

EARLY LITERACY RESEARCH PROJECT

Survey of Teacher Literacy Knowledge and Efficacy

A Report of Findings for the Ministry of Education

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August 2015



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Summary

As part of the Massey University Early Literacy Research Project, 55 teachers participated in a survey of teachers' knowledge of literacy-related basic language constructs, preferred word identification prompts, and literacy teaching self-efficacy. The survey was open between mid-May and mid-June and delivered using the Survey Monkey software and platform. The purpose of the survey was to obtain information from teachers on important literacy-related factors that influence teaching and students' literacy learning outcomes. We also wanted to determine whether there were significant differences between the teachers in the Intervention group and those in the Comparison group. As expected, there were no statistically significant differences between Intervention and Comparison teachers in terms of self-evaluation of literacy teaching knowledge, or knowledge of phonemic, phonic, phonological or morphological language constructs. Items relating to phonological knowledge/skills were generally answered with around 90% accuracy. Phonemic knowledge/skills were answered with around 65% accuracy; phonic knowledge/skills answers were around 55% accurate; and, morphological knowledge/skills items were answered with around 53% accuracy. Teachers' use of word-level, context, and neutral word identification prompts based on typical reading errors in six scenarios showed some differences. There was an overall tendency to favour context and neutral prompts, rather than word-level prompts. However, teachers in the Intervention group used more wordlevel prompts than Comparison group teachers for four of the six scenarios. We believe this difference is due to information and discussions arising from the first (two-day) professional development session. In terms of literacy teaching efficacy, we used a scale devised specifically for this project, and trialled with 324 teachers in the latter part of last year.

Teachers in the Literacy Project were generally positive in their sense of literacy teaching efficacy, and there were no statistically significant differences between the Intervention and Comparison teachers. We discuss the results in terms of research on the importance of teacher knowledge and efficacy for student literacy learning outcomes. We anticipate that teachers in the Intervention group will show significant development in their knowledge and efficacy as a result of the professional development workshops that form an integral part of the Early Literacy Research Project.

Introduction

Teacher knowledge about all aspects of literacy learning and development is essential for the implementation of effective literacy teaching practices. As Moats (2009) noted, effective literacy instruction "depends on the teacher's ability to explain concepts explicitly, to choose examples wisely, and to give targeted feedback when errors occur" (p. 393). Teacher knowledge by itself, however, is not sufficient for the implementation of effective literacy instruction. In addition to knowledge about literacy learning and development, effective instructional approaches are required, along with teacher efficacy, which is the sense of personal agency and confidence teachers hold about their ability to influence student learning outcomes.

As part of the Massey University Early Literacy Research Project, we investigated literacy-related aspects of teacher knowledge and literacy teaching efficacy among teachers who are participating in this study. This investigation was undertaken between the middle of May and the middle of June 2015, which was during the early months of the start of the Early Literacy Research Project.

Teacher Knowledge

Effective literacy practices in New Zealand primary schools are largely reliant on teacher knowledge because individual classroom teachers are responsible for much of the instructional programme decision-making. In her seminal publication, *Teaching Reading is Rocket Science*, Moats (1999) showed that relevant teacher knowledge includes understanding language and linguistics, and being well versed in the psychology of reading

development and effective instructional practices that are based on research-informed models of cognitive development.

Over the past few decades, as research on the essential cognitive and language processes involved in successful reading acquisition has accumulated, knowledge and strategies for effective literacy teaching have been well documented. To effectively teach reading skills to children requires that teachers have a high level of understanding of the basic structure of the English language, including an understanding of the sound-symbol correspondences of written English and how these influence reading development. Effective teachers of literacy are those who are knowledgeable about the code of written and spoken English, and who also have knowledge of research-based assessment and instructional procedures (Gersten et al., 2008; Spear-Swerling & Zibulsky, 2014).

The importance of teacher knowledge for promoting student literacy development has been emphasised by Piasta, Connor, Fishman and Morrison (2009). They reported that explicit decoding instruction was effective for student word-learning growth only when teachers' knowledge of phonology, orthography, morphology, literacy-acquisition, and instruction was high. Despite the growing body of evidence about the role and importance of phonological skills, including the importance of teaching the alphabetic principle and the role of phonological awareness and its relationship to both reading and spelling development (Carlisle, Correnti, Phelps & Zeng, 2009; McCutchen, Green, Abbott & Sanders, 2009; McLachlan & Arrow, 2014; NcNeill & Kirk, 2014; Piasta et al., 2009; Washburn et al., 2011), spending time on explicit decoding instruction is relatively ineffective in promoting reading development when teachers' research-based knowledge is low (e.g., Piasta et al., 2009).

Research on teachers' knowledge of basic language constructs among practising teachers has shown that they generally score poorly on such measures (e.g., Carroll, 2006; Cheesman, McGuire, Shankweiler & Coyne, 2009; Fielding-Barnsley & Purdie, 2005; Mahar & Richdale, 2008). As Mather, Bos and Barbur (2001) noted, teachers who had an insufficient grasp of spoken and written language structures would not be able to adequately teach reading skills explicitly to those children who show early signs of developing reading difficulties.

Many teachers may have implicit linguistic knowledge, but this might not easily be made explicit. For example, although teachers may be able to identify syllables or correct vowel sounds in words, they may not have adequate explicit linguistic knowledge to teach these language elements effectively to their students. Studies of initial teacher education teachers, in-service teachers and teacher educators, for example, have found that they could complete implicit phonological tasks but that they were often unable to make their understandings explicit, and they often provided incorrect responses to tasks involving phoneme awareness or being able to identify specific morphemes in words (e.g., Joshi, Binks, Hougen et al., 2009; Washburn et al., 2011). Similarly, in New Zealand, Carroll (2006; Carroll et al., 2012) investigated phonological awareness skills, including those skills requiring syllable recognition, phoneme segmentation, and phoneme identification. Most teachers were able to complete the implicit task of syllable recognition, but they had greater difficulty in understanding phonemes. Carrol et al. (2012) observed that teachers tended to segment words into syllable or onset-rime units even when asked to specifically segment words into phonemes. Moats (2014) described these phenomena as the forgetting of how to learn to read; fluency of the skilled reader means that many adults are no longer

able to attend to or reflect on the sub-lexical components of speech or print. Most of the time for adults, this inability does not matter. But for teachers of literacy, it does matter.

Research indicates that teachers who have a sound knowledge of the different components involved in reading (e.g., phonological awareness, alphabetic coding skills, vocabulary) are generally more capable of providing instruction that meets the needs of more students, regardless of the often contradictory or flawed instructional guidelines teachers received in their training or by way of state-sanctioned or -produced publications.

Following from research on the importance of literacy-related teacher knowledge that is based on contemporary research about effective literacy acquisition and instruction, we included in our teacher survey a section on teacher knowledge of basic language constructs, as well as a set of self-evaluation questions relating to literacy teaching. The details of this aspect of the survey are described in the Methodology section. Our guiding research questions in regards to teacher knowledge and self-evaluation were as follows:

What levels of literacy-related teacher knowledge and self-evaluation of their effectiveness in literacy teaching did teachers in the Early Literacy Learning Project have during the first few months of the research? Were there any significant differences between teachers in the Intervention and Comparison groups?

Teachers' Word Identification Prompts

Closely related to knowledge of basic language constructs is the nature of prompts teachers use when children come across unfamiliar words in text, or when they make word identification errors. In New Zealand, the view that children acquire reading naturally has been combined with a theory of reading that emphasises the prominence of individual meaning-making over the accurate decoding of text (e.g., Smith & Elley, 1994). Typically,

teachers of beginning readers have children reading small amounts of text from the first day they start school, with an emphasis on the making of meaning rather than on the accurate decoding of the print. To fit with this approach to literacy instruction, texts tend to be repetitive with accompanying illustrations that encourage memorisation of words and a reliance on picture cues rather than a focus on developing effective strategies for identifying word-level information.

In support of this view, Greaney (2001) found that the main approach to teaching children to identify unknown printed words was for teachers to encourage students to use text-based strategies, such as picture cues or sentence-context cues. Greaney (2001) presented a group of primary school teachers with a variety of different common reading error scenarios. The teachers were asked to record the typical prompts they would use to help the reader identify and correct each error. An analysis of the teachers' prompts showed that most used context-based prompts as their first approach for dealing with the error, and that overall they used considerably more text prompts than word-level prompts.

Teachers' context-based prompts that encourage readers to focus on accompanying illustrations, prior knowledge, or sentence meaning as a strategy for decoding unfamiliar words will result in occasional successful responses. However, such prompts are not generative; they have very low sustainable strategic value across different contexts. We found in a study that asked young children what they did when they came across a word they did not know that the weaker readers typically used context-based cues (Tunmer & Chapman, 2002). For example, weaker readers responded with strategies that have been included in New Zealand literacy instruction books for five decades now (e.g., Reading in the Primary School, 1962; Reading in Junior Classes, 1985; The Learner as a Reader, 1996; Effective Literacy Practices in Years 1 to 4, 2003), such as "guess", "think, guess what the

word is", "read it over again", "read on", "have a look at the picture", "miss it out and go to the end and go back and guess a word that makes sense" (Tunmer & Chapman, 2002, p. 348). In contrast, prompts that encourage readers to focus on word-level characteristics, such as initial letter-sounds, the spelling patterns, or rime units, are more likely to assist readers in developing strategic and generative connections between the subcomponents of the written and spoken forms of the particular word. These strategies are generative because they allow for the storage of grapheme-phoneme correspondences for future use in cognitive phonological recoding (Arrow & Tunmer, 2012), as well as for explicit recoding of unknown words, irrespective of the context in which they appear. Tunmer and Chapman (2002), for example, found that better readers, regardless of the text-based prompts typically employed by teachers, preferred to use word-level strategies for identifying unfamiliar words, such as "sound it out", "think of the sounds", "hear all the letters", "listen to what the letters are" (p. 348).

In this project, we included in the teacher survey the teacher prompt task adopted by Greaney (2001). Details of the teacher prompt task, which included six typical text-error scenarios that children make, are presented in the Methodology section of this report. Our guiding questions were as follows: What initial prompts do teachers report using when students come across an unfamiliar word, or when they make word identification errors while reading text? To what extent do teachers use word-level prompts? Are there any significant differences in the types of word identification prompts used by intervention teachers and comparison teachers during the early stages of this project?

Literacy Teaching Efficacy Survey

Teacher efficacy refers to the confidence and sense of personal agency that teachers hold about their ability to influence student learning; it is a key motivational belief that influences teachers' professional behaviours and student learning outcomes (e.g., Bandura, 1993; Klassen, Tze, Betts & Gordon, 2011; Tschannen-Moran & Woolfolk Hoy, 2001.)

Considerable research on teacher efficacy in relation to a number of domains of teaching activity has been published over the past 30 years, though scant attention appears to have been paid to this construct in New Zealand.

According to Bandura's (1997) social-cognitive theory, self-efficacy beliefs refer to people's judgements of their own capabilities to organise and execute courses of action required to attain specific and desirable outcomes. Self-efficacy strongly influences the choices people make, the effort they spend, and their perseverance in the face of difficulties. A growing body of research supports Bandura's (1997) theory that teacher selfefficacy beliefs are related to the effort they invest in teaching, the goals they set, their persistence when faced with challenging learning and behaviour situations in the classroom, and their resilience in the face of setbacks (e.g., Skaalvik & Skaalvik, 2010; Tschannen-Moran & McMaster, 2009; Tschannen-Moran & Woolfolk Hoy, 2001). Teacher self-efficacy is related to teachers' willingness to adopt new ideas and try new methods, and their planning and organisational competence, commitment and enthusiasm for teaching (Hen & Goroshit, 2013). Skaalvik and Skaalvik (2007) reported that teacher self-efficacy influences student motivation and academic performance outcomes. Teachers with low levels of self-efficacy generally experience greater difficulties in teaching, exhibit lower levels of job satisfaction and higher levels of job-related stress when compared to teachers with high levels of selfefficacy (Hen & Goroshit, 2013).

In this literacy research project, we included a measure of literacy teaching efficacy to gauge the level of confidence and personal agency teachers reported having in relation to a number of specific literacy teaching situations. The Literacy Teaching Efficacy Scale (LTES) was developed specifically for the project, following approaches to teacher efficacy measurement typically recommended by leading researchers (e.g., Bandura, 2006; Tschannen-Moran & Woolfok Hoy, 2001). Details of the LTES are presented in the Methodology section. Our guiding questions in regard to literacy teaching efficacy were as follows: What levels of self-efficacy do teachers report in relation to a range of literacy teaching situations? Are there any differences in levels of self-efficacy between Intervention and Comparison teachers?

Methodology

Teacher Knowledge Survey

The teacher knowledge survey was based on a measure of teachers' knowledge of basic language constructs validated by Binks-Cantrell, Joshi and Washburn (2012). Basic language constructs considered essential for early reading success include phonological and phonemic awareness, the alphabetic principle (phonics), and morphology (Binks-Cantrell et al., 2012). Based on extensive research during the late 1980s and 1990s (e.g., Adams, 1990; Moats, 1999), the United States National Reading Panel (2000) stressed the importance of teachers having an explicit knowledge of such concepts for the effective teaching of decoding skills in a direct, systematic way to enable the successful acquisition of early reading skills for all beginning readers (Binks-Cantrell et al., 2012).

The Binks-Cantrell et al. (2012) scale included 46 questions that examined teachers' understanding of basic language constructs in terms of knowledge and skills in relation to

phonological and decoding elements. For example, the question "A phoneme refers to..." is defined as a knowledge question in relation to phonemic understanding within the phonological domain. Skill-based items, for example, required teachers to count the number of phonemes in a word, such as *moon*, as well as count the number of syllables and morphemes in words such as *observer* and *frogs*. In addition, we included items designed to assess teacher's perceived teaching ability, such as "evaluate your knowledge of teaching phonemic awareness and comprehension". Binks-Cantrell et al. (2012) reported that the teacher knowledge measure has a Cronbach's alpha coefficient of 0.90 and good construct validity.

In our survey of teacher knowledge, 38 items were categorised into phonemic, phonic, phonological, and morphological skills/knowledge. An additional 8 items involved teacher self-evaluation of their perceived literacy-related teaching ability. The teacher knowledge survey is presented in the Appendix to this report.

Word Identification Prompt Scenarios

The word identification prompt task was based on six scenarios used by Greaney (2001). These scenarios were selected from two series of publications commonly used in New Zealand primary schools; the *Ready to Read* series, which is used in most junior classes, and the school journals. The scenarios were selected to exemplify three main types of reading errors (Greaney, 2001). Type A reading errors include a non-verbal response from a reader when she/he comes across an unfamiliar word, or a minimal response such as the initial letter only. Three scenarios involved Type A errors. One scenario involved a Type B error, in which the reader gave a non-word response for the target word (e.g., "brost" for "breakfast"). Type C errors involved the reader providing a real-word substitution that

makes grammatical sense, but which is nonetheless incorrect (e.g., "rabbits" instead of "robins"). Two scenarios exemplified Type C errors.

Survey respondents were asked to provide brief narratives for up to three prompts for each of the six reading error scenarios. The prompts were categorised into word-level prompts (e.g., initial letter blends, letter-sound patterns), context-based cues (e.g., what makes sense in the story; look at the picture), and neutral prompts which included instructions by the teacher that did not relate specifically to any particular sources of information (e.g., "Are you sure?"; "Keep trying"; "Have a go"). The six word identification scenarios are presented in the Appendix.

Literacy Teaching Efficacy Scale (LTES)

The LTES was developed specifically for this project. Following the recommendations and guidelines for self-efficacy assessment (e.g., Bandura, 2006; Tschannen-Moran & Wolfok Hoy, 2001), a range of items was developed to assess teachers' beliefs about their capability of engaging in literacy teaching practices that would lead to desirable student learning outcomes. These items followed the stem, *I am confident I can...* Each item required the respondents to select their level of confidence on an 11-point scale, from "highly confident" (10) to "not at all confident" (0). For example, the first item was "*I am confident I can...* Create enthusiasm for reading among boys".

An initial list of 36 items was informally trialled with volunteer graduate level initial teacher education students. Following rewording of some ambiguous items, and deletion of two items, the pilot version of the LTES comprised 34 items that were randomly distributed within the scale and formatted for administration using the *Survey Monkey* programme.

All state primary schools outside of the research project geographical area (upper half of the North Island—north of an East-West line from Hawkes Bay through to Taranaki—and in the South Island) were contacted by email seeking participation in the survey by teachers of students in New Entrant/Year 1 to Year 3 classes. The survey requested demographic background data in relation to teacher information (e.g., years teaching, teaching qualification and institution, size, decile ranking, and location—large city, urban, rural—of their school). No names were required and participants were informed that the survey was anonymous and confidential at the individual level.

Responses were received from 344 teachers, almost all of whom were women.

Usable data were available for 324 respondents. Teachers came from a reasonably even spread of schools in terms of decile rankings, and geographical location (city, town, rural, etc.). Most teachers (57%) had a bachelors degree as their highest teaching qualification. Years of experience in teaching were spread reasonably evenly from 0-5 to more than 30 years. Fifty-six respondents completed the request for summary data on the literacy teaching efficacy survey. These data were supplied to those who provided contact email addresses.

Individual item data were treated by means of standard item analysis procedures, principal components analysis, and estimates of internal reliability. Cronbach's alpha, as the estimate of internal reliability of the scale, was 0.97. Results from the principal components analysis revealed that the scale had one, relatively strong factor which accounted for 58.34% of the variance. As is usually the case for such self-report scales, scores were negatively skewed (tended to be positive) with a mean score of 284.30 (SD = 64.67), a range of 55 to 373, and a maximum possible score of 374. The very low scores were due to incomplete item responses, and these respondents were deleted from subsequent analyses.

On the basis of these data from the pilot study, four items were removed from the scale. Two items had very high mean scores, indicating that they had poor discrimination power, and two items had very low mean scores possibly due to ambiguous wording.

Descriptive statistics were run on the 30-item scale for those respondents who answered each item (n = 274). Cronbach's alpha was .98; the mean was 264.45 (SD = 44.50); the lowest score was 83 and the highest was 329, with the total possible score being 330. A principal components analysis revealed that there remained one strong factor that accounted for 61.96% of the variance.

This revised 30-item scale was re-formatted using the *Survey Monkey* programme to form part of the Early Literacy Project survey of teacher literacy knowledge and efficacy. The items in the LTES are included in the Appendix.

Procedure

The teacher knowledge and efficacy scales included sections in the following order:

1) demographic information; 2) Literacy Teaching Efficacy Scale; 3) teacher knowledge survey; and, 4) teacher word identification prompt task. Teachers participating in the Early Literacy Research Project were sent the *Survey Monkey* link via email and requested to complete each of the sections in the survey. The survey was launched on 11 May 2015 and closed on 22 June 2015. The complete survey is included as the Appendix to this report.

Results

Response Data

Fifty-five responses were received; most (44) were submitted within the first two days following the 11 May launch. The remainder were received following a reminder email,

on or around 15 June. Not all of the 55 responses included complete data for all sections.

Fewer responses were received for the teacher word identification prompt questions, which were located in the last section of the survey, than the teacher efficacy questions that followed the demographic questions at the start of the survey.

Respondents were provided with the opportunity to comment on the nature of the survey; 22 teachers provided comments at the end. Six responses were negative, and included comments such as "too long", "we teach New Entrants...this is expecting us to be linguistic experts", and "too much pressure for busy NE teachers". Other teachers were positive and grateful for having the opportunity to participate in the survey: "It was really hard but the challenge was great because it really made me think about my knowledge and how I can apply it"; "Thanks for making me think!"; "Thank you, this survey really got me reflecting upon and analysing the strategies I am using during guided reading sessions and in class generally". Some comments were more mixed: "It was hard! Highlights things I don't know and maybe should know and using"; "I wish I hadn't sat down to do this late at night! Interesting to reflect on though"; "Some very tricky questions! Some I had no idea about".

Demographic Data

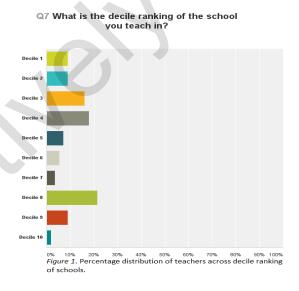
In terms of gender, 1 male participated in the survey; 2 respondents skipped this question. Most respondents (44%) had been teaching for 21 or more years. Around 21% had been teaching for between 11 and 15 years, and nearly 20% were in the first 5 years of their teaching.

Most respondents (46%) had a bachelors degree as their "highest teaching qualification"; nearly 20% had a post-graduate diploma, 13% had a graduate diploma, and 11% had a 3-year teachers college diploma. A relatively small number (5%) recorded a

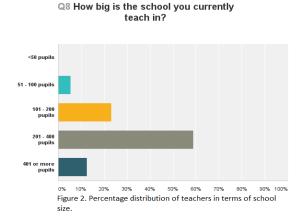
Masters degree as their highest teaching qualification. Most respondents received their teaching qualification from the Palmerston North/Massey University College of Education (56%) or the Wellington/Victoria University College of Education (21%).

We asked respondents if they had a "specialized qualification relating to literacy". The majority (63%) indicated they did not; 30% indicated that they were Reading Recovery trained; none responded that they had received training in the RT:Lit programme; 7% (n = 4) indicated that they had received "other" specialized training.

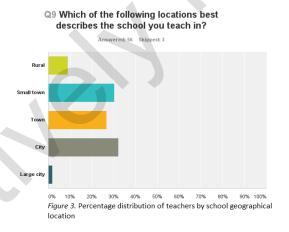
Information received from respondents about the decile ranking of their school revealed a reasonably even spread; 34% of teachers were in decile 1 to 3 schools, 34% were in decile 4 to 7 schools, and 32% were in decile 8 to 10 schools. Figure 1 illustrates the distribution of school decile rankings.



Most teachers were from schools that had between 201 and 400 pupils (59%), with the next largest group from schools with between 101 and 200 pupils (23%). Figure 2 illustrates the distribution of school size.



The geographical location of teachers' schools is the lower North Island, from New Plymouth to Wellington in the west and central regions, and the Wairarapa in the southeastern North Island area. Schools located in small towns, towns, and cities were fairly even, with few teachers indicating they were in rural schools. These data are presented in Figure 3.



Teacher Knowledge

Data from the teacher knowledge of basic language constructs of literacy survey were analysed in terms of the types of teacher knowledge and as a function of Intervention and Comparison groups. For the self-evaluation of literacy teaching knowledge, 54 valid responses were analysed by means of a *t*-test. As expected, there was no significant

difference in mean scores between teachers in the Intervention and Comparison groups, t(52) = 0.64, p = .52. Mean scores for each of the eight literacy teaching-related scores were mainly in the "moderate" to "very good" categories (over 90% of responses). The only area in which there was less perceived skills related to teaching English language learners: 23% thought they had "minimal" knowledge for working with such students. With the exception of the English Language Leaners, the mean scores for the other seven categories ranged from 2.75 (using assessment) to 2.51 (teaching fluency). Overall means and standard deviations are presented in Table 1.

For the teacher skills and knowledge of language constructs, total scores were calculated for phonemic, phonic, phonological and morphological variables. As expected, there were no statistically significant differences between teachers in the Intervention group compared to those in the Comparison group: phonemic skills and knowledge t(51) = 1.22, p = .23; phonic skills and knowledge t(51) = 0.66, p = .51; phonological skills and knowledge t(48) = 0.35, p = .73; morphological skills and knowledge t(48) = 0.21, p = .84. Means and standard deviations are presented in Table 1.

Table 1. Group means and standard deviations for the Teacher Knowledge of Basic Language Constructs survey.

	Interve	ntion	Comparison		
	Mean	SD	Mean	SD	
Self-Evaluation	19.97	3.52	20.58	3.00	
Phonemic	8.09	2.62	8.94	2.01	
Phonic	4.71	2.60	5.17	1.79	
Phonological	7.09	1.00	7.19	0.83	
Morphological	4.15	2.51	4.31	2.82	

Another way to consider the sense of these teacher knowledge mean scores is in terms of the percentage of sections correctly answered. For phonemic knowledge/skills, the Intervention teachers answered on average 62% of these items correctly; for the Comparison teachers, an average of 69% of the phonemic items were correctly answered. For the phonic knowledge/skills items, 52% of Intervention teachers' responses were correct, and 57% of Comparison teachers answered these items correctly. Phonological knowledge/skills items were generally answered correctly: 89% for Intervention teachers and 90% for Comparison teachers. Morphological knowledge/skills, however, were less well understood: 52% correct for Intervention teachers and 54% correct for Comparison teachers. As the study progresses, we will be examining whether Intervention teachers increase their knowledge/skills in terms of basic language constructs.

Teacher Prompts

Teacher prompts for each of the six reading error scenarios were scored following Greaney's (2001) approach. We report response type (word-level; context; neutral) for the first prompt and for the total of three prompts in terms of percentages of prompts. Table 2 presents the percentages for each first prompt type for each of the six scenarios.

Overall, 40% of the prompts were word-level. These included such cues as "Let's sound that word again"; "can you see two words?"; "hear and say all the sounds you see"; "what comes after p...a then d...that rhymes with dad?"; "look at the blend at the start and try again"; "Let's see if looking at the chunks in the word can help".

On average, 45% of the prompts were based on context. Examples included "Try that again and think what would make sense"; "Look at the picture then try again"; "Go back to

Table 2. Percentage of Word Identification Prompts as a Function of Scenario and Teacher Group

		Intervention			Comparison			Total	
	Word Level Context	Context	Neutral	Word Level Context	Context	Neutral	Word Level Context	Context	Neutral
"Brost"	42	49	6	21	57	21	36	51	13
"Paddled"	36	61	3	13	98	0	29	69	2
"Sneaky"	42	46	12	21	20	29	36	47	17
"Claws"**	61	56	13	14	64	21	47	38	16
"Howl"	27	20	23	31	31	38	49	23	28
"Rabbits"*	20	33	17	31	54	15	44	40	16

** Statistically significant difference between the Intervention and Comparison groups at the .01 level Statistically significant difference between the Intervention and Comparison groups at the .05 level

the start of the sentence and think what will fit"; "Think about the story, what would make sense"; "Does the word you read match the picture?"

Neutral prompts accounted for an average of 15% of the cues teachers reported using as their first way of dealing with a reading in error across the scenarios. These cues were generally lacking in useful information for helping the reader: "try that again"; "That was lovely, but I wonder if you can find your mistake?"; "You made a mistake. Can you find it? Fix it?"; "Have a go"; "Good job. Good reading"; "Check it"; "Get your mouth ready".

Table 2 shows that slightly more word-level than context prompts were offered for scenarios four to six, but word-level prompts remained below 50% for all six scenarios.

Comparing Intervention teacher prompts with those of Comparison teachers revealed that two scenarios (4 and 6) produced statistically significant differences between the groups, with Intervention teachers tending to use word-level cues more than Comparison teachers.

Other differences were not statistically significant.

We also analysed the total number of word-level responses, out of a possible total of three, for each of the six scenarios. These data are presented in Table 3. Overall, Intervention teachers tended to use more word-level prompts than Comparison teachers. In total, 48% of the possible number of 18 were word-level prompts, compared to 29% for the Comparison teachers.

In general, initial and total word level responses for the word identification scenarios tend to be fewer than 50% of the prompts teachers report favouring. However, Intervention teachers showed greater use of word-level prompts than Comparison teachers. This emerging difference is most likely due to information provided during the first professional development seminar. Over the course of the project, we will be interested to discover

whether the Intervention teachers focus more on the use of word-level prompts, and concomitantly decreasing the use of context and neutral prompts.

Table 3. Means and standard deviations of total word-level prompts for each scenario, as a function of group.

	Interve	ention	Compa	rison	
Scenario	Mean	SD	Mean	SD	t
"Brost"	1.42	1.00	0.71	0.73	2.46*
"Paddled"	1.24	0.97	0.80	0.56	1.64
"Sneaky"	1.39	0.86	1.00	0.68	1.52
"Claws"	1.32	0.95	0.71	0.83	2.08*
"Howl"	1.60	0.93	0.92	0.86	2.23*
"Rabbits"	1.55	0.99	0.92	0.76	2.04*
Total	8.71	3.97	5.23	2.98	2.81**

^{*} P < .05 **p < .01

Teacher Efficacy

Total scores for the LTES were analysed to examine whether there were differences between the Intervention and Comparison teachers in terms of confidence to effect a range of literacy outcomes in the classroom. The results revealed comparable means for the two groups: Intervention M = 228.57 (SD = 39.16), Comparison M = 221.21 (SD = 38.86). The slight difference in means was not statistically significant, t(52) = 0.66, p = .51.

Discussion

The overall purpose of this report is to provide information about literacy knowledge and efficacy for teachers participating in the Early Literacy Research Project. Together with demographic information, measures of teacher knowledge of basic language constructs, self-evaluations of literacy teaching knowledge, use of word identification prompts for six reading error scenarios, and literacy teaching efficacy were presented and analysed.

Not all teachers responded to all items in the survey. This response rate is partly due to the length of the survey. Some made comments at the end of the survey that it was too long. Some items were not answered, especially in the teacher knowledge of language constructs section. Comments from several teachers suggested that it was not appropriate for them to know about aspects of literacy-related language constructs that formed the teacher knowledge survey. This viewpoint is disappointing but not surprising considering the lack of emphasis on language constructs in teacher education over the past four to five decades.

With one exception, teachers in the project are women. Most teachers in the survey have a bachelors degree or graduate/postgraduate diploma as their highest teaching qualification. The majority of teachers in the project have not had specialized literacy training, although a reasonable number (30%) have received Reading Recovery training. Most teachers are reasonably experienced, with over 80% having taught for more than five years. Teachers in this project are from schools covering a full range of decile rankings, with a reasonably even spread across low, medium, and high deciles. Most teachers are from schools located in towns and cities. In general, teachers in the project appear to represent a reasonable cross-section of New Zealand teachers working with New Entrant/Year 1

children. If this conclusion is valid, the results from the project should be reasonably generalizable.

Regarding teachers' self-evaluation of their literacy teaching skills, the overall responses indicated that teachers felt they had moderate to very good levels of literacy teaching skills. Intervention and Comparison teachers were comparable in their self-evaluations. The results for the self-evaluation section are reasonably consistent with those reported by Washburn et al. (2011) for pre-service teachers.

In terms of knowledge of language constructs, there was more variability. Although both groups of teachers had comparable levels of knowledge across the four domains, there were very high levels of understanding of phonological skills/knowledge, medium levels of phonemic skills/knowledge, but lower levels of phonic and morphological skills/knowledge. Interestingly, although the scores revealed strengths in the area of phonological awareness, only 58% of teachers were able to provide an accurate definition of phonological awareness. The strengths in this area were largely due to reasonably accurate syllable counting. This finding is similar to that reported by Washburn et al. (2012), and suggests that phonological knowledge is incomplete. This view is supported by the weaker knowledge in regard to phonemic awareness. Although 85% of respondents in the survey correctly defined phoneme, only 57% were able to define phonemic awareness. In addition, there was a discrepancy between syllable and phoneme counting, which is likely due to the accepted view that phoneme counting is more difficult than syllable counting. Further, errors in phoneme counting could be due to teachers operating at an orthographic level when attempting to dissect words into individual phonemes (Washburn et al., 2011).

The items associated with the alphabetic principle/phonics knowledge were more difficult for teachers in this survey. The accuracy rate for this section of the teacher

knowledge survey was only 54%. Effective literacy instruction has been consistently shown to include systematic teaching of phonics (e.g., Adams, 1990; National Research Panel, 2000). Accordingly, explicit knowledge of phonics principles is required for teaching decoding and spelling (Washburn et al., 2011). It is concerning that only around half of the teachers in this survey were able to correctly identify when to use key reliable phonics principles.

Aspects of morphology were the most challenging for teachers who responded to this survey, with an overall accuracy rate of 52%. These findings are somewhat consistent with those reported by Moats (1994), who found that graduate level teachers had considerable difficulty with various aspects of morphology.

In general, teachers in this survey had a mixed understanding of the literacy-related language structures required for effective teaching. As Mather et al. (2001) commented, teachers with insufficient grasp of such crucial language structures are unlikely to effectively teach reading skills explicitly to those children who show early signs of developing reading difficulties, which in New Zealand includes at least 20% of the junior primary school population. As the Intervention teachers progress through the professional development activities included in this project, we would expect an increase in their skills/knowledge at the end of this first year of the project compared to teachers in the Comparison schools.

The data on teacher prompts from the six reading error scenarios showed that overall fewer than 50% of the first prompts were word-level cues. In general, context and neutral cues were together used more frequently by teachers in the project. This preference probably reflects the advice presented in publications on literacy teaching for beginning readers (e.g., Reading in Junior Classes, The Learner as a Reader, Effective Literacy Practices in Years 1 to 4.) A stronger weighting of word-level cues is considered essential for most

children, and especially for those children who commence school with more limited literate cultural capital (Arrow & Tunmer, 2012). There are signs that Intervention teachers are starting to recognise the importance of word-level prompts. If we are able to repeat this reading error prompt exercise at the end of the year, we would expect and hope to see an increase in the use of word-level prompts among teachers in the Intervention group.

Results of the LTES showed generally high levels of self-efficacy on the part of teachers in regard to a range of literacy teaching situations. Relatively high self-ratings are common for such scales. Although the distribution of scores is negatively skewed, there is still scope for upward movement on the part of Intervention teachers. We anticipate administering the scale to the current cohort of teachers during the course of next year to identify if there is meaningful upward movement on the part of the Intervention teachers. Also of interest will be the relationship between teacher efficacy and students' literacy learning outcomes.

Conclusion

Although not all teachers participating in the Early Literacy Project engaged with the survey, the large majority responded to the various tasks and provided valuable information regarding literacy-related teacher knowledge and efficacy. Much of the information collected is useful "baseline" data. On its own, however, it is of limited use without linking to students' literacy-related achievement and performance data. When these data are available for analysis, we will examine the relationship between teacher knowledge and efficacy, and student performance on the range of literacy tasks that form a part of the project.

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Appendix

The Early Literacy Teaching and Efficacy Survey



This survey is for teachers of children of Year 1 (including New Entrants) to Year 3.

Thank you for participating in this survey. The survey has been developed at the Massey University Institute of Education by experienced literacy researchers and classroom practitioners. The principal researcher responsible for the survey is Professor James Chapman. If you would like to contact him about the survey, please send an email: j.chapman@massey.ac.nz; or phone him at 06 3569099 ext 84301.

Taking part in this survey will help us to understand the levels of knowledge and confidence teachers have in dealing with a range of literacy teaching and learning factors for young beginning readers. This information will be helpful in understanding the results of the Literacy Project. Our "big goal" is to contribute with teachers to the improvement of literacy learning outcomes of all children

outcomes of all children.
It is helpful if you are able to answer all questions.
Please enter your name and your school in the space provided. Your individual responses will be confidential and will not be disclosed to anyone else.
First of all, a statement about ethics in relation to this survey. This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher, please contact Professor John O'Neill, Director, Research Ethics, telepone 06 350 5249; email: humanethics@massey.ac.nz
Before starting the survey, please complete the background questions so that we have an understanding of the participants. Please answer all questions. This will help us to get the most out of the data. Are you male or female?
Male
Female

	v long have you been teaching?
	1 to 5 years
	6 to 10 years
	11 to 15 years
	16 to 20 years
	21 to 30 years
	More than 30 years
Wha	at is the highest teaching qualification you have?
	Two-year Teachers College Diploma
	Three-year Teachers College Diploma
	Bachelors degree
	Graduate Diploma
	Post-graduate Diploma
	Masters degree
	Other (please specify)
Fror	m which College of Education/Teachers College did you obtain your initial teaching qualification?
	Auckland College of Education or University of Auckland
	AUT
	Hamilton College of Education or University of Waikato
	Palmerston North College of Education or Massey University
	Wellington College of Education or Victoria University of Wellington
	Christchurch College of Education or University of Canterbury
	Dunedin College of Education or University of Otago
	Other (please specify)

Do	you have a specialized qualification relating to literacy?
) No
	Yes, Reading Recovery
	Yes, RT Lit
	Other (please specify)
W	hat is the decile ranking of the school you teach in?
	Decile 1
	Decile 2
	Decile 3
	Decile 4
	Decile 5
	Decile 6
	Decile 7
) Decile 8
	Decile 9
	Decile 10
Ho	ow big is the school you currently teach in?
	> <50 pupils
	51 - 100 pupils
	101 - 200 pupils
	201 - 400 pupils
C	401 or more pupils
10/1	high of the following legations heat describes the school you to school in?
VVI	hich of the following locations best describes the school you teach in?
	Rural Small town
	Small town
	Town
) City

Large city

For each of the statements below, please indicate your level of confidence on the scale of *Not at all confident* to *Highly confident*. There are no right (or wrong) answers, and we expect wide variations across the responding teachers that reflect personal views about each statement.

PLEASE ANSWER ALL QUESTIONS. This will help us to get the most out of the data.

I am confident I can:

	Not at all confident				Moderately confident					Highly confident
Create enthusiasm for reading among boys.								0	6	50
Teach children to identify consonant blends.									O	
Get children to read fluently during oral reading.						9	0			
Ensure high priority children achieve literacy learning outcomes that are comparable with other children.										
Significantly overcome students' poor reading skills with effective teaching.				0						
Effectively use a range of literacy teaching approaches to meet the different needs of children.		0								
Partner with parents of high priority children to work with me to improve their child's literacy skills.										
Understand and use current academic research on how children learn to read.			\bigcirc							
Effectively teach children about the role of phonemic awareness in learning to read.	0									0

I am confident I can:

	Not at all confident			Moderately confident				Highly confident
Effectively teach children who have reading disabilities/dyslexia.								
Effectively teach reading without having to upgrade my qualifications.								
Systematically teach word decoding skills to those children who don't have good alphabet knowledge.						0		0
Teach children to figure out unknown words in text by using the developing meaning of the story.					0	0		
Teach reading better than I teach other subjects.					0			
Explain to parents how metalinguistic awareness impacts on children's reading development.			0					
Deal effectively with almost any reading problem in my class.	0	0						
Effectively teach children to spell as wel as I can effectively teach children to read.		0						
Effectively teach all children to read.								
Persist with teaching children who have serious reading difficulties.								
Overcome home background disadvantage with effective teaching.								

I am confident I can

	Not at all confident			Moderately confident					Highly confident
Teach children to hear the sounds in words.									
Effectively teach children to write as wel as I can effectively teach children to learn to read.									0
Understand the role of phonological awareness in how children learn to read.							0		
Ensure the boys in my class have comparable literacy performance outcomes as girls.								0	
Explain to children how to improve their reading.					0	0			
Effectively teach reading to children from diverse backgrounds.					0				
Motivate children in my class who are not willing to read.			0						
Explain to parents how their child can improve their reading.		0	0						
Teach children to understand lettersound correspondences.									
Accelerate the literacy performance of capable children.									

Please evaluate your knowledge of the following:

	Minimal	Moderate	Very good	Expert
1. Phonemic awareness				
2. Phonics				
3. Fluency				
4. Vocabulary		\bigcirc		
5. Comprehension				0
6. Children's literature		\bigcirc		0
7. Teaching literacy skills to English language learners	\bigcirc			
8. Using assessment to inform reading instruction	\bigcirc			

A phoneme refers to:
A single letter
A single speech sound
A single unit of meaning
A grapheme
No idea
If tife is a word, the letter "i" would probably sound like the "i" in:
beautiful
find
ceiling
Centrig
sing

A combination of	wo or three consonants pronounced so that each letter keeps its own identity is called:
silent consonant	
consonant digra	h
dipthong	
consonant blend	
ono idea	
How many analog	a counds are in the following words? For example, the word "cot" has 2 and ab counds
	n sounds are in the following words? For example, the word "cat" has 3 speech sounds ounds do not necessarily equal the number of letters.
	Number of Sounds
box	
grass	
ship	
moon	
brush	
knee	
through	
What type of task	would the following be? "Say the word 'cat.' Now say the word without the /k/ sound."
blending	
rhyming	
segmentation	
deletion	
no idea	

A "soft c" is in the word:
Chicago
cat
chair
city
none of the above
no idea
Identify the pair of words that begins with the same sound:
joke - goat
chef - shoe
quiet - giant
chip - chemist
no idea
The next 2 items involve saying a word and then reversing the order of the sounds. For example, the word "back" would be "cab."
the word "back" would be "cab."
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be:
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be: easy
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be: easy sea
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be: easy sea size
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be: easy sea size sigh
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be: easy sea size sigh
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be: easy sea size sigh no idea
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be: easy sea size sigh no idea If you say the word, and then reverse the order of the sounds, enough would be:
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be: easy sea size sigh no idea If you say the word, and then reverse the order of the sounds, enough would be: fun
the word "back" would be "cab." If you say the word, and then reverse the order of the sounds, ice would be: easy sea size sigh no idea If you say the word, and then reverse the order of the sounds, enough would be: fun phone

bamb		
wrim		
shipe		
knam		
phop		
no idea		
	eft, determine the number of syllables and the number	
	Number of syllables	Number of morphemes
disassemble		
heaven		
observer		
spinster		
pedestal		
·		
frogs		
frogs	nas an example of a final stable syllable	e?
frogs	nas an example of a final stable syllable	e?
frogs teacher Which of the following words h	nas an example of a final stable syllable	e?
frogs teacher Which of the following words h	nas an example of a final stable syllable	e?
frogs teacher Which of the following words h wave bacon	nas an example of a final stable syllable	e?
frogs teacher Which of the following words h wave bacon paddle	nas an example of a final stable syllable	e?

Which of the following words has two closed syllables?
wave
bacon
paddle
napkin
none of the above
no idea
Which of the following words contains an open syllable?
wave
bacon
paddle
napkin
none of the above
no idea
Phonological awareness is:
the ability to use letter-sound correspondences to decode
the understanding of how spoken language is broken down and manipulated
a teaching method for decoding skills
the same as phonics
no idea
What is the rule that governs the use of 'k' in the initial position for /k/?
'k' is used for /k/ in the initial position before e, i, or y
the use of 'k' for /k/ in the initial position is random and must be memorized
'k' is used for /k/ in the initial position before a, o, u, or any consonant
none of the above
no idea

Phonemic awareness is:
the same as phonological awareness
the understanding of how letters and sounds are put together to form words
the ability to break down and manipulate the individual sounds in spoken language
the ability to use sound-symbol correspondences to read new words
no idea
A morpheme refers to:
a single letter
a single speech sound
a single unit of meaning
a single grapheme
ono idea
What is the rule that governs the use of 'c' in the initial position for /k/?
'c' is used for /k/ in the initial position before e, i, or y
the use of 'c' for /k/ in the initial position is random and must be memorized
'c' is used for /k/ in the initial position before a, o, u, or any consonant
none of the above
no idea
Here are some common reading errors that children make. For each of the following examples, please briefly write what you would say to the child to help them to decode the focus word. Write three prompts for each error in the order in which you would use them, that is, if your first prompt was ineffective what prompt would you use next? The marks above each sentence indicate what the child read using standard running record marking conventions.
✓ ✓ brost
"And where's my breakfast?"

2.

3.

1.	
2.	
3.	
✓ ✓ snea	aky / / / / / / / / /
	legs and baggy trousers, and he was just a metre tall.
1.	
2.	
3.	
/ / /	
I see the hogb	
1.	
2.	
2 .	
3.	
You would ho	
1.	
2.	
3.	
"Would you like	✓ ✓ ✓ ✓ ✓ ✓ ✓ rabbits ✓ ✓ e to go into the bush and look for robins?" Doug asked.
	S to go into the bush and book for robins: Doug asked.
1.	
2.	
3.	
Do you have a	ny questions or comments about this survey?

Thank you for completing this survey. Your views and time are greatly appreciated.

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