, eg. "but rushes" was edited as but rushes (the ly was inserted, the word not re-written); "always" was edited. No explanation as to why an exclamation mark is used.

Fidelity protocol for the spelling instruction component in the Spelling and Writing Project.

Code: CPS 1 B Date: 12.9.17 Wky Observer: C. Robinson - K. Lee

Observation	Instruction Type	
	Spelling Instruction	
Number of lessons per week	4 x 40 minutes of explicit instruction (e.i.) lessons in spelling are undertaken each week.	✓
Duration of lesson	Spelling component lasts for approximately 10 minutes	✓
Introduction To spelling component	Spelling component introduced to whole class	✓ Initially sat on the floor disrupted
	Children are focused and actively listening to spelling component	X by an aide & finally brought in line.
Learning activities	The script and Scope and Sequence provided is adhered to each week.	✓ Much improved, however needs to prepare before hand
	EI targeting syllables takes place in each lesson.	✓
	EI targeting phonemic awareness and phonics takes place in each lesson.	✓ Tom doing this quite well now
	EI targeting spelling words for the week using mini whiteboards takes place in each lesson.	✓ on about a
	Teachers follow the scripts provided.	✓ Quite good today
	Teachers provide immediate correction to misspelt words and students rewrite correctly.	✓ Usually
	Children stay focused and responsive during the activities, responding and joining in when required.	✓ Not all chn. could see the hoops.
Classroom setting and climate	Teachers display long and short vowel chart and spelling rules charts in prominent position	✓ Needs to refer to these more
	Teachers and LAs are observed to model clear speech and speak with expression.	✓
	Teachers and LAs are observed to discuss misspelt words with individual students.	✓ Improved; low knowledge of building base.

Notes: This was much improved today, but there is still a lot of preparation missing.
 • Pace still far too slow, but overall the lesson is better presented.
 • Student restlessness needs firmer attention
 • Pop sticks still not used!

Appendix E: Schonell Spelling Tests



Schonell Spelling Tests

Spelling Test A

net	can	fun	top	rag
sat	hit	lid	cap	had
let	doll	bell	yes	then
may	tree	by	ill	egg
land	how	your	cold	talk
flower	son	seem	four	loud
ground	lowest	brain	write	amount
noise	remain	hoped	worry	dancing
damage	else	through	entered	cough
fitted	spare	daughter	edge	search
concert	domestic	topic	method	freeze
avoid	duties	recent	type	instance
liquid	assist	readily	guess	attendance
description	welfare	various	genuine	interfere
accordance	mechanical	anxious	signature	allotment
approval	accomplished	remittance	financial	capacity
surplus	exceptionally	successful	preliminary	resource
prologue	colonel	coarse	referring	courteous
exhibition	affectionately	attorney	pinnacle	toboggan
definite	guarantee	anniversary	irresistible	hydraulic

Spelling Test B

see	cut	mat	in	ran
bag	ten	hat	dad	bed
leg	dot	pen	yet	hay
good	till	be	with	from
time	call	help	week	pie
boat	mind	sooner	year	dream
sight	mouth	large	might	brought
mistake	pair	while	skate	stayed
yolk	island	nerve	join	fare
iron	health	direct	calm	headache
final	circus	increase	slippery	lodge
style	bargain	copies	guest	policy
view	library	cushion	safety	patient
account	earliest	institution	similar	generous
orchestra	equally	individual	merely	enthusiastic
appreciate	familiar	source	immediate	breathe
permanent	sufficient	broach	customary	especially
materially	cemetery	leisure	accredited	fraternally
subterranean	apparatus	portmanteau	politician	miscellaneous
mortgage	equipped	exaggerate	amateur	committee

Appendix F: The adapted Morphological Knowledge Test

1. Introduce the test. Tell the students they may find some words difficult to spell and not to worry, just do the best they can.
2. Say that there are 10 words.
3. Say the first word: e.g. The words is **unfit**. The sick man is **unfit**.
4. Write the word **unfit**.
5. Deliver all the subsequent words in a similar manner.

unfit	The sick man is unfit .
remade	Mum remade the dress.
dismay	His dismay at losing the game was great.
missing	I'm missing my family.
lovely	It's a lovely day today.
likely	I'm likely to be late for dinner.
pushed	We pushed our bikes up the hill.
cared	I cared for my sick friend.
minded	We minded our friend's dog.
grateful	I'm grateful for your help.

Appendix G: Dictations 1 and 2

Year 2 student dictations pre- and post-intervention

(1) At the sandpit

“Pip and Len are at the sandpit.

Pip has a pink kite and a spade to dig up shells.

Len has the lunch box.

He puts it down and jumps into the sand.” (Dixon, 2013) (p.2-3)

(33 words, pp 2-3)

(extracted and modified from *A Fan-tas-tic Snack* Stage 5, Little Learners Love Literacy by Berys Dixon (2013)).

(2) Spring

“It was spring.

The sun was out and the bees were buzzing.

Pip and Len were playing in the swaying grass” (Dixon, 2014) (p.2).

Then a frog jumped along the side of Tip their cat. (32 words)

Wow! in a flash she sprang up the lemon tree. (42 words)

(42 words, extracted and modified from: *A Day in the Jungle* Stage 6, Little Learners Love Literacy by Berys Dixon (2014)).

Appendix H: Student consent form and interview guide questions

Informed Consent Form for Students

Read aloud to student before each assessment session

Hello, my name is Sally Robinson-Kooi

I have a project that you might like to help me with. Your parents, or the person who looks after you, has talked with you about helping me out by doing some work. I'm trying to see what things kids like or don't like about spelling. Would you like to help me today for about 10 minutes? If you want to stop at any time, that's OK, you can.

If you would like to have a chat with me about how you feel about spelling and some of the things you do when you spell and write sentences, I have some questions I would like to ask you and record your reply on this recorder. This is not a test; it is about your feelings. Your name won't be on anything I write down so no one will know who you are. If you would like to help me, please *put a circle around the smiley face*. If you don't want to help today – that's OK too.

You can help later if you like.

Name of child:

Today's Date: / /

Can you write your name here? (or Can you write a bit of your name?)

_____ (all attempts accepted)

Now you can circle the smiley face if you do want to tell me about some of the things you do when you spell and write sentences. If you don't want to help today, you can circle the sad face.



OK, let's start **OR** That's ok, you can go back to your desk now.

Interview guide questions Year 2 student survey

How do you feel about spelling?

1. If you like spelling, what do you like about it?
2. If you don't like spelling, why don't you like it?
3. When you don't know how to spell a word, what do you do?
4. Have you been taught to spell this way (in The Project) before?
5. How have you been taught to spell before this unit of work?
6. How did you feel about the dictation activities?

Appendix I: The Scope and Sequence of Overview of Phonological and Graphological Processing Skills K-6 (NSW Board of Studies, 2012)

Scope and sequence of phonological and graphological processing skills K–6

The following scope and sequence indicates the stage at which key phonological, graphological, graphophonic, spelling, handwriting and digital text production skills should be **introduced**. Skills addressed in earlier stages should be reviewed and consolidated according to student needs and syllabus requirements.

Sound (phonological) awareness			
<i>Sound awareness is the understanding that spoken words are made up of separate sounds and that these sounds can be pulled apart and put back together again or manipulated to make new words.</i>			
Early Stage 1	Stage 1	Stage 2	Stage 3
<p>Aural discrimination of syllables and sounds (ENe-4)</p> <ul style="list-style-type: none"> recognise that spoken words are made up of sounds segment simple words into separate sounds (phonemes) segment spoken multisyllabic words into syllables (eg ba-na-na), using clapping or drum-beats <p>Rhymes, poems, chants, songs (ENe-1A, ENe-4A)</p> <ul style="list-style-type: none"> join in rhymes, poems, chants and songs, replicating word patterns recognise rhymes provide a rhyming word <p>Initial sounds (ENe-4a)</p> <ul style="list-style-type: none"> say the first and end sound in a word recognise words that begin with the same sound (eg pat, pin) or a given sound (eg clap when you hear a word beginning with 'm') <p>Blending sounds (ENe-4A)</p> <ul style="list-style-type: none"> blend two or three sounds to make a word identify the new word when a phoneme is deleted/added vocally 'stretch' a word (eg m-a-n, b-ea-ch, t-r-ee, sh-o-p), using a hand gesture to support the stretching concept, to highlight the first, middle and last sounds <p>Words (ENe-4A)</p> <ul style="list-style-type: none"> recognise that texts are made up of words and groups of words that make meaning segment oral sentences into individual words (using words of one syllable at first) 	<p>Knowledge of syllables and sounds (EN1-1A, EN1-6B)</p> <ul style="list-style-type: none"> join in rhymes, poems, chants and songs identify and experiment with sound patterns replicate and invent sound patterns, including alliteration and rhyme <p>One-syllable words (EN1-5A)</p> <ul style="list-style-type: none"> know that regular one-syllable words are made up of letters and common letter clusters that correspond to the sounds heard in early phases of Stage 1, segment spoken cv (b-e), vc (o-n) and cvc (l-o-t, p-a-ck, sh-o-p) words into separate sounds in early phases of Stage 1, blend single sounds to form a spoken word (cv, vc and cvc words) in early phases of Stage 1, delete onset from a spoken word to utter the rime separately, or to make a new spoken word (eg say 'sheet' without the 'sh') in later phases of Stage 1, segment consonant blends (cc, eg s-p-ot, and ccc, eg s-p-l-it) to show awareness of identity of separate phonemes (tr-, dr-, -mp, -nt, -nd, and -nk may need extra explanation, with attention to how they are formed in the mouth) in later phases of Stage 1, blend single sounds to form a spoken word (ccvc, eg slip, clock, sneeze; cvcc, eg desk, lunch; cccvc, eg street; ccvcc, eg crust) 	<p>No new skills introduced at this stage. Continue to revise and consolidate ES1 and S1 skills as necessary</p>	<p>No new skills introduced at this stage. Continue to revise and consolidate ES1, S1 and S2 skills as necessary</p>

Visual (graphological) processing			
Visual processing includes automatic recognition of whole words and the combining of letter sequences according to phonemic awareness and knowledge of letter-sound relationships.			
Early Stage 1	Stage 1	Stage 2	Stage 3
<p>Features of print (ENe-4A)</p> <ul style="list-style-type: none"> • follow text directionality from left to right, including knowledge that letters are written from left to right to form individual words • follow text from the end of one line (right) to the beginning of the next line (left) • recognise that words are units of print with a space on either side <p>Meaning (ENe-2A, ENe-4A)</p> <ul style="list-style-type: none"> • recognise that words carry messages and have constant meanings • know that spoken sounds and words can be written down using letters of the alphabet • know that written words refer to spoken words • recognise that words can be read aloud <p>Sight words (ENe-4A)</p> <ul style="list-style-type: none"> • automatically recognise some whole common words by sight, eg student's name, high-frequency words from texts <p>Alphabetic principle (ENe-4A)</p> <ul style="list-style-type: none"> • know the names of the letters of the alphabet • say the most common sounds for all the lower case letters (to avoid confusion, letters that look alike and sound alike should not be introduced together, eg 'b' and 'd', 'a' and 'u') • recognise that the same letter may be printed in upper and lower case • discriminate between letters through matching activities • develop an awareness that the direction of a letter (eg b/d), and whether it goes above or below the line (eg b/p), makes a difference when identifying a letter • identify most of the sounds and name all letters in a given word 	<p>Sight words (EN1-4A)</p> <ul style="list-style-type: none"> • recognise an increasing number of high-frequency sight words (sight words may have to be practised to support automatic recall) • demonstrate an early ability to see small words within bigger words (eg within compound words such as 'cowboy') • read environmental print <p>Syllabification and segmenting (EN1-4A)</p> <ul style="list-style-type: none"> • segment written words into syllables • segment written words into onset and rime (eg slip: sl and ip) 	<p>Sight words (EN2-4A)</p> <ul style="list-style-type: none"> • recognise high-frequency sight words • build fluency and automaticity in recall of an expanding number of words in literary and factual texts • find known letter clusters (eg <u>solu</u>tion), syllables (eg un/co/ver) and smaller words in big words (eg <u>know</u>ledge) (automatic processing of letter clusters assists in word recognition) 	<p>No new skills introduced at this stage. Continue to revise and consolidate ES1, S1 and S2 skills as necessary</p>

Letter–sound (graphological) awareness			
<i>Awareness of letter–sound relationships involves knowledge of the printed form of letters, use of the alphabetic principle (systematic relationships between letters and sounds), the ability to make generalisations about letter–sound relationships, understanding of the difference between letter names and sounds, recognition that graphemes usually represent multiple sounds, and skill in blending sounds for known letters to form words.</i>			
Early Stage 1	Stage 1	Stage 2	Stage 3
<p>Sound–letter relationships and blends (ENe-4A)</p> <ul style="list-style-type: none"> blend up to three sounds, eg to form vc (eg at) and cvc (eg sit) spoken and written words use knowledge of letters and sounds (including in initial, medial and final positions) to decode words identify new words using known letter–sound relationships, eg using initial letter to guess the word 	<p>Sound–letter matches (EN1-4A)</p> <ul style="list-style-type: none"> understand the difference between letter names and letter sounds understand that letter names remain constant but the sounds they represent may vary know the names and most common sounds for all single letters blend sounds in written vc, cv, cvc words to work out unknown words recognise common consonant digraphs (eg sh, ch, th, wh, ph) recognise common vowel digraphs (eg ea, ay, ar, er, or) recognise consonant blends (eg spl, str) recognise long vowel sounds (silent 'e') recognise silent letters and less common sound–letter combinations identify the sounds of known letter clusters, syllables or rimes in unknown words <p>Prefixes and suffixes (EN1-5A)</p> <ul style="list-style-type: none"> recognise common prefixes and suffixes recognise how common prefixes and suffixes change a word's meaning recognise that common suffixes in words can have different sounds (eg talked, wanted, rubbed) <p>Word families and origins (EN1-4A)</p> <ul style="list-style-type: none"> build word families using words with known rimes (eg using knowledge of 'day' to spell 'bay' and 'ray') identify word origins to understand the meaning of unfamiliar words, eg using base words 	<p>Reading strategies (EN2-4A)</p> <ul style="list-style-type: none"> use phonological knowledge when reading, eg <ul style="list-style-type: none"> give the most common sounds for all vowel digraphs (eg cloud) and trigraphs (eg high) decode more unusual letter patterns as chunks (eg 'ough', 'scious') be aware of more advanced letter–sound correspondence rules (eg soft c and g before e (eg cent, gent), i (eg city, giant) or y (eg cygnet, gym)) identify syllables in multisyllabic words read unknown words in syllable chunks, rather than as separate sounds read multisyllabic words with known prefixes and suffixes (eg un-, non-, -tion, -ness, -able) recognise contractions (eg shouldn't) use knowledge of word families and homophones when reading 	<p>No new skills introduced at this stage. Continue to revise and consolidate ES1, S1 and S2 skills as necessary</p>

Spelling			
<i>Learning to spell is closely linked to learning to read and write. Learning about spelling reinforces knowledge about common letter sequences and about spelling–sound (graphophonic) relationships.</i>			
Early Stage 1	Stage 1	Stage 2	Stage 3
<p>Phonetic spelling (ENe-5A)</p> <ul style="list-style-type: none"> • understand that initial approximations can lead to correct formal spelling • spell unknown words phonetically (as they sound), with most of the letters in the correct sequence <p>Segmenting to spell (ENe-5A)</p> <ul style="list-style-type: none"> • use onset and rime to spell words • vocalise or subvocalise words when trying to write them • say and sound while writing the letter for the first sound in a word • say and write letters for some of the sounds in a word beyond the initial sound, identifying the sounds through stretching the word <p>Sight words (ENe-5A)</p> <ul style="list-style-type: none"> • write their own name using correct spelling • copy the sequence of letters from models of high-frequency, topic and personal words • write high-frequency words independently (eg is, I, am, the) 	<p>One-syllable words (EN1-5A)</p> <ul style="list-style-type: none"> • write cv, vc and cvc words that contain known letter–sound relationships • use knowledge of letter–sound relationships to spell regular one-syllable words <p>Sound–letter relationships (EN1-5A)</p> <ul style="list-style-type: none"> • isolate and write the initial, medial and final sound of a word • understand how to use digraphs, long vowels, blends and silent letters to spell words • choose phonetically appropriate letters to represent most of the sounds in unknown words (students may have difficulty with consonant blends) • spell words using consonant blends, digraphs and long vowel sounds that have been introduced as a component of the reading program • spell words using silent letters that have been introduced as a component of the reading program • use double consonants where appropriate, eg hopping • exchange one letter in a written word with a different letter to make a new word 	<p>Segmenting to spell (EN2-5A)</p> <ul style="list-style-type: none"> • use knowledge of morphemic word families when spelling unknown words, eg prefixes, suffixes, compound words <p>Sound–letter relationships (EN2-5A)</p> <ul style="list-style-type: none"> • spell words using knowledge of letter combinations, including double letters • classify words into groups according to the way in which they are spelt, eg thought, bought, ought • use known letter patterns and sound sequences, not just individual letters, when spelling unknown words • become familiar with the various ways of representing a particular sound in writing, eg <u>meat</u>, <u>meet</u>, <u>metre</u> • correctly represent consonant blends when spelling unknown words • use common consonant and vowel digraphs in attempting unknown words <p>Sight words (EN2-5A)</p> <ul style="list-style-type: none"> • use an increasing bank of known spelling words written automatically 	<p>Integrated strategy use (EN3-5B)</p> <ul style="list-style-type: none"> • use a variety of spelling strategies and conventions to spell multisyllabic words • use known word meanings and base words when spelling unknown words, eg heal, healthy; sign, signature • use knowledge of suffixes and prefixes to spell new words • develop knowledge of word origins, eg Greek and Latin roots (telephone, aquarium) • use banks of known words to assist in spelling new words • consider meaning and context when spelling words • understand that the pronunciation, spelling and meaning of words have histories and change over time • develop a knowledge of less common letter patterns and spelling generalisations/rules and apply them to new situations <p>Proofreading (EN3-5B)</p> <ul style="list-style-type: none"> • recognise most misspelt words in their own writing and use a variety of resources for correction • consolidate and extend proofreading skills and take responsibility for editing own work

Early Stage 1	Stage 1	Stage 2	Stage 3
	<p>Segmenting to spell (EN1-5A)</p> <ul style="list-style-type: none"> • break simple words into morphemes to aid in spelling • break simple words into syllables to aid spelling • use rime analogy to spell new words, eg <u>mop</u>, <u>hop</u> • use knowledge of familiar letter patterns to spell words, eg -ed, -ing <p>Sight words (EN1-5A)</p> <ul style="list-style-type: none"> • use visual memory to write high-frequency words • use visual memory to write irregular verbs • focus on letter sequences and their sounds when copying and learning high-frequency, topic and personal words • spell high-frequency and common sight words accurately • spell known words using letter names <p>Word origins (EN1-5A)</p> <ul style="list-style-type: none"> • begin to understand how knowledge of word origins supports spelling 	<p>Metacognitive strategies (EN2-5A)</p> <ul style="list-style-type: none"> • use mnemonics for spelling irregular or difficult words, eg 'piece of pie' • spell words using spelling rules and generalisations, eg 'i before e except after c', 'y to i' rule for plurals, doubling consonants <p>Proofreading (EN2-5A)</p> <ul style="list-style-type: none"> • identify spelling errors in own writing and unknown texts and provide correct spelling • increasingly use visual and phonetic self-correction strategies in editing own work, eg correcting words that do not 'look or sound right' • consider meaning and context when spelling words, eg when differentiating between homonyms such as their/there/they're • become familiar with various spelling resources, eg spell check, dictionary • use knowledge of alphabetical order to locate information in texts, eg dictionaries, glossaries • experiment with digital spell check applications and develop an awareness of the limitations of their features 	<ul style="list-style-type: none"> • use competent visual and phonological strategies for attempting and checking spelling, eg correcting words that do not 'look or sound right' • competently use various spelling resources, eg spell check, dictionary, personal spelling notebook • demonstrate awareness of the limitations of spell check features in digital technology

Appendix J: *The Spelling Detective Project* nine-week scope and sequence

<p>Colour coding: Monday: Section Headings: Blue (no lesson on week 1) Tuesday: Section Headings: Orange Wednesday: Section Headings: Pink Thursday: Section Headings: Green</p>	<p>Student spelling and writing components: Daily review, new material and skills development: Spelling is completed on mini-whiteboard. Guided practice: Spelling is completed on mini-whiteboard and Editor’s Desk components in Spelling Detective Book. Student independent practice: Sentence dictations are completed in Spelling Detective Book.</p>
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Teacher Notes: a) The target spelling words are in three levels of difficulty for differentiation. * **denotes challenge words.**



b) The ‘buzzing bee’ appears above the level 3 words (challenge words on the slides).

<p>Week 1 Lesson 1: Tuesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (table, hamburger, lizard, cup, butterfly, spider). • Phonemic awareness (PA): (pat, pig, rug, train, drop, drum, pram, fan, frog). • Phonics letter sounds: The complete alphabet. 	<p>New material and skills development</p> <ul style="list-style-type: none"> • WALT and WILF: To match sounds to letters of the alphabet and spell some words correctly. • Mini-whiteboard rules. • Phonics Spelling: Words in the Air (van, dog, pen, fig, jug). 	<p>Guided practice</p> <ul style="list-style-type: none"> • Matching sounds to written symbol: ‘s’ to ‘s’; ‘u’ to ‘a’; ‘i’ to ‘i’; ‘k’ to ‘q’. • Why were these not correct? The sound ‘u’ and I write ‘a’; ‘k’ and I write ‘qu’? • Here are some more: ‘l’ to ‘l’; ‘b’ to ‘t’; ‘r’ to ‘p’; ‘s’ to ‘z’. What is not correct? Why? • Alphabet: Match sounds to written symbol, two at a time (m a; s t; i f; d r; h l; u c; n k; v b; e p; j w; x y; q z). 	<p>Student independent practice and final review</p> <ul style="list-style-type: none"> • Dictation introduction: vc and cvc words: Words with 2 sounds: up, on, is, at. Words with 3 sounds: dab, yet, box, rug, pin, jut, quit. <p>Final review</p> <ul style="list-style-type: none"> • Check for understanding (CFU): What did we just do?
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		<ul style="list-style-type: none"> • Choose the correctly spelled word: (a, b or c), (a. bed, b. cup, c. lid; a. mist, b. drive, c. crash). 	<ul style="list-style-type: none"> • How much have you learned? • What are we learning next?
<p>Week 1 Lesson 2: Wednesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (1-3 syllable words using new pictures: pool, garden, bee, grasshopper, centipede). • Phonics: Alphabet: The name of the letter is 'a' but the sound is ...? (click on each letter and elicit sound). • Review digraphs: 'th' and 'sh'. Read (this, that, then, them, shop, shed, shut, crash). • Long and short vowels: Single vowels by themselves followed by words (crab, snake). • Syllables and vowels: Find the vowel (bug, cobweb, insect, catnap, bun). • Phonics spelling: Words in the Air. Write on mini-whiteboard (that, ship, shed, them, brush). • PA: Find the Rime (fit, flit, fat, flat, tap, trap). • Tricky Words: Click on each word to fade out before students spell the word (are, was, likes, these, those). 	<p>New material and skills development</p> <ul style="list-style-type: none"> • WALT and WILF: Doubling 4 rule (FLOSS + Z): Explain the rule. When a short vowel is followed by 'f', 'l', 's' or 'z' at the end of a one syllable word, then double that consonant. 	<p>Guided practice</p> <ul style="list-style-type: none"> • Phoneme segmentation: Phoneme Fingers and Hoop Stepping: syllables and vowels (cuff, huff, buzz, jazz, yell, well, smell, hiss, kiss). • Check rule for understanding and correct spelling: I say 'stiff' and write 'stiff'; I say 'fell' and write 'fel'; I say 'frizz' and write 'friz'; I say 'miss' and write 'mis'. • Phonics spelling: Words in the Air (moss, frill, puff, buzz). • Spelling check: Choose correct spelling for the words displayed under each picture. Choice of a, b or a. fuzz; a. puff; c. mess; b. sell). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation: A short sentence. Provide a word grid for students if required. The fat frog likes to sit and puff up. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 1 Lesson 3: Thursday Daily review</p>	<p>New material and skills development</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • The Editor's Desk: 	<p>Student independent practice</p>

<ul style="list-style-type: none"> • Syllables: Robot Walking (golden, banana, tomato, plant). • Phonics: Consonants matching sound to the letter. • Review digraphs: Read words with no picture: 'th' and 'sh' (these, those, this, that, shape, shed, fish, crush). • Phonics: Long and short vowels. Random selection. Bob down for short vowels, stand tall for long vowels. 	<ul style="list-style-type: none"> • WALT and WILF: Edit a sentence, spell words correctly, write a sentence. • Policeman's Hat: Send the incorrect word to jail (thrill, thril; buz, buzz; tal, tall; pass, pas). • Phonics spelling: Hoop Stepping including digraphs 'th' and 'sh' (shop, shred, mash, mass, sell). 	<p>ther is the fat lizard with a fril It likes the moz in the gardn There is the fat lizard with a frill. It likes the moss in the garden.</p>	<ul style="list-style-type: none"> • Dictation: We are going to write a poem about <i>The garden</i> and add a line or two each day. Here's the beginning of the first poem. Write the title. <i>The garden</i> A bee will buzz Yet a frog will hop. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 2 Lesson 1: Monday (<i>Islands in my Garden</i> by Jim Howes and Roland Harvey).</p> <p>Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (leaf, stinkbug, tunnel, mountain, dragonfly). • Phonics: Selected consonants. Click on each letter, say name and students say sound. • Vowels: Short and long vowels. Say the vowel sounds in the following order and click on vowel after each sound (ū, ä, ĭ, ō, ů). • Tricky Words: Spell (was, are, those, these). • Bossy e revision: (mad, made; pet, Pete; pin, pine; rob, robe; cut, cute). 	<p>New material and skills development</p> <ul style="list-style-type: none"> • WALT and WILF: We are learning about morphemes, the morpheme -s and to spell words correctly. • Define a morpheme: A morpheme is one or more letters at the beginning or end of a word that changes its meaning. 	<p>Guided practice</p> <ul style="list-style-type: none"> • Phonemic segmentation and phonics spelling: Phoneme Fingers and Hoop Stepping. Tap the sounds then spell (ants, pig, bugs, frills, cones, hive; *thrones, quills). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Spell these words: Show pictures (cats, bikes, dog, grapes). • Dictation Poem: <i>The garden</i> And the bugs like fun Up in the sun. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> • Phonemic segmentation: Phoneme Fingers (tap, tape, rip, ripe). • Phonics spelling: Find the vowel, long or short? (rode, rod, bone, cute, cave, hive). 	<p>For example, 'word' plus -s makes it 'words' and means more than one (frog, frogs; bee, bees).</p>		
<p>Week 2 Lesson 2: Tuesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (wings, tadpole, cocoon, kangaroo, mosquito). • Phonics: Single sounds from the previous day. • Consonants: Random selection. • Review 'th' and 'sh' digraphs: (those, these, the, there: shell, shine, brush, rash). • Long and short vowels: Bob down for short vowels, stand tall for long vowels (ī, ĭ, ā, ě, ō, ů). • Tricky Words: Rule for 've' ending: English words do not end in 'v', but must have an 'e' on the end. Spell (give, have, love). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Review Bossy e: Say rule, repeat rule. Students say rule. • Read words: (fad, fade, set, Steve, fin, fine, cod, code, cub, cube). • Phoneme segmentation and spelling bossy e: Phoneme Fingers. Find the vowel – long or short? Hoop Stepping each sound (game, cubs, lime, wave; *clip, flute). • The Editor's Desk: thes snails and frog in the garden lov the rain Birds' wing shin in the sun. These snails and frogs in the garden love the rain. Birds' wings shine in the sun. • Revise rule for morpheme 's': (beetle, beetles; flame, flames). Phonics spelling: Hoop Stepping. Examples and non-examples: (hills, pines, cakes; ships; *moth, scuffs). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>The garden</i> Snakes and moths like to sit And look at the bees that love to flit. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<p>Week 2 Lesson 3: Wednesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (poem, habitat, cicada, lava, seaside). • Consonants: Random selection. • Phonics: Long and short vowels. Bob down for short vowels, stand tall for long vowels (ǒ, ě, ē, ǎ, ů). • PA: Find the Rime. Word building with onset and rime (rat, trap, trap; pin, spin, spine, pine, pines). • Fill in the gaps: ‘th’, ‘sh and Bossy e. (- - at fi - - has red st - - - - . That fish has red stripes.) • Policeman’s Hat: Bossy e words (choose a, b, or c). Send the incorrect word to jail. (tub, tube; ate, at; cit, kite; hop, hope; tap, tape; ripe, rip). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Review digraph ‘ai’: There are two ways of spelling the digraph sound long ‘a’, ‘ai’ and ‘ay’. • Digraph: <ul style="list-style-type: none"> ○ ‘di’ means two ○ ‘graph’ means letter ○ digraph = two letters. • Say together: aid, mail, paid, fail, tail, wail. • PA: Kung Fu (aim, mail, laid, paid, train). • Phonics spelling: Hoop Stepping (rain, pain, snail; *trails). • Morpheme -s Phonics spelling: Phoneme Fingers (tails, paints, rails; *grains, quails, captains). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>The garden</i> Snails have no pain in the rain. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 2 Lesson 4: Thursday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (roadside, Pikachu, mouse, koala, seaside). • Phonics: Consonants. Random selection. • Vowels: Bob down when you hear the short vowel sound. Stand tall when you hear the long vowel sound (ū 2 sounds, į, ē, ǎ, ě). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Policeman’s Hat, FLOSS + Z words: Which word is spelled correctly? (these, tees; this, thiz; stil, still; shed, shet; lat, late; shav, shave; krash, crush). • Say these ‘ai’ words with more consonant blends: (claim, frail, strain, straight). • PA: Hoop Stepping (wail, braid, chains, drain). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation: Finalise Poem <i>The garden</i> And lay a fresh trail In this fine bed chain. • Students read the completed poem in pairs.

		<ul style="list-style-type: none"> • Phonics spelling: Words in the Air (laid, brain, plain, stain; *strain, straight). • The Editor's Desk (2 short sentences). These quail are cute they hav just lay egg inside the garden sed. These quails are cute. They have just laid eggs inside the garden shed. 	Final review <ul style="list-style-type: none"> • CFU as before.
Week 3 Lesson 1: Monday (<i>The Ant Army</i> by Lisa James). Daily review <ul style="list-style-type: none"> • Syllables: Robot Walking (magpie, river, crocodile, turtle, eggs). • Phonics: Consonants. Random selection. • Vowels: Random bob and stretch (ō, ǐ, ǒ, ě, ē). • Tricky Words: Fill the gap (pay, paid; say, said; friend). Mnemonic: I am your friend to the end. • Review digraph 'ea': Read (net, neat, led, lead, met, meat, Len, clean, stem, steam). • Phoneme segmentation: Hoop Stepping (beak, bean, read). • Phonics spelling: Phoneme Fingers (eat, tea, leaf, heat, meal; *peach, bleak). 	New material and skills development <ul style="list-style-type: none"> • WALT and WILF: Learn about base words and the morpheme <i>un-</i>, spell words correctly and write a sentence. • <i>un-</i> and definition (<i>un-</i> = not, opposite) (unfit, undo, unable). 	Guided practice <ul style="list-style-type: none"> • PA: Hoop Stepping (well, unwell; real, unreal). • Phonics spelling: Words in the Air (uncut, unbox, unkind, unroll, unwell; *unclean, unseal). 	Student independent practice <ul style="list-style-type: none"> • Dictation: New Poem Write the title in your Detective Spelling Book Ants I say, are not these ants unreal! What will ants do to get a meal? Final review <ul style="list-style-type: none"> • CFU as before.
Week 3 Lesson 2: Tuesday Daily review	As above	Guided practice	Student independent practice

<ul style="list-style-type: none"> • Syllables: Robot Walking (marching, jelly, dustpan, lollipops, pear). • Phonics: Consonants. Random selection. • Long and short vowels: Bob down for short vowels, stand tall for long vowels (crate, flash, press, lime, broth). • Review ‘th’ digraphs: Read (the, they, there). • Spelling ‘th’: Fill in the gaps (th-y are all over th-r-!. They are all over there!). • Tricky Words (1): An ‘a’ after a ‘w’ usually says the short ‘o’. (want, was, wash). • Tricky Words (2): Spell (do, does; go, goes). • Phonemic segmentation and spelling ‘ea’: Phoneme Fingers. Find the vowel (led, lead; Ben, bean; net, neat; wet, wheat; dell, deal). • Phonics spelling: Phoneme Fingers (leap, beat, peas, seal; *steal, cream). 		<ul style="list-style-type: none"> • Phonics spelling: Base word and morpheme <i>un-</i>. Hoop Stepping (unable, unsafe, undo, uncage, unreal; *unstuck). • The Editor’s Desk: we udo each box the behives were in. the bee wil luv thm We undo each box the beehives were in. The bees will love them! 	<ul style="list-style-type: none"> • Dictation: Poem: <i>Ants</i> Up a stem and on to a leaf • Final review • CFU as before.
<p>Week 3 Lesson 3: Wednesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (waterfall, rainbow, pancakes, bread). • Phonics: Consonants. Random mixed. • Review letter combinations: ‘th’ voiceless: Say sound then orally spell (thumb, thief, teeth); ‘sh’ digraphs: (sheep, fish, shell); ‘ai’ digraph: (aim, rain, nail). 	As above	<p>Guided practice</p> <ul style="list-style-type: none"> • Phonics spelling: Base word and morpheme <i>un-</i>. Hoop Stepping (unzip, unmade; *unstack). • Build words with morpheme <i>un-</i>: (-nb--d, --w -s -, --l --- : unbend, unwise, unlike). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>Ants</i> They go to get a fat, fresh peach. • Final review: • CFU as before.

<ul style="list-style-type: none"> • Long and short vowels: Bob down for short vowels, stand tall for long vowels (ű, ă, ī, ū x 2 sounds). • PA: Word building with onset and rime (eat, heat, unheat; sell, shell, unshell). • Policeman’s Hat: (they thay; does dus; wont want; ther there; bon bone; frend friend). • Phonemic segmentation and spelling ‘ea’: Words in the Air (aid, bait, wait; *afraid, slain). 			
<p>Week 3: Lesson 4: Thursday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (teaspoon, kitchen, vegetables, cereal, fork). • Phonics: Consonants. Random mixed. • Vowels: Random bob and stretch. Say the word, tap out sounds then bob or stretch (scrap, pest, ice, drive, club). • Tricky Words: Spell (pay, pays, paid). • Policeman’s Hat: (lad, laid; those, thos; goes, gos; dus, does; sed, said). • PA and word spelling digraph ‘ea’: Hoop Stepping (meat, team, speak, steam; *streaks). 	As above	<p>Guided practice</p> <ul style="list-style-type: none"> • Phonics spelling: Base word and morpheme <i>un-</i> (unlit, unpaid, unplug, unripe; *unable, unblock). • The Editor’s Desk: thre bee are frends thay lik to sip a cup of tee in the heet Three bees are friends. They like to sip a cup of tea in the heat. 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>Ants</i> Then we see them on the run These ants they do have so much fun! <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 4 Lesson 1: Monday Daily review</p>	<p>New material and skills development</p>	<p>Guided practice</p>	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem:

<ul style="list-style-type: none"> • Syllables: Syllables Drum. Teacher demonstrates using drum action to tap out syllables (lollipop) then picks five students to choose a word, beat it out and say number of syllables. • Phonics: Say sound then orally spell. ‘th’, ‘sh’ and ‘ai’: (think, thin, path; ship, brush, shop); ‘ea’ and FLOSS + Z (leaf, eat, beach; cuff, spill, grass, buzz, bull, skull). • Vowels: Random bob and stretch (ī, ā, ě, ē, ö). • Tricky Words: Write each word on the board (come, some, very) then erase before student spells and writes it. • Review digraph ‘ar’: Say these words (car, far, bar, tar, ark). • PA: Phoneme segmentation: Kung Fu (a-rm, b-ar, p-ar-k, ar-m-y). • Phonics spelling: Hoop Stepping (art, jar, start, cart, farm). 	<ul style="list-style-type: none"> • WALT and WILF: That you can learn about base words and the morpheme -<i>ing</i>, spell words correctly and write a sentence. • Word building: morpheme -<i>ing</i>. The morpheme -<i>ing</i> = an action or a process. It can be a verb part, adjective or noun. It has two sounds ‘i’ and ‘ng’ (lifting, buzzing). 	<ul style="list-style-type: none"> • Phonemic awareness: (buzzing, filling). Choose a student to orally put words in a sentence. • Phonics spelling: Hoop Stepping (yelling, fishing, dressing, smelling; *twisting, drifting). 	<p>Ants</p> <p>Up on a jar to a fresh tea cup And a box of buns yet to eat up.</p> <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 4 Lesson 2: Tuesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Syllables Drum (Teacher: insect: Students x 5 select own word and say how many syllables are in the word). • Phonics: Random mixed vowels and consonants. • Spelling ‘y’ ending: Rule (‘y’ at the end of a word often makes the long ‘e’ sound): (army, happy, very). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • PA: Adding -ing to base word with vowel digraph and final consonant: (painting, eating). Tap out sounds. Put these words into an oral sentence. • Phonics spelling: Words in the Air (waiting, mailing, speaking, leaping). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: Ants <p>Undo the lid, and what do we see?</p> <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> • Fill in the gaps: (an a-m- of v-r- ha-pp- insects. An army of very happy insects). • Tricky Words (1): an 'a' after a 'w' usually says the short 'o'. (was, wash, want). Spell words. • Tricky Words (2): (do, does; go, goes). Spell words. • Phonics spelling 'ark': Phoneme Fingers and Hoop Stepping (ark, bark, dark, Mark, shark). 		<ul style="list-style-type: none"> • Fill in the gaps: (raining, beating, seating, wailing: r - - n - ng; b - - ti - - ; s - - t - - - ; w - - l - - -). • The Editor's Desk: How many syllables? Help the editor sort these words into one and two syllable words (pins, unable, uncut, teapots, arm, unwell). 	
<p>Week 4 Lesson 3: Wednesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (tiger, pupil, insect, scorpion). • Phonics: Bossy e words: (robe, rope, vote; ride, stripe, dice; blue, tube, glue; date, cake, quake). • Vowels: Which vowel sound? Long or short? (krill, crumbs, flute, blade, drone). • PA: Word building with onset and rime (ark, hark, sharp, pay, stray). • Policeman's Hat: (teme, team; very, fery; dark, darc; sark, shark; unwel, unwell; unable, unabl). 	As above	<p>Guided practice</p> <ul style="list-style-type: none"> • Phonemic segmentation and spelling 'ar': Hoop Stepping: (harp, part, smart; *target, charming). • Syllables and word building with morpheme -ing: (sailing, cleaning). Put the words into an oral sentence. • Phonics spelling: Words in the Air (leading, speaking, paining, hailing; *cheating, claiming). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation: Finalise the poem: Provide whole poem plus place for illustration. Ants Teams of ants in the ant army! <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 4 Lesson 4: Thursday Daily review</p>	As above	<p>Guided practice</p> <ul style="list-style-type: none"> • Spelling cloze: Hoop Stepping. Random selection of students to 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem

<ul style="list-style-type: none"> • Syllables: Robot Walking (ants, baby, beautiful, macadamia, bananas). • Phonics: Long and short vowels: Which vowel sound? (stride, pip, doze, eve, blob): Level 2: Pick students to provide a similar word with a short or long vowel sound of your choice, e.g. Say a word with a short 'a' sound, 'black'. • Tricky words: Let's spell the word (love, have, give, said). Cloze: "I ---- the garden. We ---- bees there". "Please ---- me some honey" ---- Mark. • Policeman's Hat: (eet, eat; these, thes; want, wont; wos, was; frend, friend). • PA digraph 'ar': Kung Fu (chart, spark, spar, scar). 		<p>write on whiteboard before all write on mini whiteboards (lifting, filling, eating, speaking).</p> <ul style="list-style-type: none"> • The Editor's Desk: pat of the grden is umad mrk works with dad and thay also ley steps Part of the garden is unmade. Mark works with Dad and they lay steps. 	<p>Ants</p> <p>Choose students to take turns to read completed poem above.</p> <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 5 Lesson 2: Tuesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Syllables Drum (Teacher: dragonfly) Students x 5 select own word and say how many syllables are in the word. • Consonants: Single consonants and consonant digraphs random mix. • Tricky spelling words: Spell (come, some, done; *straight). • Fill in the gaps: (C-m- and look! We have d--e s--- cooking.) • Long and short vowels: Bob down for short vowel, stand tall for long vowel (ū, ā, ĭ, ō, ů). • Consonant digraph 'ch': Read (much, such, chilli, cherry, itch). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Phonics spelling: Hoop Stepping. Building syllables with base word and morpheme <i>-ing</i> (piping, waving, ruling, taking). • The Editor's Desk: Cum see what we hav dun on the farm goin fushng is so mach fun Come, see what we have done on the farm. Going fishing is so much fun. 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>The farm spider</i> Frogs are leaping But the spider is not speaking. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> • Phonics spelling: Phoneme Fingers (chair, arch, bench, chest, teach, chunk; *teaching, chunking). 			
<p>Week 5 Lesson 3: Wednesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (tiger, photograph, watermelon, octopus, multiplication). • Phonics: Say the long vowel sound then orally spell Bossy e words (robe, rope, vote; ride, stripes, dice; blue, tube, glue; date, cake, quake). • Tricky Words: Spell (would, should, could). • Fill in the gaps: (could, should, would). C---- I have some biscuits? Yes, you sh---d. ----d you like to have two? • Which vowel sound? Long or short? (shade, tube, spill, shed, phone). Level 2: Pick students to provide a similar word with a short or long vowel sound of your choice. • PA: Word building with onset and rime (chat, chip, eat, cheat, such, much). • Policeman's Hat: (cum, come; cood, could; park, parc; undres, undress; shood, should). • Phonics Spelling: Voiced consonant digraph 'ch': Hoop Stepping (rich, peach, chimes, chomp; *chomping, chiming). Just add -ing: Do + <i>-ing</i> ; go + <i>-ing</i> (doing, going). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Adding the morpheme -ing to Bossy e words: Words in the Air (raking, timing, posing). • Fill in the gaps: Write on whiteboard and mini whiteboards. (making, hoping, doing; *grazing, unsmiling) m -k- - g; h - - - - - ; - - - - - .: - - - - - ; - - - - - . 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>The farm spider</i> Bugs buzz and the fly flits Insects chat and eat bit by bit. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<p>Week 5 Lesson 4: Thursday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (stable, sandwich, potato, assembly, library). • Phonics: Which vowel sound? Long or short? (tape, stove, trip, cute, hutch). • Tricky Words: Let’s spell the word... (the, they, there.) Do you see t.. butterflies? T--- will spin a cocoon over t----.) • Policeman’s Hat: (peach, peash; chime, chim; buzzing, buzzing; dooing, doing; fishing, ficing). • PA: Kung Fu. Voiced consonant digraph ‘ch’ (march, chicken, church, chase). • Phonics Spelling: Hoop Stepping: (branch, punch, crunch; *drenching, children). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Rule: Read the words and state the rule. For base words with a vowel digraph and consonant ending, just add <i>-ing</i> (telling, reaching, barking, mailing). • Phonics spelling: Hoop Stepping. State the rule. For base words ending with a Bossy <i>e</i>, drop the final ‘e’ before adding morpheme <i>-ing</i> (liking, hoping, making, ruling). • The Editor’s Desk: Adding <i>-ing</i> to base words with and without Bossy <i>e</i> ending. Help the editor sort these words into the correct spelling column (dream, wait, save, cool, like, spell + <i>-ing</i>). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>The farm spider</i> But the spider she will spin and sit. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 6 Lesson 1: Monday Daily review</p> <ul style="list-style-type: none"> • Syllables: Syllables Drum (Teacher: centipede) Phonemic awareness: Students x 5 select own word and say how many syllables are in the word. • Phonics: Say the sound then orally spell ‘ch’ (cheese, chess, chimp); ‘sh’ (hush, push, mash); ‘th’ (sloth, tooth, broth); ‘ea’ (eat, beans, beak); ‘ar’ (tart, lark, yard); ‘ai’ (quail, pail, trail). 	<p>New material and skills development</p> <ul style="list-style-type: none"> • WALT and WILF: To add morpheme <i>-ed</i> to base words. • Rule: Morpheme -ed: The morpheme <i>-ed</i> added to a regular verb base word = an action or a process that 	<p>Guided practice</p> <ul style="list-style-type: none"> • Adding morpheme <i>-ed</i>: Rule: It follows the same rule as for adding <i>-ing</i> • Phonics spelling: Phoneme Fingers and Hoop Stepping (looked, cooked, wished); FLOSS + Z words (dressed, puffed, missed). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>The farm spider</i> The frog lays on a leaf in the sun. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> • Long and short vowels: Bob down for short vowels, stand tall for long vowels (ā, ě, ē, ū, ĭ). • Tricky Words: Say and spell each word (their, our, we, were). • Phonics spelling: Vowel digraph short 'oo': Look at the book! • Phoneme Fingers: Read the word and count the phonemes: (book, look, good, hood, soot). • PA: Phoneme segmentation. Kung Fu (look, cook, book). • Phonics spelling: Hoop Stepping (wood, hood, good, cook, foot). • Word building with morpheme -ing: Phoneme Fingers (parking). Put the word into a sentence. • Spelling: Hoop Stepping. Building two syllable words with the morpheme <i>-ing</i> (carting, parting, marking). 	<p>happened in the past. It has three sounds, 't', 'd' and 'e-d' ('e-d' comes after base words that end in 't' or 'd'). We are looking at the 't' and 'd' sound first: (wished, barked).</p>		
<p>Week 6 Lesson 2: Tuesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Syllables Drum (Teacher: beekeeper). Students x 5 select own word and say how many syllables are in the word. • Phonics: Single consonants and consonant digraphs. Mixed selection. • Tricky Words: Spell (we, were, our, their). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Morpheme -ed : Adding to base words. • Read these words: (mailed, beached, booked, played). The <i>-ed</i> makes a 't' or 'd' sound. • Read these words: (rained, leaked, looked). • Phonics spelling: One syllable words: Words in the Air (looked, 	<p>Student independent practice:</p> <ul style="list-style-type: none"> • Dictation Poem: <i>The farm spider</i> Then the hen comes home to her farm shed run. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> • Fill in the gaps: (we, our, were, their). -- saw o-r friends when we we-- at the seaside. They took th--- dog too. • Long and short vowels: Phoneme Fingers. Tap the sounds and find the vowel. Is it long or short? (chess, frame, blue, quilt, plums). • PA: Phoneme Fingers. Vowel digraph short 'oo': Read the word and count the phonemes (hoof, nook, woof, brook, shook). • Phonics spelling: Phoneme Fingers (hoof, hook, woof, brook, shook). • Bossy e and morpheme -ing: Read words (taping, diving, roping). • Spelling: Hoop Stepping (making, joking, riding). 		<p>hooked, leaked, rained, wailed; *sprained, emailed).</p> <ul style="list-style-type: none"> • The Editor's Desk: We wer rideing by th broke then the wind shok the tres hart We were riding by the brook. Then the wind shook the trees hard. 	
<p>Week 6 Lesson 3: Wednesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (hiking, crocodile, river, platypus, reeds, sandhills). • Phonics: Say the long vowel sound then spell these Bossy e words (rose, doze, bone; bite, mine, time; lute, mule, duke; ace, ape, haze; we, he, eve). • Tricky Words: Spell (come, some, done). • Fill in the gaps: (come, some, done) Have you do - - so - - cooking? Yes, do you want to ---- and taste? *(bought, thought, brought) James b - - ght twenty silk worms. He th - - - - t he had too many, so he br - - - - some to my place. 	<p>As above</p>	<p>Guided practice Adding -ed to base word with vowel digraph 'ai', 'ea' and 'oo' and final consonant: Words in the Air (paint-ing, eat-ing, cook-ing). Phonics spelling: Words in the Air (raked, timed, posed). Adding morpheme -ed to Bossy e words: Rule. For a base word with a bossy 'e' ending drop the final 'e' before adding -ed (taped, stroked, roped). Phonics spelling: One syllable words (raked, timed, posed).</p>	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>The farm spider</i> The cat looks sharp and the farm dog barks. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> • Which vowel sound? Long or short? (grate, spin, spine, close, chick). • PA: Word building with onset and rime (hook, shook, look, looking, bake, baking). • Policeman’s Hat: (cum, come; done, dun; their, there; owr, our; wer, were). • Phonics spelling: Vowel digraph short ‘oo’. Hoop Stepping (soot, wool, pool, crook). 		<p>Fill in the gaps: (b - k - - ; s - v - - ; -t - - - - - ; - - - - - - - : baked, saved; *stroked, crushed).</p>	
<p>Week 6 Lesson 4: Thursday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (strawberry, ice-cream, silkworm, chomping, refrigerator). • Phonics: Which vowel sound? Long or short? (ū x 2 long sounds, ō, ā, ē). • Tricky Words: Let’s spell the word... (we, were, our, their). Yesterday w- w-r- helping Mum collect honey from - - r bees. Then th- - - honey went into jars. • Policeman’s Hat: (liking, licking; making, makeing; paed, paid; biting, biteing; layd, laid). • PA: Hoop Stepping Vowel digraph short ‘oo’ (took, nook, stood, brook). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Phonics spelling: Adding morpheme <i>-ing</i>. Read (telling, reaching, barking, mailing, spelling). • Syllables and word building with morpheme <i>-ing</i>: Clap the syllables. Oral sentences then spell the word (lifting, waiting, dreaming, hooking). • Adding <i>-ed</i> to base word with bossy ‘e’ ending: (raked, timed, posed). • Phonics spelling: Phoneme Fingers (joked, taped, piled, stroked). • The Editor’s Desk: Help the editor sort these words into the correct spelling column. Adding <i>-ed</i> to base 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation: Poem: <i>The farm spider</i> But the spider ... she is EATING! <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

		words to make (liked, cleaned, saved, cooled, hooked, baked).	
<p>Week 7 Lesson 1: Monday (<i>Fuzzy Doodle</i> by Melinda Szmanki and Donovan Bixley).</p> <p>Daily review</p> <ul style="list-style-type: none"> • Syllables: Syllables Drum (Teacher: foxes). Students x 5 select own word and say how many syllables are in the word. • Phonics: Say the sound then spell the word orally ‘ch’ (chase, chat, peach); ‘sh’ (ship, brush, shop); ‘th’ (think, thin, path); ‘oo’ (foot, hood, look); ‘ea’ (leaf, eat, beach); ‘ar’ (dark, dart, shark); ‘ai’ (pail, tail, afraid). • Long and short vowels: Bob down for short vowels, stand tall for long vowels (ū, ě, ō, ǒ, ī). • Tricky Words: Spell (they, these, there). • Phoneme segmentation: Phoneme Fingers. Long vowel digraph ‘ay’: I say, lay eggs today! Here ‘y’ is a vowel. Read the word and count the phonemes: (day, bay, rays, play, stay). • PA: Phoneme segmentation. Kung Fu (day, bay, rays). • Phonics spelling: Hoop Stepping (hay, x-ray, play, tray, stray). • Adding morpheme -ing to Bossy e words: Phoneme Fingers (phoning, shading, slicing). Put each word into an oral sentence. 	<p>New material and skills development</p> <ul style="list-style-type: none"> • WALF and WILF: Introduce morpheme -re and definition: A morpheme is one or more letters at the beginning or end of a word that changes its meaning. Morpheme re- = again, once more (redo, reset). 	<p>Guided practice</p> <ul style="list-style-type: none"> • Word building: Base word and morpheme re-. Copy these words (repin, remake). • Phonics spelling: Words in the Air (recut, redig, redo, reroll, repack). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation New Poem Acrostic Poem: (CHOMPED). <p>A Fuzzy wish Chomping Fuzzy was looking so hard Had to find food by the yard!</p> <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> • Phonics spelling: Words in the Air. Drop the final 'e' before adding <i>-ing</i> (making, hoping, liking). 			
<p>Week 7 Lesson 2: Tuesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Syllables Drum (Teacher: picture). Phonemic awareness: Students x 5 select own word and say how many syllables are in the word. • Phonics: Single consonants and consonant digraphs, random selection. • Policeman's Hat: (hoping, hopeing; buzzing, bussing; paed, paid; liked, likd; layed, laid). • Tricky Words: Spell (they, these, there). • Fill in the gaps: (these, they, there, their). T - - - - crickets are singing loudly! T - - - live over t - - - - in the sand dunes. • Review long vowel digraph 'ay': Read the word and count the phonemes (way, hay, May, pray, stray). • Phonics Spelling: Phoneme Fingers (pray, clay, spray, sway, fray). 	As above	<p>Guided practice</p> <ul style="list-style-type: none"> • Adding morpheme <i>-ing</i> or <i>-ed</i>: Hoop Stepping (buzzed, swayed; spraying, heating). • Morpheme <i>-re</i>: The morpheme <i>-re</i> means again or once more. • Phonics spelling: Words in the Air (reset, refit, resend, repot; *reusing, regaining). • The Editor's Desk: In maye we giv haye for foot there is no good grass to eet In May we give hay for food. There is no good grass to eat. 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Acrostic Poem: <i>Fuzzy Wish</i> On the arch of this fair stem <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 7 Lesson 3: Wednesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (computer, printer, window, carpet, microwave, helicopter). • Phonics: Say the long vowel sound then spell these Bossy e words (rose, doze, bone; bite, mine, 	As above	<p>Guided practice</p> <ul style="list-style-type: none"> • Phonics spelling: Dropping 'e' before adding <i>-ing</i> or '<i>-ed</i>.' Rule. For a base word with a bossy 'e' ending drop the final 'e' before 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Acrostic Poem: <i>A Fuzzy wish</i>

<p>time; we, me, eve; lute, mule, duke; ace, ape, haze).</p> <ul style="list-style-type: none"> • Tricky Words: Spell (army, happy, very). • Fill in the gaps: An a --- of v --- h ---- crickets. • Long and short vowels: Tap the sounds out on your Phoneme Fingers. Find the vowel. Is it long or short? (chill, graze, mice, strobe, stress). • PA: Word building with onset and rime (say, stay, staying, wish, wished, crashed). • Policeman’s Hat: (tapt, taped; reeheat, reheat; spray, spraye; washed, woshed; brought, bort; piling, pileing). • Phonics spelling: Vowel digraph long ‘ay’ and morpheme ‘s’. Hoop Stepping (ways, trays, bays, crays). 		<p>adding <i>-ing</i> or <i>-ed</i>. Words in the Air (wading, diving; wiped, poked).</p> <ul style="list-style-type: none"> • Fill in the gaps: (p - c - - ; s - - k - - ; w - - - - ; - - - - - : paced, smoked, wiped, piped). • Phonics spelling: Adding morpheme <i>re-</i> to base words. Phoneme Fingers (rearm, rewash, rebrush; *reflecting, remembered). 	<p>Much to eat – ants, a leaf and then</p> <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 7 Lesson 4: Thursday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (reptile, bicycle, camera, label, medicine). • Tricky words: Let’s spell the word orally (their, there). Fill in the gaps. Lisa, Jack and Emma live on a farm. (their, there). - - - - - house is over - - - - -. • Policeman’s Hat: (ros, rose; dozing, dozeing; joked, jokeed; happy, unnhapy; whipt, wiped). • Morphemes and syllables: How many syllables are in these words with morpheme <i>-ing</i> and morpheme <i>-ed</i> endings? Tell you partner how many syllables are in each word. Write the word 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Morpheme <i>re-</i>: Building two syllable words. Clap the syllables in ‘react.’ • Phonics spelling: Hoop Stepping (relay, repay, refresh, remake). • Fill in the gaps: My word is (relax, repack, reseal, reframe). re - - - ; r - - - - k; - - - - - ; - - - - - . • What do these words have in common? (insect, waiting, Monday, spraying, teapot, bookmark, 	<p>Student independent practice</p> <p>1. Dictation Acrostic Poem: <i>A Fuzzy wish</i> Puffed up Fuzzy making a cocoon.</p> <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<p>and put a dash between the syllables if there is more than one syllable in the word (raining, beaded, looked, spraying).</p> <ul style="list-style-type: none"> • PA: Kung Fu (sway, crays, frayed). • Vowel digraph long 'ay' and plural 's': Phoneme Fingers (sways, x-rays, stays). 		<p>cocoon). All the words have two syllables.</p> <ul style="list-style-type: none"> • The Editor's Desk: Help the editor sort these words into one and two syllable words (react, sprayed, speaking, buzzed, wood, undo). 	
<p>Week 8 Lesson 1: Monday Daily review</p> <ul style="list-style-type: none"> • Syllables: Syllables Drum (Teacher: buses) Students x 5 select own word and say how many syllables are in the word. • Phonics spelling: Say the sound the orally spell these words. 'ch' (church, chick, couch); 'sh' (hush, dish, cash); 'th' (moth, cloth, froth); 'oo' (woof, tools, stool); 'ea' (beat, meat, peak); 'ar' (jar, park, barge); 'ai' (frail, saint, quaint). • Tricky Words: Spell (are, you, your, our). • Fill in the gaps: (are, you, your, our). A - - y - - going to y - - - hive or - - - hive? • Discrimination: <ul style="list-style-type: none"> ○ Phonics spelling: long vowel digraph 'ai' and 'ay' (train, play, hay, chain). ○ Display a discrimination Word Tree with 'ai' and 'ay' words on separate sides of tree. ○ Review long vowel digraph 'ai' and 'ay' rule: 'ai' goes at the beginning or middle of a word; 'ay' goes at the end of a word. 	<p>New material and skills development</p> <ul style="list-style-type: none"> • WALF and WILF: Introduce separate syllable morpheme <i>-ed</i> for past tense verb. This <i>-ed</i> morpheme makes two sounds, a little grunt 'uh' and 'd'. e.g. Ed the pig grunted. (grunted, heated). 	<ul style="list-style-type: none"> • Guided practice • PA: Phoneme Fingers (heat-ed, paint-ed, grunt-ed, want-ed). Put the words into an oral sentence. • Phonics spelling: Word building with base word and morpheme syllable <i>-ed</i>. Hoop Stepping (heated, bleated, grunted, wanted, listed, waited). 	<p>Student independent practice (1)</p> <ul style="list-style-type: none"> • *Teacher dictates sentence: We cannot play in the rain today. Students write 'play', 'rain' and 'today'. <p>Student independent practice (2)</p> <ul style="list-style-type: none"> • Dictation Acrostic Poem: <i>A Fuzzy wish</i> Entered into a hard shell room. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> ○ 'ai' or 'ay'? Spell orally (train, play, hay, chain, bay, laid). ○ Mini-whiteboards: Teacher says word with picture and students write word (rain, tray, x-ray). <p>(*see Student independent practice 1)</p>			
<p>Week 8 Lesson 2: Tuesday Daily review</p> <ul style="list-style-type: none"> ● Syllables: Syllables Drum (Teacher: grasses) Students x 5 select own word and say how many syllables are in the word. ● Phonics: Random single consonants and taught consonant digraphs. ● Tricky Words: Spell (are; you, your, our). What do these final three words have in common? They all contain 'ou'. ● Fill in the gaps: Y- - get lots of butterflies near - - - pond. Many a- - by - - - pond too. ● Discrimination: Review long vowel digraphs 'ai' and 'ay'. ● Spelling dictation: Sort these dictated long vowel digraph words into 'ay' and 'ai' columns on your work sheet (play, tails, rays, cray, mail, grain). ● Word building: Adding morpheme <i>-ing</i> or <i>-ed</i> to Bossy <i>e</i> base words. Hoop Stepping (waving, timing; biked, caged). 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> ● The Editor's Desk: Similling frogs eet along the creec thay are hoping for an isect mele Smiling frogs eat along the creek. They are hoping for an insect meal. ● Adding separate morpheme syllable -ed to base words: Words in the Air (aided, painted, fainted, seated; *feasted). 	<p>Student independent practice:</p> <ul style="list-style-type: none"> ● Dictation Acrostic Poem: Fuzzy Wish "Done" he said. "A new life soon." This is the final line of the poem. Read whole poem. <p>Final review</p> <ul style="list-style-type: none"> ● CFU as before.

<p>Week 8 Lesson 3: Wednesday (<i>Poppy's Gift</i> by Guundie Kuchling).</p> <p>Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (Australia, kangaroo, emu, echidna, rosella, brolga). • Phonics: Say the long vowel sound then orally spell these Bossy e words (robe, rope, vote; ride, stripes, dice; blue, tube, glue; date, cake, quake). • Tricky Words: Spell (all, ways, always). • Fill in the gaps: There are many w --- home. We a ---- s go this --- . • Which vowel sound? Long or short? (lute, drop, crash, spire, vine). • PA: Word building with onset and rime (ray, rail, trail, paint, painted, fainted). • Policeman's Hat: (allways, always; trai, tray; our, ovr; rain, rayn; lived, livd). • Discrimination: Vowel digraph long 'ai' and 'ay': Words in the air. Put these words into an oral sentence (claim, clay). • Spell these words: Show pictures only (laid, lay, pay, paid). <p>(*see Student independent practice 1)</p>	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • Phonics spelling: Dropping 'e' before adding <i>-ing</i> or <i>'-ed.'</i> Rule. For a base word with a bossy 'e' ending drop the final 'e' before adding <i>-ing</i> or <i>-ed</i>. • Hoop Stepping: (grating, trading; faded, waded). • Fill in the gaps: (f ---t--; ---d--; ---- --; -----; -----): (fainted, beaded; saying, hooking). 	<p>Student independent practice (1)</p> <ul style="list-style-type: none"> • * Add a prefix <i>un-</i> and <i>re-</i>: <i>un-</i> write 'paid' then change 'paid' into 'unpaid'; <i>re-</i> write 'play' then change 'play' into 'replay'. <p>Student independent practice (2)</p> <ul style="list-style-type: none"> • Dictation Poem: New poem <i>Oswin sings</i> Oswin started singing his tune After it had rained in the dunes. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 8 Lesson 4: Thursday</p> <p>Daily review</p>	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • PA: Kung Fu (mailed, sailed, claimed, raided). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>Oswin sings</i>

<ul style="list-style-type: none"> • Syllables: Robot Walking (cricket, stars, microphone, friendship). Select 5 students to choose their own word. • Phonics: Say the sound then orally spell the word 'ch' (chase, chat, peach); 'sh' (ship, brush, shop); 'th' (think, thin, path); 'oo' (foot, hood, look); 'ea' (leaf, eat, beach); 'ar' (dark, dart, shark); 'ai' (pail, tail, afraid). • Which vowel sound? Long or short? Teacher choice of words. • Tricky Words: Let's spell the word (their, there). Lisa, Jack and Emma have a dog. - - - - dog sleeps over - - - - . • Policeman's Hat: (frend, friend; claymed, claimed; rained, rained; happy, hapy; allways, always). 		<ul style="list-style-type: none"> • Phonics spelling: Syllables and word building with 'ai' and -ed 3x sounds. Hoop Stepping. One and two syllable words (raided, braided, trained, chained; * unchained). • The Editor's Desk: Help the editor sort these verbs into one and two syllable words (waited, faded, cooked, singing, leaked, dressed). 	<p>Each insect loved this time of day.</p> <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.
<p>Week 9 Consolidation Lesson 1: Monday Daily review</p> <ul style="list-style-type: none"> • Syllables: Syllables Drum (Teacher: bottlebrush) Students x 5 select own word and say how many syllables are in the word: • Phonics: Long and short vowels. Bob down for short vowels, stand tall for long vowels (crate, flash, press, lime, broth). • Tricky Words: Spell (pay, paid, say, said; friend). • Phoneme segmentation long vowel sound 'ea': Phoneme fingers (beak, bean, read). • Phonics spelling: Hoop Stepping (eat, tea, leaf, heat, meal, bleak; *unheated, teatime). 	<p>Consolidation of material and skills development</p> <ul style="list-style-type: none"> • WILF: Identify morpheme affixes and base words. Spell words correctly and write a sentence. • Every bit of meaning is a morpheme: A base word is also a 	<p>Guided practice</p> <ul style="list-style-type: none"> • PA: Hoop Stepping (well, unwell; real, unreal). Which morpheme is the base word, which morpheme is the affix? Which morpheme makes sense on its own? • Phonics spelling: Words in the Air (uncut, unbox, unkind, unroll, unclean; *unsealed, unheated). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem <i>Oswin sings</i> When the hills were dressed in fine sun rays <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

	<p>morpheme. It makes sense on its own.</p> <ul style="list-style-type: none"> • Word building: Morpheme base word and morpheme <i>un-</i> Add morpheme <i>-un</i> and put these words into an oral sentence (unfit, undo, well, real). 		
<p>Week 9 Lesson 2: Tuesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Syllables Drum. Two syllable words with morpheme <i>re-</i> (Teacher: reset) Students x 5 select own word with morpheme <i>re-</i>). • Phonics: Single consonants and taught consonant digraphs, random selection. What sounds do these letters make? • Say the sound then orally spell: ‘ch’: church, chick, couch; ‘sh’: hush, dish, cash; voiceless ‘th’: moth, cloth, froth; ‘oo’: woof, tools, stool; ‘ea’: beat, meat, peak; ‘ar’: jar, park, barge; ‘ai’: frail, saint, quaint. • Tricky Words: Spell (some, come, done). • Fill in the gaps: Have you d - - - - - cooking? Yes, do you want to - - - - and taste? 	<p>As above</p>	<p>Guided practice</p> <ul style="list-style-type: none"> • The Editor’s Desk: Word building with morphemes. • Base word morpheme ‘roll’: (rolling, unroll, rolls, rolled). Word building from base word <i>roll</i>. Help the editor choose the correct word (rolling, unroll, rolls, rolled) to fill in the blanks in each of the following sentences: We enjoy ___ down the hill. Jack will ___ his sleeping bag tonight. Emma likes ___ with salad. Yesterday we ___ the dice and played the game. 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem <i>Oswin sings</i> Each leaf was cleaned from the rain. Each bud was shade of red. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> • Long and short vowels: Bob down for short vowel, stand tall for long vowel (shade, tube, spill, shed, phone). • Policeman’s Hat: (resell, reesel; swelling, swelling; unnlokt, unlocked; drilled, drilt; friend, frend; hoping, hopeing. • Phoneme segmentation and spelling: ‘sh’ and FLoSS + Z. Hoop Stepping (mashed, spelling, reselling, undressed). • How much have you learned? What do these morpheme base words have in common? (spelling, cuffed, undress, glassed, puffed, retelling. buzzed). They are all FLoSS +Z base words. 			
<p>Week 9 Lesson 3: Wednesday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (pupa, mulberry, honeycomb, insect, scorpion). • Phonics: Say these long vowel sounds and words with me: ‘o’ rose, doze, bone; ‘i’ bite, mine, time; ‘u’ lute, mule, duke; ‘a’ ace, ape, haze; ‘e’ we, he, eve). • Tricky Words: Spell (we, were, our, their). • Fill in the gaps: W- saw - - - friends when we we - - at the seaside. They took th - - - dog too. • Which vowel sound? Long or short? (krill, crumbs, flute, blade, drone). 	As above	<p>Guided practice</p> <ul style="list-style-type: none"> • Syllables and word building: Adding ‘ing’ (sailing, leading). Put each word into an oral sentence. • Phonics spelling: Phoneme Fingers vowel digraph short ‘oo’, adding -ed, -ing, un- and re-: (looking, unhooked, woofing, recooked). Hoop Stepping ‘ar’ and plural -s examples and non-example (harps, parts; smart, targets, charming). • Phonics spelling: Words in the Air (leading, speaking, paining, hailing, cheating, claiming). 	<p>Student independent practice</p> <ul style="list-style-type: none"> • Dictation Poem: <i>Oswin sings</i> And the insects always waited. Until his fine tune had faded. <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

<ul style="list-style-type: none"> • Policeman's Hat: (teameing, teaming; cooled, coolt; barking, barcing; hopeing, hoping; resprayed, reesprayt; jockt, joked). 		<ul style="list-style-type: none"> • Fill in the gaps: (- - - - -; - - - - -; - - - - -; - - - - -) (arch, parted, shook, footed). 	
<p>Week 9 Lesson 4: Thursday Daily review</p> <ul style="list-style-type: none"> • Syllables: Robot Walking (reptile, bicycle, camera, label, medicine). • Which vowel sound? Long or short? (tape, stove, trip, cute, hutch). • Tricky Words: Let's spell the word: (would, should, could). C - - - - I have some biscuits please? Yes, you - - - - - . w - - - - you like two? • Policeman's Hat: (want, wont; reepaid, repaid; dozing, dozeing; seated, seeted; unhappy, unhapy; woshed, washed). • PA: Kung Fu (march, chicken, church, chase). • Phonics spelling: Consonant digraph: 'ch' final position. Words in the Air (punch, branch, crunch, drenched, sandwich). 	As above	<p>Guided practice</p> <ul style="list-style-type: none"> • Morpheme: Separate morpheme syllable <i>-ed</i>. • Phonics spelling: Hoop Stepping. Syllables and word building with morpheme syllable <i>-ed</i> (heated, bleated, grunted, wanted, listed, waited). • Fill in the gaps: Choose a student to come and fill in the gaps on the whiteboard, then put the word in to an oral sentence (seated, feasted, treated, reacted). s - - - - -; f - - - - -; t - - - - -; - - - - - • What do these words have in common? (eats, unheated, leaf, treating, resealed, feast, pleating). They all have contain a long 'e' sound, digraph 'ea'. • The Editor's Desk: lock at the bul rushes swaing in the wind the qeen bees allways cum here 	<p>Student independent practice: Dictation Poem <i>Oswin sings</i> Before they went to bed. End of poem</p> <p>Final review</p> <ul style="list-style-type: none"> • CFU as before.

		Look at the bull rushes swaying in the wind! The queen bees always come here.	
Week 10: Assessments			

Appendix K: The set of five dictation poems in *The Spelling Detective Project*

Poem 1: Weeks 1-2

The garden

A bee will buzz
Yet a frog will hop
And the bugs like fun
Up in the sun.
Snakes and moths like to sit
And look at the bees that love to flit.
Snails have no pain in the rain
And lay a fresh trail
In this fine bed chain.

Poem 2: Weeks 3-4

Ants

I say are not these ants unreal!
What will ants do to get a meal?
Up a stem and onto a leaf
They go to get a fresh, fat peach.
Then we see them on the run
These ants they do have so much fun!
Up on a jar and a fresh tea cup
And a box of buns yet to eat up.
Undo the lid and what do we see?
Teams of ants in the ant army!

Poem 3: Weeks 5-6

The farm spider

Pigs are grunting.
Bees are buzzing.
Frogs are leaping.
But the spider is not speaking.

Bugs buzz and the fly flits.
Insects chat and eat bit by bit.
But the spider she will spin and sit.

The frog rests on a leaf in the sun.
Then the hen comes home to her farm shed run.
The cat looks sharp and the farm dog barks
But the spider, she ... is EATING!

Poem 4: Weeks 6-7

A Fuzzy wish

Chomping Fuzzy was looking so hard
Had to find food by the yard!
On the arch of this fair stem
Much to eat – ants, a leaf and then,
Puffed up Fuzzy making a cocoon.
Entered in to a hard shell room
“Done,” he said “A new life soon!”

Poem 5: Weeks 8-9

Oswin sings

Oswin started singing his tune
After it had rained in the dunes.
Each insect loved this time of day
When the hills were dressed in fine sun rays.
Each leaf was cleaned from the rain.
Each bud was a shade of red.
And the insects always waited
Until his fine tune had faded.
Before they went to bed.

Appendix L: Acting Principal lesson report

XXX PRIMARY SCHOOL

29 August 9.30am

Spelling Detectives- clapping syllables-vowels

Students had their names drawn out to answer questions. XXX-clapped out butterfly Consonants-digraphs /sounds...reminder sound not the letter focus.. students understood this and able to self-correct.

Demonstration by students -long vowels /short vowels(stand tall or small)

Detective hat-students loved this activity-names drawn out- drop e adding ing XXX asked 'why' very important consideration. Great to give the students an opportunity to explain why.

"Which word goes to jail?' Students loved wearing the hat or joining in.

I was impressed students were able to explain why as often asked.. layed or laid Their explanation doesn't have digraph ai. In the middle.

TRICKY WORDS they these there their.

Could explain how to determine(I looks like a person..

XXX (impressed he was engaged) asked very relevant question;

'Their' rule 'hope.. ing'... wonderful part of the lesson to see him question and good explanation given. Proves the class were engaged as his attention span is sometimes limited

Mini-boards- very useful, wonderful tool, activities- THESE are crickets... THEY live over THERE...

All get a chance to be involved and a student models the other follows.. is he right?? Great follow-up and then they all get a go. XXX knew all students by name, a feat in itself..

Love the modelling on board and then everyone gets a go.Students had an opportunity to share their responses and if incorrect have a second attempt. A lot of accuracy apparent.

Students were repeating long vowel digraphs; p-r-ay. Great to witness XXX involved reminding us we add an 's' for making 'pray' into 'spray'.

We then went into morphemes, the building of words.. adding 'ed' and 'ing'. XXX did the hoops activity stepping out 'buzzing'.

Students then used their arms to demonstrate morphemes.. send becomes resend..

Some students referred to their challenge list.

Students returned to desk to their 'detective book'. They were involved in 'The Editor's Desk', dictation with errors. XXX explained the digraph 'ea' very well.

Students were involved in dictation of acrostic poem. Great usage of lined paper for students to write on when using the plastic sheets.

It was pleasing to witness all students involved in the lesson including the students with learning needs. Students were provided with feedback from their peers and their teacher and were very involved throughout the lesson. They all shared knowledge they had picked up in previous lessons. A very worthwhile experience for all involved.

Tim xxx Acting Principal. Tuesday 29 August 2017

Appendix M: Summary of student pre- and post-dictation 1 and 2 scores

Intervention School CPS1	Class	Dictation 1 pre-/42	Dictation 1 post-/42	Dictation 2 pre-/54	Dictation 2 post-/54
Name					
Nina (BA speller)	CPS1A	15	16	*	*
Hugh (AA speller)	CPS1A	28	30	21	30
Mae (A speller)	CPS1A	33	32	35	46
Paul (A speller)	CPS1A	32	32	27	20
Kyle (BA speller)	CPS1A	8	17	17	15
Ian (AA speller)	CPS1A	36	39	43	48
George (BA speller)	CPS1A	17	26	24	21
Cindy (BA speller)	CPS1A	13	6	*	*
Mia (A speller)	CPS1A	27	24	26	26
Ash (A speller)	CPS1A	27	38	35	48
Adam (AA speller)	CPS1A	30	35	29	40
Rachel (A speller)	CPS1A	35	42	40	49
Shari (BA speller)	CPS1A	23	22	26	34
Corbin (A speller)	CPS1A	32	30	35	36
Jarred (AA speller)	CPS1A	37	36	42	49
Oscar (AA speller)	CPS1A	23	37	42	50
Jarvis (AA speller)	CPS1A	41	39	46	47
Key: AA: above average speller; A: average speller; BA: below average speller					
*Two students were excluded from Dictation 2 at the request of the class teacher					
Intervention School CPS1	Class	Dictation 1 pre-/42	Dictation 1 post-/42	Dictation 2 pre-/54	Dictation 2 post-/54
Montana (A speller)	CPS1B	33	41	40	47
Toby (AA speller)	CPS1B	33	40	39	51
Harvey (A speller)	CPS1B	30	40	30	45
Gina (A speller)	CPS1B	36	41	39	47
Christian (AA speller)	CPS1B	32	42	40	50
Anton (AA speller)	CPS1B	40	41	45	50
Madison (BA speller)	CPS1B	29	36	30	40
Mahan (BA speller)	CPS1B	21	37	24	44
Flynn (BA speller)	CPS1B	22	28	21	28
Donna (BA speller)	CPS1B	22	22	20	31
Darcy (A speller)	CPS1B	34	41	43	51
Felicia (AA speller)	CPS1B	30	41	37	49
Vincent (A speller)	CPS1B	27	30	33	41
Fleur (A speller)	CPS1B	31	40	40	49
Eric (BA speller)	CPS1B	24	38	29	42
Tiffany (A speller)	CPS1B	32	36	37	45
Parker (BA speller)	CPS1B	28	37	26	35
Edward (BA speller)	CPS1B	27	35	30	37

Comparison School CPS2	Class	Dictation 1 pre-/42	Dictation 1 post-/42	Dictation 2 pre-/54	Dictation 2 post-/ 54
Name					
Harry (AA speller)	CPS2	40	41	51	52
Lily (A speller)	CPS2	31	27	35	39
Simon (BA speller)	CPS2	20	18	20	22
Ruby (BA speller)	CPS2	27	25	0	34
Megan (A speller)	CPS2	29	23	38	33
James (AA speller)	CPS2	32	35	34	40
Dulcie (AA speller)	CPS2	40	31	39	47
Murphy (A speller)	CPS2	19	24	26	29
Ethan (BA speller)	CPS2	15	15	20	27
Aiden (A speller)	CPS2	32	29	36	41
Rohan (A speller)	CPS2	14	25	11	34
Grant (BA speller)	CPS2	26	25	25	26
Logan (BA speller)	CPS2	13	10	0	23
Carter (AA speller)	CPS2	31	31	37	36
Renee (BA speller)	CPS2	26	20	23	31
Elke (AA speller)	CPS2	35	25	20	42
Maryanne (A speller)	CPS2	28	26	23	37
Rose (BA speller)	CPS2	6	16	6	17
Tilley (A speller)	CPS2	10	26	20	33
Briony (AA speller)	CPS2	31	35	39	44
Lisa (BA speller)	CPS 2	7	8	0	0
Scarlet (A speller)	CPS 2	21	34	42	42
Jeremy (AA speller)	CPS 2	24	27	32	32
Tamsin (A speller)	CPS 2	30	23	35	38
Annalies (BA speller)	CPS 2	18	14	0	20

Appendix N: Qualitative colour-coding categories, teacher interviews

Excerpts from the pre-intervention interview with Jan, class teacher, CPS1B on her usual approach to teaching spelling

Researcher: Do you think spelling is important? **Jan:** I think spelling is very important in the classroom.

Researcher: If I walked it to your room today during spelling, what sort of things would I see you doing?

Jan: I'd follow what our school procedures are as far as spelling goes. Depending on the list it's six to eight words and they also add words that they've been using in context in their writing. **Researcher:** So they have an input as well as you? **Jan:** Yes, they do.

Researcher: So the words come from? **Jan:** From the *Sound Waves*






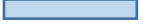



Researcher: What do you personally feel are the three most important spelling activates that you would use or like to use?

Jan: Um, I like to use things that are in context if possible. Um, visual things that the children can be involved in, um... we write words over and over again because I ... um, I mean on something like my homework lists. And so we might, I might say, "Ok, write as many words as you can but use adjectives." We kind of integrate the two rather than doing a specific thing by itself.... letting the children, you know... see what they like on the screen, the audio visual literacy.

Researcher: What strategies do you yourself favour for the children to use themselves for their spelling?

Jan: Yep, we don't use Look, Cover, Write, Check. I tend to, it's more of an immersion type thing, you know, looking at the words and it's more about using them and getting them in their writing that I can see, rather than just see We sometimes have a test on them but I'm more interested in having those words in their writing, how they're breaking up their sounds. Um ... are they hearing the sound? Because often I'll get a student come out and say "Ok, here's my piece of writing," and I'll say to them "Just have a look at this word," or they'll have a go, have a go, we have a *Have a Go Sheet*. They'll have a go on that and bring it out to me and I'll say to them "Let's look at this word, and let's hear it", like, and I'll say "Ah" and then there's a mix up, there's some kind of mix up there for a number of children with what they are actually hearing themselves, particularly when we teach, you know, language difficulties.

Researcher: Do you have students who have difficulties with spelling? **Jan:** Yes! **Researcher:** What do you do to help? **Jan:** I do a lot of "Look at my mouth" and so when we are doing our actual writing down

Categories:	Colour code:
Importance of spelling	
Teaching approaches	
Programs used	
Three most important activities	
Other activities	
Strategies used	
Strategies for LD students	
Views on role of spelling in writing	
Understandings changed overtime	

of words, ok, and they keep faltering on the sound, I get them to make the sound. “Where’s your tongue when you say that sound? Where is it, you know, is it ... at your mouth, is it between your teeth,” and you know, it’s getting them, like, my little friend with the /ch/ problem, I’ll often get him like ... (*laughter between Jan and researcher*) ... This morning I had him for reading and I said “Oh” and I can’t remember what the word was, but and oh yes! it was *struggle* (*Researcher and Jan “He was struggling”, giggle*) it was something like, oh no, it had a /sh/ sound in it. Anyway, I said to him “I want to hear a ‘choo’ /ch/, /ch/.”

Researcher: What role do you think spelling plays in the development of writing?

Jan: Spelling’s very important. When they are able to actually read, you know they might put in a whole pile of writing. I guess, when they start off you think they’re not going to be able to spell the words, you can get out sounds and things like that and they’re actually approximating what the word, what the writing is, and they’re able to bring that to.... and part of being a writer is being able to write for an audience and if you can’t spell, well you know, you’re going to have trouble you know, as a reader, they’ll have trouble reading what you’ve written and decipher. Spelling is very important.










Researcher: Has your understanding, um, strategies, your approach, your view on spelling changed at all?

Jan: Over the years, Yes. **Researcher:** When did it start to change?

Jan: Um ... I guess, because I’ve been down on Stage 1 for a number of years ... yeah ... it’s evolved over time and it’s still evolving (*laughter from Jan*) so, yeah, I’m sure there are other ways and better ways of you know, of handling spelling and things have thrown me along the way and I’ve said “Hey, that’s not working.”

Categories:

Colour code:

Importance of spelling	
Teaching approaches	
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Colour coded categories. Excerpts from pre-intervention individual teacher interviews on approaches to teaching spelling

Approaches Colour-coded categories	Participants Intervention school				Participants Comparison school	
	Robyn (Y2)	Jan (Y2)	Tim (Acting Principal)	Ella (LST and Acting Assistant Principal)	Dana (Y2)	Helen (Y2)
Knowledge of spelling 1. Is spelling important?	Yes	Very important	Important in writing, not on its own.	Yes	Yes	Absolutely. Integral part of literacy.
How to teach spelling 2. Uses a program Like/dislike it?	<i>Words their Way</i> and <i>Sound Waves</i> to cover vowels and blends. Like to select from different resources.	Follow school agreed practice. Use <i>Sound Waves</i> . Initially against it as enjoyed doing word families.	No.	Phonetic readers. <i>Dandelion Readers, Moon Dog, Talisman, Totem.</i> S&S from <i>Teacher Resource Book</i> Love it.	<i>Sound Waves</i> Yes, because it focuses on particular sounds. Some activities a little hard.	<i>Sound Waves</i> . Each school has a different approach. Like whole school approach. Scope and sequence. Spelling rules.
3. Teaching approaches	Common lists. No theme words. Phonics based. Word sorts. Listing vowel sounds in reading Hands on playdough. Picking sounds from reading books.	Focus on weekly sounds in the program. Students add words from personal writing. Pre-test of assigned list of 6-8 words. Incorrect spelled words for homework.	No specific focus on spelling. Use dictation Brain storming vocabulary. Rules are important.	Blend nonsense words. Look at pictures to symbolise sounds. Phonemic awareness. Matching letters to sounds. Phonetic readers.	Pattern that's highlighted in <i>SW</i> . Word study. Letter clusters and sounds within words. Blends. Linking to word family groups. Word building.	Kids need to be familiar with activities. Deliberate focus on letter sound sequence in meaningful way in picture books. Not spelling in isolation.

4.Activities	Link reading and writing 20 mins each day. Good readers are good spellers. Vocabulary. Word attack skills.	Word families. Words in context Integrate with writing and grammar tasks. Video clip <i>Geraldine Giraffe</i> for sounds.	No separate spelling lesson. Theme words. Spelling within writing. Rules.	Elkonin sound boxes for dragging out sounds. Syllables and chunking. Identifying each sound for older students.		Classroom inundated with paper work. Weekly focus on butcher's paper. Resources behind it. Covering gaps as weekly task. Integrated into reading. Groups activity on Task Board. Use again in writing.
5.Three most important spelling activities	No word lists. Phonics with spelling in reading. Build on what child uses in reading and writing.	Word families. Re-writing words for homework. Integrating with writing and grammar tasks. Pointless testing words known.	Teaching etymology. 5 mins to come up with numbers of homophones. Dictation.	Phonemic awareness from <i>Sound Check</i> . Sound manipulation.	Looking at words through written language. Linking written symbols to sounds. Connect words and concepts to incorporate in written stories.	Introduce blends and sounds of the word (not just phonics). Use little iPad, blending cards. Game boards linking word endings.
6.Spelling strategies for students to use	Have a Go notebook. Utilise computer dictionary. Visual, does it look right? Teacher is last resort. You want independent learners.	Looking at words. Breaking up the sounds. Using a Have a Go sheet. Articulation and correct pronunciation.	Revisit incorrect spelling. Look at patterns and sounds. Word families.	Look at manipulating taught sounds, cvc sounds. Tapping out sounds. Removing initial, middle and end sound.	Sounding out. Making words into chunks. Sounding out syllables. See if the word looks right.	Linking to aspects of reading. Particular letter sound relationships. Kids identify the word in a sentence when story reading.

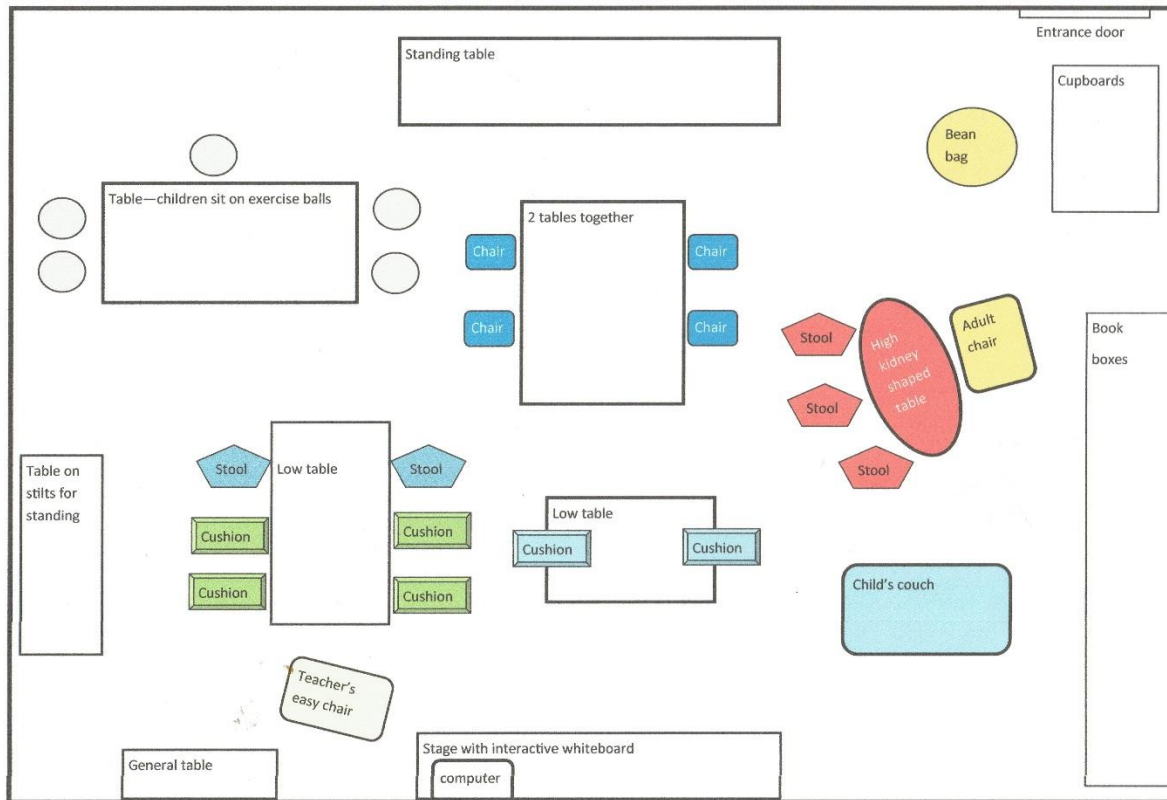
<p>7.Strategies for students experiencing difficulties with spelling</p>	<p>They are not paying attention Ask why. Sometimes student writes <i>wet</i> for <i>w-e-n-t</i>. They don't do the reading. Not much going on at home.</p>	<p>Mix up what they hear. Look at my mouth. Make the sound. Where's my tongue? Focus on voiced and voiceless sounds.</p>	<p>They don't take risks. Only spell words they know they get right. Goal to get stronger writers to challenge themselves with their spelling.</p>	<p>Blending sounds into real and nonsense words. They know each of the sounds. Blending is the most difficult. I do reading and spelling and writing within that context.</p>	<p>They have difficulty with HF words. Try to remember order of the letters. What looks right.</p>	<p>Not a lot where I teach. Segmenting and syllables. I talk about the initial sound, then the final sound and sounds in the middle.</p>
<p>8.Role of spelling in writing development</p>	<p>Focus on writing not spelling. Need to take risks. Get spelling checked. Don't edit if it's not for publishing.</p>	<p>Very important role. Using sounds to approximate writing. Important to decipher own and others' writing.</p>	<p>It's vital. If you don't know how to spell a word you won't use it. Some Y6 students don't know all the strategies, group words or sounds.</p>	<p>I'm a victim of WL with resultant poor spelling. Poor spelling restricts writing. One becomes selective about which words to choose.</p>	<p>Important. Very linked to writing. Enables construction of more correct words to transfer thoughts to paper.</p>	<p>Huge. Children are spelling when writing. Enables them to construct more correct words.</p>
<p>9.Understanding of concepts and strategies changed over time?</p>	<p>I don't think so. Need to spend every day reading and writing. Don't learn by osmosis. You need explicit.</p>	<p>Yes. Has evolved over time and still evolving. Sometimes I say that's not working.</p>	<p>Definitely. Used to timetable for spelling. Sent quota words home. Was a waste of time. Explicit teaching, rules and theme words are important.</p>	<p>Yes. It's much more systematic. I don't do families. Phonetic readers support it.</p>	<p>Yes, in some ways. For some years it was thought to be enough to expose children to literature. They would absorb the written word. Now more teacher directed and I see the need.</p>	<p>Probably changed when I had ESL schools. Overall phonics has always been a bit part of my teaching.</p>

Colour coded categories. Excerpts from post-intervention individual teacher interviews on The Project implementation barriers and enablers

Approaches Colour-coded categories	Robyn (Y2)	Jan (Y2)	Ella (LST and Acting Assistant Principal)	Tim (Acting Principal)
1. Do you feel more knowledgeable about spelling concepts, e.g. syllables and morphemes?	Yes, 'cause your remembering the names of them. Sometimes you don't remember the exact word sort, but it's all stuff we cover.	Yes. I know the terminology now. Know that it has be to be more explicitly unpacked and broken down.	Yeah I do. Know the terminology now. I still don't get the opportunity to use the more complex concepts and I fear I will forget them. But at least I do have a resource and can use what's applicable.	I did get a lot out of the lesson itself, but I need to attend more lessons. I'm a bit slack because I don't have to teach it. If I knew I had to teach it, I would do more background work. I typed up the notes and said "Oh yes, that's what a morpheme is."
2. What were you teaching during The Project that you haven't been teaching before?	Some of the approaches. Bigger emphasis on syllables. Yeah. Sort of knowing your vowel sound goes with the syllable. Drumming that a bit more is probably a good help.	The kinesiology activities to get the body moving. Thinking about PA and segmenting in that way.	The technical language of things like morphemes and digraph, but I don't make reference to them in the same depth as The Project does.	I would have been reluctant to use the terminology morphemes and graphemes I saw the students relating to those terms. I could have been doing that in my own lessons.
3. Implementation barriers. What has hindered you taking up this approach?	The fact it was scripted. My whiteboard's not interactive. Every time you had to write something on it I had to make flip charts from the slides. A smaller space. Had to adjust the slides.	Nothing.	Nothing, it was all quite manageable. I slow it down for the kids that I work with. It's too fast for them. The introduction of sounds combinations is based on the <i>Dandelion Readers</i> . I find that quite good.	No! I felt that all the students, like I mention a couple of students in my notes ... who tend to struggle ... they were engaged and getting a lot of accuracy.

<p>4. Implementation enablers What helped you take up this approach?</p>	<p>(no response)</p>	<p>The Project. The fact that it was prepared. with what you were aiming to achieve. The children knew what they needed to do.</p>	<p>I don't have a problem with a scripted text. It's achievable, they get success.</p>	<p>Seeing the lesson and all students achieving.</p>
<p>5. Have your views to teaching spelling changed during the term?</p> <p>Did you enjoy teaching this way?</p> <p>How did you feel about the scripted content?</p>	<p>No. because it's phonics based. Phonics is the important part; and learning some of those rules; and what letters go together; and the sounds, that's important.</p> <p>The fact it was scripted. Couldn't adjust for my style of teaching or what I would say.</p>	<p>I can see the value in being explicit and the related activities to engage the children.</p> <p>I did. Only it took a big chunk of time. You knew there was a set way.</p> <p>You knew exactly what the expectations were and what you were aiming to achieve. The children knew what they had to do.</p>	<p>I have to slow it down a bit for the kids I work with. It's too fast for them.</p> <p>Oh yeah, it's good.</p> <p>I don't have a problem with a scripted text.</p>	<p>Yes. Definitely. Seeing the students engaged in the lesson from you, the higher order thinking students to those who struggle opened up my mind to doing this in all KLAs.</p> <p>Seeing the students use mini-whiteboards. I would do that now. I liked the detective's hat. It gave them a new focus and made it more interesting. The hoop stepping was fantastic. I struggled with certain aspects of the lesson, so it's good until they're trained.</p>
<p>6. Have you noticed anything about the students' spelling achievements?</p>	<p>Just the technical term. We use prefixes and suffixes. They talk about things. "What sound is it. Is it an /ed/ What's the /ing/ word?" Sort of pick up on that. Sometimes they'll come out. I'll say "Okay, is it an /ay/?" if it's an /a/ sort of thing. We did some writing tasks to day to see if it's transfer'n to everyday writing. They're remembering that.</p>	<p>They're thinking about it. Flynn this morning would have said "Don't know." But he wrote <i>ese</i> for <i>easy</i>. I said "Have a look at the word." "Oh, it's /ea/" I said "It's a vowel what?" "A vowel digraph! "</p> <p>It's becoming a thoughtful thing. Being able to trace it [mistakes] back to the spelling.</p>	<p>I notice most with the older non-readers who aren't in The Project. Even though they're reading very simple texts they're getting success. It's really good for their self-esteem.</p>	<p>Accuracy with lower achieving students. It was targeting all the students</p> <p>But I felt behind the students. In a test I would probably score less than the students. Students and staff would struggle with some of those aspects until they're trained.</p>

Appendix O: Layout in classroom CPS1A



Layout in classroom CPS1B

