Special Education Perspectives, Volume 14, Number 1, pp. 37–54, 2005

Refereed Papers

Winner: 2003 Lee Mills Teacher Education Award

THE INTRICATE NATURE OF PHONOLOGICAL AWARENESS INSTRUCTION

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ABSTRACT

The purpose of this paper is to discuss the role of phonological awareness as an essential element in helping newly enrolled Kindergarten children achieve early success in learning to read. An outline of the essential elements of a balanced early reading program shows that careful attention to the role of phonological awareness is required. Examples were used from a project conducted in three Kindergarten classes, where attributes of three programs were examined in regards to the emphasis placed on phonological awareness. The programs separately stressed: (a) no explicit teaching of phonological awareness elements, (b) blending, and (c) blending and segmenting. Results showed that the amount of progress made by children in each of the three classes reflected the level of phonological awareness training available in each classroom. Implications are provided for teachers to consider when designing early reading programs that cater for a range of student needs.

INTRODUCTION

One of the most sobering findings from research in reading is that children who get off to a poor start rarely catch up. These students fall further behind and the effects are cumulative over time. Students who read poorly in Year 1, for example, will

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often still be experiencing difficulty in Year 3, and difficulties remain throughout their schooling unless intensive intervention takes place (Chall & Jacobson, 2003; Grossen, 1997; Jenkins, Vadasy, Firebaugh, & Profilet, 2000; Juel, 1988; Musti-Rao & Cartledge, 2004; Ritchey & Speece, 2004; Stanovich, 1986; Torgesen, 2004; Vadasy, Jenkins, & Pool, 2000).

Provision of effective reading programs is important to ensure that all students learn to read. Kameenui (1999) claims that five per cent of beginning Kindergarten students in the United States of America start school with some understandings and knowledge needed for reading, and become skilled and proficient readers with minimal instruction. The remaining 95 per cent of students require access to a reading program that clearly articulates interaction of skills in decoding and comprehension for students to become skilled readers.

Classroom teachers can bring about significant progress in students' reading through careful planning and explicit instruction in early reading skills and strategies (Beringer et al., 2002; Bursuck et al., 2004; Carnine, Silbert, & Kameenui, 1997; Juel & Minden-Cupp, 2000; Pressley et al., 2001; Snow, Burns, & Griffin, 1998). Carefully planned instruction in letter-sound correspondences and phonological awareness skills, practice in recognising and using the major spelling patterns of the language, experiences in broader aspects of language use, and continuous practice in decoding connected text, brings about automaticity of the code. Students who receive this carefully planned instruction benefit through achieving early reading skills, and are likely to make strong growth in their reading and associated skills that permit life-long learning through obtaining meaning from text (Carnine et al., 1997; Gersten, Fuchs, Williams, & Baker, 2001; Jitendra, Edwards, Sacks, & Jacobson, 2004; Juel & Minden-Cupp, 2000; Shankweiler, Lundquist, Dreyer, & Dickinson, 1996; Swanson, Hoskyn, & Lee, 1999).

Achieving a balance between word recognition, decoding and linguistic variables is a challenging task for teachers (Pressley, Roehrig, Bogner, Raphael, & Dolezal, 2002). In the past, discussion has been around whether a bottom-up or a top-down approach provides students with the best start to reading. Kameenui (1993) challenged educators to move away from feuding about which approach to take when providing quality research-based reading programs. Snow et al. (1998) analysed a wide research base and reported that quality reading programs involve the interaction of a number of elements (e.g., alphabetic knowledge, orthographic understanding, phonological awareness, fluent decoding, comprehension of text, vocabulary and language knowledge).

The idea of balance within a reading program applies not only to what is taught (e.g., skills and strategies), but also to how it is taught (Bohn, Roehrig, & Pressley, 2004; Burns, Griffin, & Snow, 1999; Westwood, 2001). Swanson (2005) outlined instructional features of effective interventions for students experiencing difficulties learning basic skills. Two models of instruction posed by Swanson included a direct teaching model and strategy instruction model. Together these two models of instruction provided strong benefits for students experiencing difficulties learning. The combined instructional model was shown to be superior to the two instructional models individually. The combined instructional model highlighted the importance of providing instruction that segmented and sequenced tasks into component parts, delivered direct and explicit instruction in word recognition skills, gave regular feedback to students about how they were progressing, used step by step prompts, and faded cues and prompts.

The combination of well-designed reading programs, as well as the use of effective instructional strategies provides a strong basis for an early reading program. The purpose of this paper is to discuss the importance of including these two features in an early reading program. In particular, this paper will focus on the importance of teaching a range of phonological awareness skills explicitly, to ensure sound reading development with newly enrolled Kindergarten students. It will also promote the research-based finding of including a rich program of language development, vocabulary development, and access to challenging and stimulating literature (Adams, 1990; Pressley et al., 2002; Snow et al., 1998).

Early reading programs: Learning to read

In most schools, the question of "what is taught" is dictated by the syllabus. The syllabus provides a broad overview of the content and sequence through which students will pass to become skilled readers. As students progress from one stage of the syllabus to another, more and more features of learning to read are encountered. The specific sequence and organisation of skills, knowledge and understanding in reading is the responsibility of individual teachers. A comprehensive and effective early reading program requires deliberate and thoughtful selection of reading components that, when fitted together, provides students with the power to access the benefits of reading proficiently.

Analysis and interpretation of the syllabus is dependent on the knowledge that teachers bring to the planning of a reading program. For students who experience difficulty learning to read, or who are at-risk of not developing proficient reading skills in a

timely manner, the knowledge brought to the planning stage is critical. This knowledge, when integrated with the outcomes articulated in the syllabus, highlights a number of key elements that students need if they are to become skilled readers.

Burns et al. (1999) discussed a number of key elements that should be part of an early reading program to assist young students to become skilled readers. In particular, students need to become proficient in:

- language and literacy foundations: oral language skills, phonological awareness, print awareness, letter knowledge and motivation to read and literature appreciation.
- identifying printed words: use of spelling connections, sight word repertoire.
- reading fluently: identify words quickly and effortlessly.
- obtaining meaning: through use of previous knowledge, vocabulary and comprehension strategies. (p. 7)

Quality reading programs integrate components of these concepts, skills and strategies to assist students learn to read. Syllabus documents focus on differing components of these elements, but may not provide direct insight into how they link and connect. Table 1 shows an overview of how these components can come together to form a research-based early reading program. These components, taken from work completed at the Texas Education Agency (TEA) (2002), are shown in the left-hand column of Table 1.

In the right hand column of Table 1 is a list of instructional activities that could be implemented to promote proficiency in the components outlined by Burns et al. (1999). The components and activities are often used in Kindergarten classrooms, and promote active participation by all students. The balance between the program components is important to consider on an ongoing basis.

Balance in reading programs is often discussed in terms of taking elements from "bottom-up" and "top-down" approaches. Center and Freeman (1997) have written about an interactions approach that recognises the need for systematic and explicit instruction of phonological processing, alphabetic awareness (bottom-up) and semantic and systematic skills (top-down) that are taught simultaneously and complement each other. Pressley et al. (2002) addressed this dichotomy stating:

> ...balanced instruction requires knowledge of how to carry out effective skills instruction as well as high awareness of how to teach holistic reading and writing. Balanced classrooms reveal both forms of instruction, teaching that is both complicated and coherent, as well as tailored to the needs of the individual students. (p. 2)

Table 1. Overview of components for a research-based early reading program

Critical components of research-based beginning reading programs*	**Intentional manipulation of curriculum content through activities arranged by the teacher**
1. Opportunities to expand use and appreciation for oral language.	• Discussions about Big Book topics. • Directions for activities and written work. • Explanations of meaning of unknown words.
2. Opportunities to expand use and appreciation of printed language.	• Visual flashcards of word and illustration of the item the picture represents. • Conventions of reading (e.g., holding book right way up, help to turn pages). • Teacher pointing under the words (Big Book) as read in story.
3. Opportunities to hear stories read everyday.	• Model reading to the student daily. • Think aloud for decoding and vocabulary. • Conventions of print modelled and explained.
4. Opportunities to understand and manipulate sounds in spoken language (phonological awareness activities).	• Alliteration. • Blending letter-sounds. • Telescoping words. • Rhyming. • Onset and rime. • Phoneme counting.
5. Opportunities to learn the relationship between the sounds of spoken language and the letters to text.	• Sequences, explicit and systematic teaching of letter-sounds (a, m, t, s, i, d). • Read through sight words list.
6. Opportunities to relate their letter-sound knowledge to writing to spelling and writing.	• Practise in tracing and writing letters. • Reinforce letter-sound knowledge during formal writing experiences.
7. Opportunities to read and listen to a wide assortment of books and other texts.	• Listened to a range of stories being read to them. • Read.
8. Opportunities to develop new vocabulary through reading and direct vocabulary instruction.	• Students heard a range of new words while listening to a different story read each day. • Word meanings explicitly taught as part of story reading and incidental teaching sessions.
9. Opportunities to practise accurate and fluent reading in decodable phrases and stories.	• Decode sight words. • Decode blended words created by learned letter-sounds. • Read simple sentences made up from words created by learned letter-sounds and sight words (e.g., I sat on the mat).

* Source: Texas Education Agency (2002)

Balancing elements from within each component in Table 1 is also an important consideration of the quality reading program. Phonological awareness, for example, is an important skill for students to acquire during the early stages of learning to read (O'Conner, Jenkins, & Slocum, 1995). Phonological awareness includes a number of skills that must to be considered in terms of difficulty, and how the skills interact with each other. The following discussion will focus on the balance of components required for a reading program of instruction that best assists students to master the complex skills and knowledge for reading.

Phonological awareness

Phonological awareness is "knowing that oral language has structure that is separate from meaning; attending to the sub-lexical structure of oral language ..." (Burns et al., 1999, p.150). This definition utilises the notion of students recognising the sounds or phonemes within a word. Further, it recognises the importance of students being able to manipulate the sounds within a word. This active manipulation of sounds is evidence of a working knowledge of phonological awareness beyond the rudimentary level (Ehri & Soffer, 1999).

Within phonological awareness there are a number of differing features that can be ordered from easier to more difficult. O'Connor, Notari-Syverson, and Vadasy (1998a) in their book *Ladders to literacy* outlined a program of phonological awareness based on empirical studies conducted with students from disadvantaged backgrounds in the United States of America. The program outlines a number of phonological awareness concepts, including:

- Rhyming: use of common rhymes, recognition of rhyming words, stating rhyming words.
- Alliteration: articulating words or pseudo-words that start with the same sound.
- Blending: combining sounds to make a word from onset-rime format, two syllables, three and four phonemes.
- Segmenting: breaking words into segments, including first sound only, onset-rime, individual phonemes.

These four concepts of phonological awareness are listed from easy to more difficult. Within each of these concepts, there are also progressively difficult skills and knowledge. Further, there are more areas of phonological awareness that are more complex that can be added to this list provided by O'Connor et al. (1998a). These skills can include deleting and adding sounds to words, and sound manipulation to change words. The ability to focus and manipulate these small units of oral language is a special case of phonological awareness (Ehri et al., 2001), and this will be the focus of the instruction conducted in this paper.

Organising phonological skills in a beginning reading program requires careful consideration. Omitting one skill to focus on another, or altering the mix in favour of one skill over another, can have noticeable influence on how students learn to read. The work of Torgesen, Morgen, and Davis (1992) and Stanovich (1986) highlights the importance of ensuring that blending and segmenting are included as part of phonological awareness instruction. Teaching both types of tasks promotes a more complete, decontextualised concept of the phonological structure of words than teaching only one task. The failure to do so can result in students who do not have a strong understanding of the phonological processing tasks, and may have trouble with reading as the text become more complex (Spear-Swerling & Sternberg, 1994).

The following project will highlight the effect of differing the level of phonological awareness skills on word reading. The programs developed adhere to the need for early reading programs to be balanced (Pressley et al., 2002). The programs differ, however, in the mix of phonological awareness skills they address. Some students were provided the opportunity to learn complex synthesis and analysis skills of phonological awareness, while other students were provided with activities that leave this learning to chance.

Three classes, three programs

A Kindergarten class from three schools, each within close proximity to the Sydney metropolitan area, took part in a study to examine the effects of differential implementation of phonological awareness skills in reading programs. Each school received additional funding due to socio-economic disadvantage of students attending the school. Each class was comprised of students from a range of cultural backgrounds.

During the first term of school, 49 students across the three classes received a total of 24 lessons that were about 30 to 40 minutes in length. Lessons were developed to address syllabus outcomes in the New South Wales (NSW) *English K-6 Syllabus*. The lessons designed by the first author followed a similar format, with lessons in each class comprising the following sections:

(a) Print awareness: orientation to a text through models using a big book.
(b) Oral language: engaging students in discussion of the big book, vocabulary, and everyday experiences.
(c) Letter-sound knowledge: introduction of letter-sound correspondences following the order a, m, t, s, i, f, and d, as recommended by Carnine et al. (1997), and identifying the same letter-sound at the beginning words (e.g., apple, ant, alligator).
(d) Sight word recognition: introduction of five sight words commonly used in simple sentences.
(e) Practice sheet: the students completed

a worksheet that required students to provide the beginning sound of the word for a given article and identify the symbol for the learned letter-sound.

While one class (LS) received a program containing these elements across the 24 lessons, the other two classes received an additional component of phonological awareness instruction. The BL class received the following element:

(f) Blending: students listened to a sequence of sounds for a commonly sounding word (e.g., /mmm/ /aaa/ /t/) modelled by the teacher, and repeated the word at speaking pace.

The PA class also received the blending instruction and a further element:

(g) Segmenting: breaking a common sounding word into its component sounds.

Prior to commencing the program, and after the 24 lessons, a number of measures were administered to each student. These measures used were selected on the basis that they permitted data to be collected in a cost and time efficient manner. These measures linked into the skills being taught, and had been identified in the literature as dynamic indicators of progress in learning to read (Kaminski & Good, 1998).

Three measures from the *Beginning Reading Assessment* or BRA (Evans, 1999) were used in this study. Based on the work of Kaminski and Good (1998), these measures examined elements of phonological awareness using principles of curriculum-based measurement (Good, Simmons, & Kameenui, 2001; Howell & Nolet, 2000).

Blending fluency. Students were asked to listen to the sounds given to them by the researcher. On hearing the sounds twice, they were asked to say the word the sounds made (e.g., mmm...aaaa...t is the word "mat"). Students were given three items to practice on, then tested on progressively more difficult regular sounding words. If they could not respond within five seconds, they were asked to try the next example. Testing stopped after one minute, and the number of correct responses tallied.

Segmenting fluency. Students were given a word and asked to say the sounds they heard in the word. Following three practice items, the students were then given the test items. If students could not respond within five seconds they were asked to try the next item. Scoring was worked out on a partial credit model; that is, students were given credit for any response that contained all or some of the sounds within a word. A word like "mat" can be given three sounds, but students who gave an answer of "maaaa" – "t" were given two credits in comparison to a student who would receive three credits for "mmm" – "aaa" – "t".

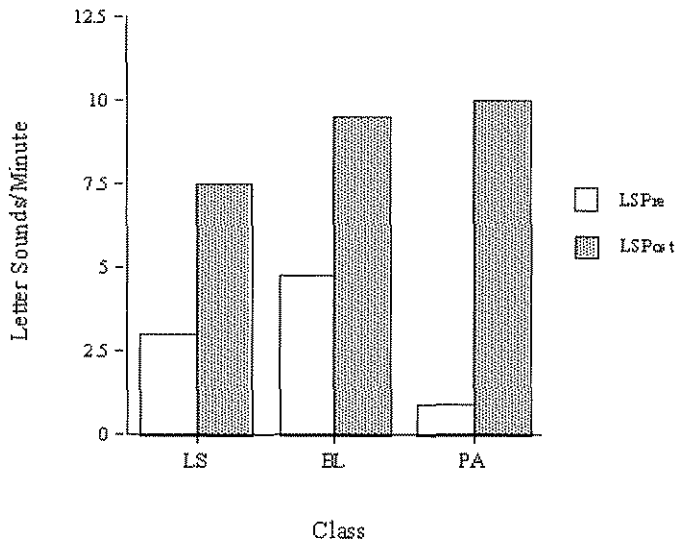

Figure 1. Number of letter-sound correspondences correct per minute for each class before and after the project (n=49).

Letter-sound fluency. Students were given a sheet with eight rows of eight letters in lower case. They were asked to say the sound of each of the letters as quickly and as well as they could. If they could not provide a sound after three seconds they were asked to try the next letter. After one minute, students were asked to stop.

The other two measures examined word reading skills of students. The word reading tasks included a list of words that contained common sound patterns, and a list of nonsense words. The lists were provided to the students on an A4 sheet of paper in a column. The lists graduated from easy to more difficult (e.g., VC, CVC, CCVC), and were word-processed using the New South Wales foundation font.

Three sets of results

The three programs comprised of the essential elements of effective early reading programs (i.e., phonological awareness, print awareness, oral language and vocabulary instruction). The one element that differed amongst the programs was the complexity and extent to which phonological awareness was covered. An examination of data collected on early reading skills and word reading showed that there was a differential level of outcomes across the classes.

At the completion of their respective program, each class showed evidence of improvement in each of the three early reading skills. Figure 1 shows the increase in letter-sound knowledge from the pre-

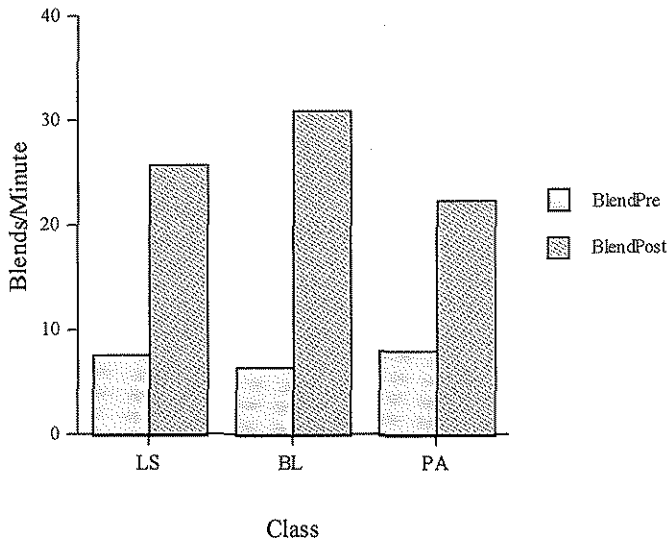

Figure 2. Number of words blended correct per minute for each class before and after the project (n=49).

test to the post-test. This result showed that students from each the programs benefited from instruction in letter-sound identification.

A visual analysis of the data for blending and segmenting provided evidence that all students benefited from their instructional program. Figure 2 shows that students in each class improved in the number of correct responses to tasks that required them to blend sounds to make a word (e.g., sh.....o.....p is "shop"). This improvement across the BL and PA classes was expected as they received the instruction in this element of phonological awareness. The LS class, however, appeared to improve as well as the other classes in the number of correct responses.

Results for segmenting words into component elements (e.g., phonemes, syllables) are shown in Figure 3. The PA class improved over the term, while the LS made a smaller level of progress on this measure. The improvement of the BL class is tempered by the knowledge that most growth could be attributed to two students, while other students made minimal progress. The relatively small amount of progress made by all students may reflect the difficulty in acquiring this skill by early readers. Further instruction in this skill will be required if they are to achieve levels reported by Good et al. (2001) as optimal (i.e., 30 segments per minute).

While the three classes made similar levels of improvement on the three measures

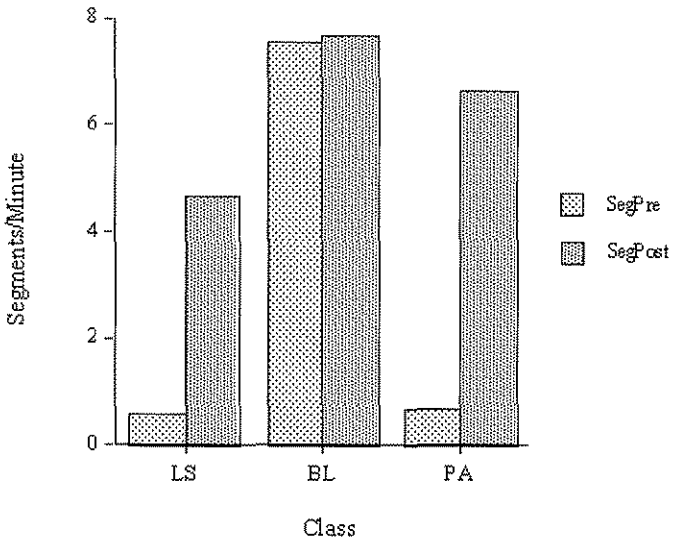

Figure 3. Number of segments correct per minute for each class before and after the project (n=49).

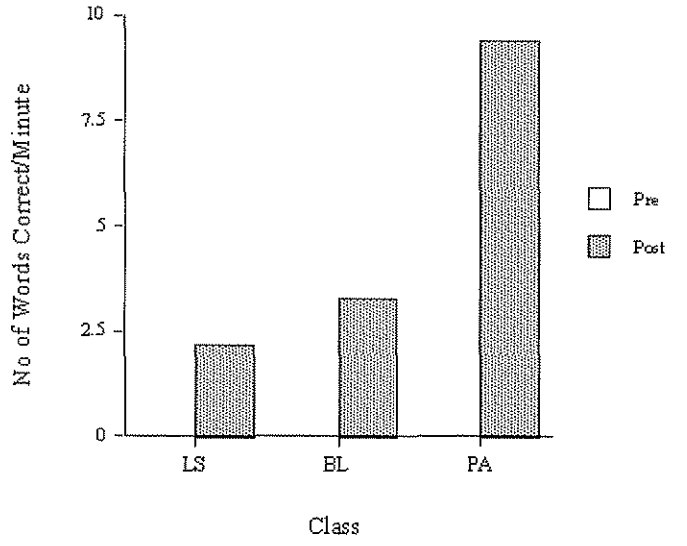

Figure 4. Number of regular words read correctly per minute for each class before and after the project (n=49).

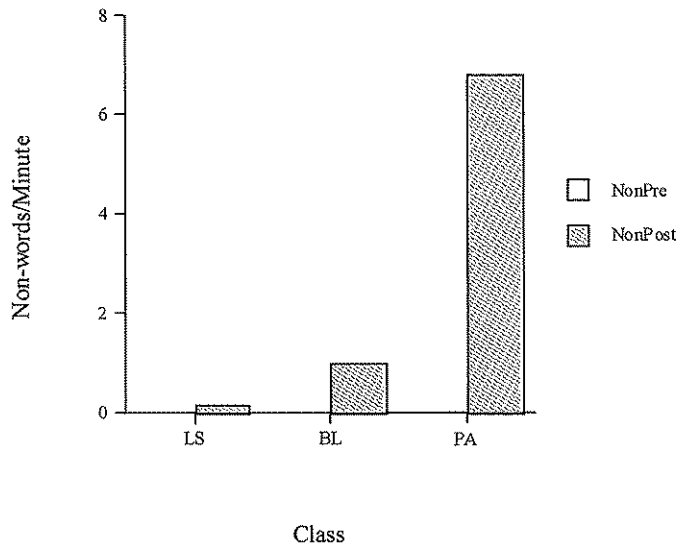

Figure 5. Number of nonsense words read correct per minute for each class before and after the project (n=49).

of early reading, the results for decoding regular and nonsense words differentiated classes to a greater extent. The results in Figure 4, for example, show that the class that received instruction in the broader range of phonological skills made the greatest improvement. The mean number of words read correctly by the PA class was double that of the other two classes. This result did not provide conclusive evidence that students had developed a greater level of decoding words, as words may have been known by sight. Therefore, a set of nonsense words was presented to students to examine the level of decoding.

The results for decoding nonsense words provides evidence that students in the PA group had advanced levels of decoding knowledge over students in the other two groups. Figure 5 shows that the PA class who received a broader range of phonological instruction scored well beyond the other two classes on this measure. This outcome shows that all students in Kindergarten classes will benefit from an early reading program that integrates a full range of phonological skills (Torgesen, 2004). Future research could usefully examine the impact of adding further elements of instruction in phonological awareness to the intervention.

Conclusion

The results of this study provide ongoing support for early reading programs to include a fine balance of phonological awareness instruction (Kameenui, Carnine, Dixon, Simmons, & Coyne, 2002). It

provides strong support that blending and segmenting instruction facilitates and accelerates access to reading words and nonsense words. The regular and nonsense word results also indicate the power of integrating blending and segmenting for greater decoding success. The difference between classes was considered an exciting result, reinforcing the findings of recent research studies and syntheses of beginning reading research (Adams, 1990; Chard, 1999; O'Shaughnessy & Swanson, 2000; National Reading Panel, 2000; Snow et al., 1998).

The results reported in this paper are descriptive in nature. A systematic analysis of data using inferential statistical methods would provide greater insight into the outcomes from this study. The results of these analyses, while not reported in this study, do support the general findings reported in this study (Moore, 2004). Further research would also address other limitations of this study, including the need for a larger number of students, a longer period of time to conduct the study, and the involvement of a broader aspect of literacy (e.g., spelling, writing, oral language).

This study examined phonological awareness instruction as part of whole class instruction. Every attempt was made to accommodate all students during group instruction and individual work. A further study may wish to examine in close detail the impact of instruction that focuses on individualising phonological awareness. For example, examining how teachers accommodate the needs of students with differing levels of phonological awareness knowledge, as outlined by O'Connor et al. (1998a). How do teachers accommodate learners who recognise differing units of sound, including syllables, onset rime and phonemes?

In this study it was clear that young students provided with an early reading program that integrates a range of phonological awareness skills, are well placed to benefit in terms of accessing reading material. The experience of accessing reading materials through rapid and accurate recognition of words has distinct advantages. Early access to decoding print provides students with the opportunity to engage in connected text during the early stages of schooling. This access to print provides these students with the opportunity to access the hidden treasures of the written word. These students, through a sustained effective reading program, engaged in a range of texts resulting in more expansive and rich vocabularies (Jitendra et al., 2004; Snow et al., 1998; Stahl, 2003), broader reading comprehension skills (Gersten et al., 2001) and the "ability to think critically and broadly" (Chall & Jacobson, 2003).

In contrast, those students who take the path least travelled (Spear-Swerling & Sternberg, 1994) become literacy poor (Stanovich, 1986). Through providing

Kindergarten students with an early reading program that addresses all components of the phonological awareness, the chances of them lagging behind from Year 1 and beyond are significantly reduced (Chall & Jacobson, 2003; Grossen, 1997; Juel, 1988; O'Shaughnessy & Swanson, 2000; Parrila, Kirby, & McQuarrie, 2004).

The elements addressed within the reading programs applied in this classroom-based study were deliberately selected on recommendations made from the literature (Juel, 1988; O'Conner et al., 1995; O'Connor, Notari-Syverson, & Vadasy, 1998b). The specific sequence and integration of skills, knowledge and understanding was planned and explicitly taught to provide maximum opportunity for every student within the classrooms to gain full access and benefit in learning to read. This study showed, however, that the exclusion of even the smallest elements of phonological awareness could lead to reduced levels of decoding.

This classroom study has highlighted the need for careful planning and explicit instruction in a full range of phonological skills, whilst taking the needs of *all* students into consideration. In achieving this outcome, the idea of balance needs to be carefully considered. It requires teachers to be fully aware of how all the elements come together, and how these elements are integrated or woven together to promote skilled readers for the future.

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