Literacy Courses and the Prevention of Reading Difficulties

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Abstract

Preventing reading difficulties in the early grades has been a topic of interest for more than a decade. Research has clearly delineated the components needed for early literacy programs to be effective in teaching nearly all children to learn to read. Teacher educators have a responsibility to ensure that candidates gain extensive knowledge about this research so that they learn how to prevent reading difficulties. This is a daunting challenge.

How can the prevention of reading problems be effective addressed in literacy education courses? What portion of the curriculum should be focused on the prevention of literacy problems? This article examines teacher education literacy development courses and the topic of preventing reading difficulties.

Introduction

Children who have a strong foundation in learning to read typically move along a trajectory leading to proficiency. However, the opposite also holds true: children with weak emergent reading experiences proceed slowly and haltingly, and generally do not become skilled readers without intensive intervention. These differences tend to be stable over time and are difficult to alter (McCardle, Scarborough, and Catts 2001, 231).

The need for children to have a robust start in reading is well established in the literature on reading acquisition (Burke, Hagan-Burke, Kwok, and Parker 2009; McCardle, Scarborough, and Catts 2001; Menzies, Mahdavi, and Lewis 2008). This finding is important as one-third of children in the United States fail to achieve a basic reading level by fourth grade. The percentages are even higher for minority students, with 50% of Hispanic, 51% of American Indian, and 54% of Black students reading below a basic level (National Assessment of Educational Progress, 2007).

Recognizing the value of a strong start in reading, the National Research Council commissioned the text *Preventing Reading Difficulties in Young Children*, edited by Snow, Burns, and Griffin (1998), over a decade ago. This landmark publication reviewed all of the scientific research available at the time on the topic of emergent reading and its influence on subsequent reading ability. This text, along with more current research (Connor, Morrison, and Slominski 2006; Dickinson and McCabe 2001; Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, and Poe 2003; Menzies, Mahdavi, and Lewis 2008; Nation and Snowling 2004; NICHD 2005), highlights the importance of providing rich opportunities for learning oral language and for practicing literacy-related skills during the preschool years. Teachers who know how to design learning environments that foster language and literacy development can

prevent reading difficulties by helping students develop an awareness of print and an understanding of its purpose, and by advancing their comprehension and appreciation of stories, knowledge about letters and sounds, and ability to read and write common words.

Unfortunately, classroom teachers are not always aware of the research for averting reading problems, nor do they always have in-depth content knowledge for teaching reading (Brady et al. 2009; Moats and Foorman 2003; Spear-Swerling 2007; Spear-Swerling, Brucker, and Alfano 2005). According to Moats (1999, 7), "a chasm exists between classroom instructional practices and the research knowledge base on literacy development." When teachers lack this content knowledge, there may be serious and lasting consequences for children, most particularly for those who do not have strong literacy learning experiences in their homes. These children have to rely on school for early reading experiences. Without knowledgeable teachers who can provide the essential emergent reading experiences, these children are at considerable risk for reading failure.

Teacher Preparation Programs

Teacher preparation programs have been criticized for not providing teacher candidates with a strong knowledge base in reading instruction (Smartt and Reschly 2007; Lyon, 2002; Mather, Bos, and Babur 2001; Moats 1999). Research has confirmed this concern. McCombes-Tolis and Feinn (2008, 236) compared elementary and special education teachers' knowledge for reading instruction with state standards. They found that nearly a third of the teachers did not know or were unsure about the stages of children's reading development, the common characteristics of children who experience reading difficulties, and the type of interventions such children require. The researchers concluded that "teacher preparation programs are not preparing candidates to achieve mastery of essential teacher competencies."

Risko et al. (2008) conducted a review of reading teacher education by analyzing empirical research published from 1990 to 2006. Nine studies met the criteria to be included in their review of topical knowledge for reading instruction. In seven of the nine studies, the researchers reported that teacher candidates were inadequately prepared in terms of their reading education knowledge base.

Walsh, Glaser, and Wilcox (2006) analyzed reading course syllabi for 72 teacher education programs in the United States and found that most of these syllabi failed to include

topics identified in research as essential for beginning reading. Furthermore, some of the syllabi detailed assignments that encouraged teacher candidates to develop a personal theory of reading instruction rather than to learn the research base for teaching reading and preventing reading difficulties. Although the methodology of this study has been criticized (Manzo 2006, 14), the overall conclusion--that most universities are not adequately preparing elementary teachers to teach reading--was not disputed. Timothy Shanahan, a member of the National Reading Panel, noted, "Even if I changed the methodology of the study, I'd still come away with the conclusion that we aren't doing a good enough job of preparing reading teachers."

Smartt and Reschly (2007, 4), authors of a research and policy brief about preparing highly qualified teachers of reading, critique teacher education programs for not providing the knowledge needed for research-based reading instruction. They argue that teachers are not up to the task of teaching reading because "the postsecondary programs in which they are being prepared to teach do not provide them with either an adequate understanding of the scientifically based research on reading or sufficient training to be able to use it in the classroom."

If many teacher preparation programs are not providing their candidates with the knowledge base needed for teaching reading, it follows that neither are the candidates learning how to prevent reading problems. Given that children's literacy learning is at stake, it is imperative that teacher education programs develop a curriculum for literacy courses that helps candidates gain the knowledge they need to be successful in teaching reading and for preventing reading difficulties. Fortunately, when teachers receive research-based training, there are positive outcomes for the students they teach (Fitzharris, Jones, and Crawford 2008; McCutchen and Berninger 1999).

For graduates of teacher education programs to start their teaching careers knowing how to prevent reading problems and how to effectively teach their students to read, literacy courses must be constructed with these goals at the forefront. This article will present an effective approach to achieving these goals. As a teacher educator who regularly teaches general and special education literacy courses, I recommend that literacy courses be constructed on two major principles. First, candidates need a thorough understanding of the research for preventing literacy difficulties. Second, candidates should use this information in concert with strong pedagogical skills for effective literacy instruction. While some literacy courses may currently be aligned with these principles, it appears that others are not.

Early childhood literacy courses need to be designed around the knowledge and pedagogy known to prevent reading problems. These topics should be explored in depth by teacher candidates in early childhood literacy courses. Elementary education literacy courses also need to begin with a focus on the research and pedagogy of preventing reading difficulties, with approximately a third of the course content devoted to this topic, before expanding to include information on later-developing literacy skills, guided reading, word study, content area reading, interventions for older struggling readers, and other topics pertinent to elementary students.

The Nature of Learning for Teacher Candidates

Before describing the knowledge teacher candidates need to prevent reading difficulties and the experiences that will help them develop effective reading pedagogy, an outline of the nature of learning for teacher candidates will be presented. Like all learners, teacher candidates have a trajectory of development. The knowledge and experiences that preservice teachers need are different from those needed by novice teachers; similarly, master teachers possess different types of knowledge than novice teachers. Snow, Griffin, and Burns (2005) have outlined the types of knowledge teachers acquire at various stages of development. Their framework is useful for connecting the type of knowledge needed at the preservice level with the specific content and skills to be learned in literacy courses.

According to Snow, Griffin, and Burns (2005), there are five types of knowledge, roughly correlated with a trajectory of professional growth that eventually leads to mastery in teaching. The five types of knowledge are: declarative knowledge; situated can-do procedural knowledge (hereafter referred to as situated procedural knowledge); stable procedural knowledge; expert adaptive knowledge; and reflective, organized, analyzed knowledge. The first two types of knowledge will be defined as they are the ones that preservice teachers must demonstrate. *Declarative knowledge* may be characterized as the knowledge from texts, academic readings, and university classrooms. Teacher educators are generally responsible for deciding what declarative knowledge will be presented and the format for that learning. *Situated procedural knowledge* represents the first step in learning how to apply declarative knowledge when teaching children. Opportunities to observe, interact and teach lessons allow preservice educators to developed situated procedural knowledge. These experiences need to be highly

scaffolded and well supported by a mentor so the candidate can experience success (Snow, Griffin, and Burns 2005, 7-8).

This article will focus on the declarative and situated procedural knowledge of teacher candidates--particularly those who plan to teach preschool or kindergarten--in the context of literacy courses. Teacher candidates are continuously gaining new knowledge, which means that declarative knowledge is the focus of their learning and growth. As they try out new teaching skills in practicum and student teaching settings, they gain situated procedural knowledge.

Declarative and Situated Procedural Knowledge for Preventing Reading Difficulties

Competency for preventing reading difficulties begins with the declarative and situated procedural knowledge learned in literacy courses, but must be an ongoing focus for teachers at all stages of their career. Snow, Griffin, and Burns (2005, 9) maintain that "the quantity and complexity of the declarative and practical knowledge teachers need to be successful teachers of reading is so great that it simply cannot be mastered adequately in the brief time available during a pre-service program."

Just as children need a robust start in reading, so too do teacher candidates need a solid foundation in learning about the research and pedagogy for preventing reading problems. Many teacher education programs require candidates to take two, three, or even more courses in literacy development and instruction. At a minimum, at least one of those courses must address the prevention of reading difficulties. The curriculum of such a course needs to be designed around, but not limited to, the following concepts:

- Oral language development as the foundation for literacy development
    - Rich oral language stimulation
    - Vocabulary development
    - Reading aloud
    - Phonological and phonemic awareness
- Alphabetic principle/phonics instruction
- Print knowledge/emergent writing

A comprehensive approach to the prevention of reading difficulties will also include a focus on guided reading, word study, literacy centers, assessment driven instruction, Response to Intervention, progress monitoring, an understanding of socio-cultural context, and family-teacher

partnerships; however, due to space constraints these aspects of the curriculum will not be addressed in this article. Additionally, no attempt will be made to describe the curriculum of the preschool or kindergarten classroom. Instead, this piece will provide a concise description of the key concepts in the bulleted list above and a brief discussion of how candidates can gain declarative and situated procedural knowledge in these areas. Literacy education instructors who make use of this outline will need to elaborate upon each aspect of the curriculum in their teaching.

Both scientifically-based research and evidence-based practices will be used in the description of key concepts and the discussion of how candidates can gain declarative and situated procedural knowledge for preventing reading difficulties. Scientifically-based reading research, the more narrowly defined of the two, employs systematic, empirical methods for data collection, rigorous data analysis to justify conclusions, and measures that are valid across evaluators (Barclay 2006, 66). Evidence-based practices refer to specific programs or instructional practices that have met with success when implemented. There is, therefore, "reliable, trustworthy, and valid evidence to suggest that when the program is used with a particular group of children, the children can be expected to make adequate gains in reading achievement" (International Reading Association 2002, 2). Declarative and situated procedural knowledge can be found in the literature for both scientifically-based research and evidence-based practices.

Declarative and Situated Procedural Knowledge in Oral Language Development
Literacy learning does not begin abruptly at age five or six; rather, it is an ongoing process that begins even earlier in life as children are learning language. Strickland (2004, 86) notes that family members and educators of young children need to know that "oral language and literacy develop together. What children learn from listening and talking contributes to their ability to read and write, and vice versa." While there are considerable differences between learning to read and learning to speak (Wren 2002), reading is a skill that is overlaid on oral language.

Verbal abilities at two to four years of age are strongly correlated with eventual reading achievement (McCardle, Scarborough, and Catts 2001, 231). Thus, stimulating language growth is important for preventing literacy difficulties in young children (Connor, Morrison, and Slominski 2006; Dickinson and Caswell 2007; Dickinson and McCabe 2001; Dickinson,

McCabe, Anastasopoulos, Peisner-Feinberg, and Poe 2003; Nation and Snowling 2004; NICHD 2005). To learn how to stimulate such growth, teacher candidates need declarative knowledge about the structure of the English language, including semantics (meanings of words), syntax (word order in sentences), morphology (the smallest units of meaning in language), phonology (understanding the sound structure of language), and pragmatics (the social uses of language) (Roskos, Tabors, and Lenhart 2009, 1). They also need to learn how to help students develop these areas of language.

Semantics, syntax, and pragmatics may be thought of as "wider language skills" that assist with comprehension and the ability to make inferences when reading (Snowling and Hulme 2006, 64). Morphology and phonology are skills related to the alphabetic system of language that are used for decoding and word recognition. Early reading success relies on an interweaving of language comprehension and word recognition skills (Scarborough 2001).

Developing teacher candidates' situated procedural knowledge in the area of oral language involves discussion of how teachers can stimulate wider language skills in preschool classrooms. The overarching goal is for candidates to learn how to blend rich oral language stimulation with explicit instruction leading to decoding and word recognition skills, so that ultimately the students they teach will be able to read fluently and effortlessly while constructing meaning.

Declarative and Situated Procedural Knowledge in Rich Oral Language Stimulation

Massey (2004, 227-28) posits that preschool teachers need to engage children in cognitively challenging conversations to foster their language growth. She outlines four levels of abstraction in conversations between teachers and children, based on research by Blank, Rose, and Berlin (1978) and van Kleeck, Gillam, Hamilton, and McGrath (1997). Level I is the most simple, involving the identification and location of objects (i.e., "What is the name of this animal?"). Level II involves describing and recalling (i.e., "What materials did we use to make the card?"). Level III deals with summarizing, defining, comparing and contrasting, and providing judgments (i.e., "What was your favorite part of the story? Why?"). The final level, Level IV, entails predictions, problem solving, and concept explanation (i.e., "There are not enough cookies for everybody to have one. What can we do to solve the problem?"). There are multiple opportunities during the school day for teachers to use all levels of language abstraction.

Massey (2004, 228) suggests that approximately 70% of the discourse in preschool should be within the first two foundational levels, with the remaining 30% at the two higher levels to promote language growth. Input at Levels I and II seems to create a climate of success for preschool children, while input at Levels III and IV appears to offer opportunities for children's growth in abstract language use (van Kleeck et al. 1997, 1268).

Teacher candidates can begin by observing preschool or kindergarten classrooms and record the types of oral language interactions that take place between teachers and children. They can then categorize the language exchanges according to the four levels and consider what the results may mean for the children's language development. Candidates can analyze the language samples for the semantic, syntax, and pragmatic skills of the preschool and kindergarten students in order to better understand their developing language skills. As candidates begin to take on teaching responsibilities and talk more with preschool children, they can take turns recording and categorizing the interactions for each other. This situated procedural knowledge should increase teacher candidates' awareness of classroom discourse and the degree to which they are stimulating higher levels of cognitive engagement and language expression.

Vocabulary Development

After conducting a review of scientific research on the development of early literacy skills in children, the National Early Literacy Panel (2008, 78) concluded that "an instructional focus on vocabulary during the preschool and kindergarten years is likely a necessary but insufficient approach to promoting later literacy success." Yet facility with vocabulary does appear to be related to reading proficiency (Fraser and Conti-Ramsden 2008). Neuman and Dwyer (2009, 384) hypothesize that the connection between strong vocabulary knowledge and competent reading relates to underlying concept development. When children learn a new word, they begin to understand what that word represents and the network of concepts associated with it. The rich interconnections of concepts that children develop in this process support their reading comprehension. Not surprisingly, then, the level of vocabulary knowledge kindergarten students possess is a strong predictor of their second grade reading comprehension (Roth, Speece, and Cooper 2002).

Unfortunately, not all children bring a strong foundation of vocabulary and concept development with them as they begin school. The difference in students' vocabulary knowledge

is largely tied to socioeconomic class (Hart and Risley 1995). In one study, first graders from higher socioeconomic backgrounds knew nearly twice as many words as their peers from the lowest socioeconomic class (White, Graves, and Slater 1990). Of great concern is that this gap in vocabulary tends to remain stable over time, with school having little influence in helping disadvantaged children catch up to the vocabulary levels of their more affluent peers (Biemiller 2001).

Beck, McKeown, and Kucan (2002, 2008) recommend a teacher-centered, explicit, and robust approach to vocabulary instruction with the goal of developing in-depth word knowledge of tier two words. Tier one words are everyday words (e.g., go, see, car, table); tier two words are sophisticated words (e.g., sensible, cooperation, exhausting); and tier three words are domain-specific words (e.g., cartographer, longitude, scurvy). A stock of tier two words furthers students' ability to comprehend texts.

Teaching words involves much more than exposing children to definitions. Beck and McKeown's approach, known as Rich Instruction, "includes explaining word meanings in student-friendly language, providing multiple examples and multiple contexts, and requiring students to process words deeply by identifying and explaining appropriate and inappropriate uses and situations and creating multiple contexts" (2007, 254). This approach was successfully used for teaching tier two words to low-income kindergarten and first grade students.

Declarative and Situated Procedural Knowledge in Vocabulary Development

Teacher candidates need declarative knowledge about the relationship of vocabulary knowledge to reading comprehension and the effects of poverty on vocabulary acquisition. Most of this knowledge will come from reading pertinent articles or other texts (Hart and Risley 2003; Stahl and Nagy 2006) and from class discussions. Situated procedural knowledge will come from the experience of planning and carrying out research-based lessons. The candidates can choose tier two words they believe will be useful to the students whom they teach and design lessons that actively engage students in learning those words.

Candidates may need to be taught to avoid designing vocabulary instruction based on how they were taught in the past. It is not uncommon for candidates to have copied dictionary definitions or been asked to write sentences with new vocabulary words. Both of these approaches are now known to be ineffective for developing vocabulary (McKeown 1991;

Phillips, Foote, and Harper 2008). Candidates can review vocabulary lessons such as those designed by Diamond and Gutlohn (2006) or Baumann, Ware, and Edwards (2007) to learn how to provide student-friendly explanations and active engagement with words. As teacher candidates gain experience in planning, teaching, and reinforcing vocabulary lessons, they will gradually expand their situated procedural knowledge in this area.

Reading Aloud

Children who come from homes in which an adult reads to them on a daily basis are more likely to become good readers (Scarborough, Dobrich, and Hager 1991). It seems logical, then, to conclude that teachers of young children need to read aloud to them on a regular basis. However, research has indicated that the conditions under which reading aloud is conducted vary greatly, yielding an array of positive or negative results. Positive results may include an expanded vocabulary, improved listening comprehension skills, better understanding of story structure, increased motivation to read, and greater syntax development. Negative results may include fewer teacher-child interactions, less student reading time, and decreased reading achievement as compared to students in classrooms with less read-aloud time (Fisher, Flood, Lapp, and Frey 2004; Lane and Wright 2007).

Given the possibility of negative outcomes, it is critical that teachers planning a read-aloud lesson consider book selection and reading method carefully (Fisher et al. 2004; Lane and Wright 2007; McGee and Schickedanz 2007; Santoro, Chard, Howard, and Baker 2008). Not all books are appropriate for a read-aloud lesson. Most teachers select books based on the interests and needs of their students (Fisher et al.), but Lane and Wright note that it is important to consider the quality of the book selected and to incorporate a range of text genres. McGee and Schickedanz express concern that simplistic, predictable big books are often read aloud in place of more sophisticated picture books that have interesting vocabulary and plot lines. They note that predictable books have a place in the early childhood classroom, but should not replace more complicated text for a read-aloud lesson.

Once the book is chosen, teachers need to determine a method for reading aloud. While there may be times it is appropriate for students to listen passively, most often an interactive or dialogic method will be more effective to bring about the desired results of increasing vocabulary, improving comprehension, and developing story schema (McGee and Schickedanz

2007). Lane and Wright (2007, 670) outline three principles of dialogic reading. The first is to encourage students to be actively engaged during the book reading. Second, the parent or teacher should model sophisticated language when talking about the book. Third, the complexity of the conversation should be just above the children's current level of functioning so that it stretches their thinking.

McGee and Schickedanz (2007, 744-46) recommend three readings of a book for dialogic read-aloud lessons. The first reading involves introducing the book, explaining complex words in the text, modeling comments about the book, and asking questions that expand children's analytical thinking and comprehension of the book. Teachers can pause from their reading to think aloud as they clarify story events or make connections to other texts (Santoro et al. 2008, 404). The second reading takes place a day or two after the first and further engages children in analytical talk. More questions are asked with this reading, and children are encouraged to recall parts of the story. During the third reading, children reconstruct the text with support from the teacher. That is, they retell the story with prompting, but they also are encouraged to engage in higher-level thinking, such as speculating on what would have happened if the characters had made different decisions.

Beyond the analysis and interpretation of plot, children can actively respond to the text by dramatizing the story spontaneously, talking back to or critiquing the characters, inserting themselves into the story, and taking over the story (Sipe 2002, 477-78). Children who respond to stories this way make them their own. When taking over a story, children "treat the story as a launching pad for the expression of their own creativity" (478). In this way books offer a means for children to express their own narratives and expand their language skills (Stadler and Ward 2005).

Declarative and Situated Procedural Knowledge in Reading Aloud

Teacher candidates may initially think they do not need to learn about reading aloud to children; this activity appears deceptively simple and would seem not to require analysis and study. Knowing that there can be negative outcomes from ineffective read-aloud lessons is thus an important first step in having candidates consider seriously the conditions for effective book reading. Some of their declarative knowledge on this topic will come from reading articles, but

they also should watch videotapes of effective dialogic read-aloud lessons and analyze them carefully for teacher actions and student engagement.

Situated procedural knowledge for reading aloud to children may involve extensive and thoughtful planning of lessons. Candidates should justify their book selection and explain their method for and purpose in reading to students. As research recommends, candidates should develop read-aloud lessons that involve repeated readings of a book (Santoro et al. 2008, McGee and Schickedanz 2007) and extend children's thinking and language development. As they carry out read-aloud lessons, candidates can observe each other and provide feedback in preparation for the course instructor's observation of a read-aloud lesson. Analysis of the type of talk engendered in dialogic book reading helps candidates to see the value of this approach. Massey's (2004) four levels of language abstraction can be used for this analysis.

Phonological and Phonemic Awareness

Phonological awareness has been called "the first essential element of a prevention-based approach to reading failure and disability" (Burke et al. 2009, 209). Phonological awareness refers to an understanding that language can be examined according to its sound structure. Rather than focusing solely on the meaning of spoken language, children learn that language has a sound structure composed of words, rhymes, syllables, and sounds. Phonemic awareness is a component of phonological awareness related to the knowledge of words at the level of individual sounds. Segmenting, blending, and manipulating individual sounds are aspects of phonemic awareness (Trehearne, Healy, Cantalini-Williams, and Moore 2003, 118).

There is broad support for the inclusion of phonological awareness instruction in preschool and kindergarten programs. When preschool children engage in playful activities aimed at developing early phonological skills, such as identifying or generating rhymes or blending and segmenting the syllables of words, they learn to think about the sound structure of language. This knowledge becomes more refined in kindergarten and early first grade as students progress in phonemic awareness by segmenting and blending individual sounds in spoken words (Schuele and Boudreau 2008).

Phonemic awareness can be challenging for some students because the sounds in spoken language overlap, a phenomenon referred to as the *co-articulation of phonemes*. Lyon (1998, 16) provides an example explaining co-articulation, " . . . when one utters the word *bag*, the ear hears

only one sound, not three (as in /b/-/a/-/g/). This is because when *bag* is spoken, the /a/ and /g/ phonemes are folded into the initial /b/ sound." Since a word is presented to the ears as an overlapping bundle of sound, instead of discrete sounds, some children have difficulty distinguishing individual sounds in spoken words.

Children who have great difficulty segmenting sounds in words by mid-first grade are deficient in phonemic awareness and generally have poor reading achievement (Torgesen and Mathes 1998). Lyon, Shaywitz, and Shaywitz (2003, 7) identify a deficit in the phonological component of language as the cause of dyslexia; in fact, the ability to pull apart phonemes in words is largely missing in individuals with this disability. Any student lagging behind in phonemic awareness is therefore at risk for reading difficulties.

Fortunately, phonological awareness can be assessed in preschool and kindergarten children and once areas of difficulty are identified, they can be targeted for explicit instruction. Research has demonstrated that phonological awareness skills can be taught (Torgesen, Wagner, and Rashotte 1994; Yeh and Connell 2007). Burke et al. declare that with such instruction "the cognitive framework for learning to read can be 'primed,' and the word-reading problems as well as the poor reading trajectories typified by older struggling readers can be prevented" (2009, 210).

Declarative and Situated Procedural Knowledge in Phonological and Phonemic Awareness
Teacher candidates often enter elementary education programs believing that the process of learning to read is somehow magical or mysterious and that teachers have tricks to help students learn to read. They need to come to an understanding that there is research evidence about how children learn to read and that this evidence must be examined thoughtfully, especially in regard to its implications for teaching practice. Literacy educators need to impress upon candidates that declarative knowledge in phonological and phonemic awareness is essential not only to their success on the final exam, but also to achieving the far more significant goals of assessing, targeting, and teaching the skills that are foundational to competency in reading.

Teacher candidates need to study the sound structure of language, gain a full understanding of phonological awareness, learn the developmental trajectory of phonological awareness skills, and have knowledge of how phonological awareness relates to emergent

reading and writing. Lessons on developmentally appropriate activities for stimulating phonological and phonemic awareness are also crucial to the curriculum of literacy courses.

Once candidates have demonstrated their strong declarative knowledge in this area, they can then design and conduct developmentally appropriate, playful, and engaging phonological and phonemic awareness lessons. These lessons should be short, about ten to fifteen minutes in length, and designed for children grouped together to work on a specific skill. It is helpful to have a cooperating teacher who can model the art of helping young children focus on the sound structure of words rather than their meaning. Candidates need to learn the importance of documenting student progress in this area so that lessons are sequential and continuously aimed toward greater levels of sophistication.

Alphabetic Principle/Phonics

The purpose of teaching young children phonemic awareness skills is that when their knowledge of the sound system is combined with instruction and experience with the alphabet, they can acquire the alphabetic principle. The National Early Literacy Panel defines the alphabetic principle as "the knowledge that letters in written words represent the sounds in spoken words" (2008, 107). Without the ability to distinguish individual sounds in spoken words, it is difficult to appreciate the systematic relationships between the letters of the alphabet and the individual phonemes in spoken words (Schatschneider and Torgesen 2004, 760). Mastering the alphabetic principle is thus crucial to success in reading.

Ehri's (2005) phase theory is one widely accepted theory of how students gain the alphabetic principal and learn to read. Ehri identifies four developmental phases based on the degree and type of alphabetic knowledge students possess. The first phase is called *pre-alphabetic*. At this stage students do not understand how sounds and letters are related. They may identify a few words based on their shapes or contextual cues, but they are not using the alphabetic system.

Advancement to the *partial alphabetic phase* takes place when students learn the names of the letters of the alphabet and some of their sounds, and use that knowledge to help read words. During this phase children relate sounds with one or two letters in words, generally the more salient initial and final letters. Children in this phase may confuse words that have the same initial and final letters. Ehri (2005, 173) postulates that the reason for this confusion is that the

children in the partial alphabetic phase are unable to segment the word's pronunciation into all of its phonemes and they lack full knowledge of the alphabet, especially vowels. In this phase students may use invented spelling by writing letters for the most predominant sounds in words while generally leaving out vowels.

The third phase is *full alphabetic*, in which children form complete connections between letters in spellings and phonemes in spoken words. Students who master this phase know the major letter-sound correspondences and retain sight words in memory by bonding the pronunciation of a word with its spelling. This is a significant advantage for accurately reading words that are visually similar (Ehri 2005, 175).

The *consolidated alphabetic phase* is achieved when students move beyond associating only one sound for one letter and recognize the connections between sounds and print in larger consolidated units. That is, students chunk word parts, making longer words easier to read. For example, the word "compatible" can be chunked into parts to assist with decoding (i.e., com pat i ble), rather than using the inefficient system of attempting to match sounds to ten individual letters (Knight-McKenna 2008). More sight words are retained in memory when students reach this phase (Ehri 2005, 175). Children can then read both known and unknown words with little effort. They have multiple strategies for decoding longer, more technical words when encountering them in print (Burke et al. 2009).

As students work toward the consolidated alphabetic stage, their phonetic skills for decoding become more sophisticated. Students' skills in this area are expanded by reading texts and examining words closely, as is done in word-sorting activities (Bear, Invernizzi, Templeton, and Johnston 2008). The goal is to have students use phonetic skills so that they quickly and accurately associate pronunciations of words or word parts with letters or groups of letters from memory. Gaining reading fluency makes it possible for students to focus their attention on comprehension (National Reading Panel 2000). When this is accomplished by second grade with a student who was initially identified as being at risk, a lifetime of reading difficulties was likely averted.

Declarative and Situated Procedural Knowledge in Alphabetic Principle/Phonics

Teacher candidates need to receive explicit instruction about the alphabetic principle, Ehri's (2005) theory on the developmental phases of alphabetic knowledge, and phonics. Many

candidates were taught to read with a whole language approach and may not know what the terms *long* and *short vowel* mean, for example, nor are they aware of patterns in the English language that signal whether a vowel will be long or short. They might also be confused about the meaning of the terms *digraph* and *blend*. Texts such as *Phonics and Structural Analysis for the Teacher of Reading*, written by Barbara J. Fox (2009), can help candidates gain a foundation in phonics.

Candidates need to learn to use informal assessments to evaluate students' level of knowledge in the area of phonics. Situated procedural knowledge is gained when candidates first practice and then actually conduct an assessment. Initially, it is helpful to bring the assessments to class so instructors can model their thinking during the process of analysis. Gradually candidates themselves can take on this responsibility.

Lesson planning in the area of phonics is often challenging for candidates who associate phonics instruction with boring worksheets requiring fill-in-the-blank tasks. This notion can and must be dispelled. Candidates must be challenged to create engaging lessons, about ten to fifteen minutes in length, that help their students identify and use patterns in the English language. Carrying out the lessons and becoming accountable for student learning marks the beginning of candidates' acquisition of situated procedural knowledge in this area.

Print Knowledge and Emergent Writing

Overlapping children's acquisition of the alphabetic principle is the emergent understanding of print and the use of writing to communicate. Print knowledge encompasses several dimensions, including children's understanding of "the forms of print (e.g., letter or words), features of print (e.g., directionality)…and functions of print (e.g., that print symbolically represents speech and meaning) acquired prior to the advent of formal reading instruction" (McGinty and Justice 2009, 81).

Print knowledge develops gradually during early childhood. At first children focus on print in their environment, pointing out letters, recognizing words they see frequently, and asking about words that are unfamiliar. Later in their development, children acquire an understanding of left-to-right directionality and spacing between words. They eventually point to words as they are read and recognize how letters are grouped to form words and words are grouped to form sentences (Justice and Pence 2005, 13-14).

Writing skills develop over the course of years. Schickedanz and Casbergue (2009, 7) observe that the process of learning to write involves a gradual progression from scribble marks to identifiable alphabet letters and from letter string words to actual words. Before children understand that written letters represent sounds--the alphabetic principle--they may write with scribbles, letterlike forms, or random letters. These attempts do not bear any phonetic relationship to the words they say they are writing. After the acquisition of the alphabetic principle, children begin to use systematic letter-sound matches to write words. A child who writes the word "light" as "LT," for example, has an understanding of the alphabetic nature of the English language (Bear, Invernizzi, Templeton, and Johnston 2008, 17).

Kindergarten and preschool children who have not yet had formal reading instruction use the names of letters to aid their spelling (Bowman and Treiman 2004; Treiman, Tincoff, and Richmond-Welty 1996). Bear et al. (2008, 135) refer to this stage of writing development as *letter name–alphabetic*. A child at this stage of writing development will spell the word "when" with the letters "YN," because the beginning of the word "when" has a sound similar to the name of the letter Y. Similarly, the word "jeep" would be spelled "GP" because the first sound is the letter name G. During the early part of the letter name–alphabetic stage children mainly spell with consonants, but as phonemic awareness improves and children gain more print knowledge, students' spellings gradually include more vowels.

Schickedanz and Casbergue (2009) recommend that teachers and family members incorporate writing opportunities into children's play. For example, in a block play center, children can label their block structures; at a restaurant center children can pretend to take an order for food. The preschoolers' writing will initially consist of scribbles or random letters and numbers called a "symbol salad" (Bear et al. 2008, 91), but gradually, as adults help children focus on the relationship between sounds and letters, their writing will become more conventional.

Declarative and Situated Procedural Knowledge in Print Knowledge and Emergent Writing
Teacher candidates need to acquire a thorough understanding of the developmental stages of print knowledge and writing skills. They need to know all that print knowledge encompasses and how this knowledge contributes to literacy skills. Children require exposure and support to learn

how print functions, and candidates must be prepared to provide opportunities to foster this type of learning in developmentally appropriate ways.

The interplay of reading and writing skills must be central to the curriculum of college literacy courses. Bear et al.'s (2008) text, for example, provides detailed descriptions of the stages of children's spelling development and relates each stage to children's reading ability. With this approach, candidates can gain declarative knowledge about the connections between reading and writing. Candidates who plan to teach in preschools or kindergartens must have a working understanding of these developmental stages and how to help children advance to the next stage.

Situated procedural knowledge is gained when candidates conduct and analyze informal assessments of print knowledge and writing skills with young children. Results of assessments become the basis for designing lessons targeted within children's developmental level. The lessons should further students' understanding of the relationship between sounds and print, and should be carried out in the context of play (Schickedanz and Casbergue 2009). By closely examining how young children use print, candidates can compare their declarative knowledge with situated procedural knowledge. Candidates can also take on the responsibility of designing a print-rich environment to promote meaningful literacy learning (Seefeldt and Galper 2001).

Conclusion

Children who have a robust start in literacy learning tend to become proficient readers and writers. Unfortunately, many children do not have this advantage, and they are at risk for failure in learning to read. Teachers of preschool and kindergarten children are in a position to prevent reading difficulties if they are knowledgeable about the trajectory of literacy development and know how to intervene when children are delayed in development. The research evidence available for preventing reading difficulties should be the cornerstone of college literacy courses. The curriculum of these courses should be designed to insure that candidates gain declarative and situated procedural knowledge for the prevention of reading difficulties and enter their profession with an awareness of their responsibility to increase their knowledge base so they eventually become master teachers (Snow, Griffin, and Burns 2005, 9).

Courses on the literacy development of young children start by emphasizing oral language growth as the basis for literacy. Rich oral language stimulation, vocabulary

development, reading aloud, phonological awareness, the alphabetic principle, phonics, print knowledge, and emergent writing skills are all components of literacy courses founded on a research base. Guided reading, word study, literacy centers, assessment-driven instruction, Response to Intervention, progress monitoring, and socio-cultural context also comprise essential aspects of a comprehensive approach to the prevention of reading difficulties.

Finally, this program of study must also emphasize the importance of family-teacher partnerships. School personnel can help family members learn how to stimulate language and literacy growth for their children. Teacher candidates who are well prepared with this type of literacy course will make a significant difference in the lives of children who are at risk for reading failure.

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