Phonics

Children need to be able to identify the sound that individual letter and letter combinations make and to put those sounds together to make words. Phonics is a term used to represent the aspect of instruction that teaches the association of individual sounds with letters (also known as the alphabetic principle) and applying these letter-sound correspondences to whole word reading at more advanced stages (NICHD, 2000). As children gain practice in decoding words, this skill becomes more automatic; it is the foundation for reading fluency, another core area of reading that is discussed in another paper. Below we will discuss research from the National Reading Panel and more recent research regarding phonics assessment and intervention.

Summary of the National Reading Panel Findings

There are many approaches to phonics instruction. In systematic phonics instruction, increasingly advanced phonics skills are directly and sequentially introduced using explicit instruction, practice, and feedback. The National Reading Panel’s (NRP’s) meta-analysis supported systematic phonics instruction. Its effect size when compared to nonsystematic or no phonics instruction was moderate (effect size = .44; NICHD, 2000). Many subtypes exist within systematic phonics instruction, including programs that focus primarily on letter-sound correspondences or programs that focus on larger subparts of words (e.g., word families with common onsets or rimes). The NRP’s meta-analysis found no statistically significant difference in the efficacy of different approaches to systematic phonics instruction. Phonics instruction can be effectively delivered in many formats, including individually, in a small group, or in a whole class setting (all effect sizes were moderate in the NRP’s analysis). Finally, the NRP found that phonics instruction was effective when implemented with students as young as kindergarten as well as young struggling readers. However, small effect sizes were found when phonics instruction was implemented with older struggling readers.

Summary of Current Research

There is considerable research evidence that support specific evidence-based curricula that target phonics skills. Various evidence-based phonics interventions, described below, have accumulated additional evidence in the past decade.

Meta-analyses following the NRP’s review have reviewed and recalculated the NRP’s findings (Camilli, Wolfe, & Smith, 2006; Hammill & Swanson, 2006), and while the magnitude of the effect varies depending on the specific questions, the impact of systematic phonics instruction is consistently of practical significance (Steubing, Barth, Cirino, Francis, & Fletcher, 2008).

Other recent meta-analyses have drawn important conclusions about phonics instruction. First, phonics skills are critical for developing word recognition and reading fluency (Snow & Juel, 2005). Second, explicit, systematic phonics instruction is necessary for most
students (Shankweiler & Fowler, 2004), and it seems to work equally well with minority children (Jeynes, 2008).

**Implications for Teaching**

Snow and Juel (2005) and Shankweiler and Fowler (2004) concluded that instruction in phonics is necessary for most children and absolutely critical for a subset of these students. These findings, combined with those of the NRP’s findings, suggest that phonics instruction is a cornerstone of literacy instruction in kindergarten and 1st grade. Following is a description of two extensions of peer-assisted learning strategies (PALS) that address phonics skills. Although PALS is only one instructional program of the many available, the recent research supporting PALS provides additional support for the efficacy of systematic, explicit approaches to phonics instruction.

**Peer-assisted learning strategies (PALS)**

PALS is an intervention that is implemented in peer dyads and was originally developed to enhance reading fluency and comprehension skills among students in grades 2 through 6 (Fuchs & Fuchs, 1997). Extensions of PALS have been developed to address more basic reading skills while working in peer dyads: Kindergarten PALS (K-PALS) and First-Grade PALS (Fuchs et al., 2001). Both K-PALS and First-Grade PALS include systematic, explicit phonics instruction. (K-PALS also includes phonemic awareness activities, and First-Grade PALS also includes reading fluency activities.)

K-PALS consists of two activities, one focused on a variety of phonemic awareness skills and one focused on phonics skills -- decoding PALS (Rafdal, McMaster, Fuchs, & Fuchs, 2011). Within decoding PALS are four activities: “what sound?” “what word?” “sound boxes,” and “reading sentences”. Students first receive a short review as a whole class to introduce new letter sounds and new words and enhance the likelihood of success, then they complete the two activities in dyads with peers. “What sound?” is meant to teach letter sounds. In “what word?”, students read sight words. During “sound boxes,” students read decodable words featuring the sounds in the day’s lesson, first focusing on the individual letters and then focusing on saying the word quickly. Finally, the “reading sentences” activity includes short sentences of decodable words and sight words that have been practiced. In each activity, students take turns being the coach and the reader, and lessons are scripted so that the coach provides corrective feedback and praise in a consistent way. First-Grade PALS includes activities similar to those used in decoding PALS; First-Grade PALS also introduces a reading fluency component.

A literature review conducted by McMaster, Fuchs, and Fuchs (2006) reviewed research on PALS and PALS extensions. Research on K-PALS suggests that the program may enhance early reading skills for kindergartners, including minority students, students living in poverty, and students with disabilities; this has been replicated in more recent research focused on students with disabilities (Rafdal et al., 2011). Additionally, K-PALS has been shown to
enhance the phonemic awareness and letter sound knowledge of kindergarten English language learners (McMaster, Kung, Han, & Cao, 2008). First-Grade PALS has also been shown to lead to greater gains in phonics and fluency skills than students in a control group.

PALS is one example of a curriculum that addresses phonics in a systematic, explicit way. Other curricula that use a systematic, explicit framework to deliver phonics instruction include Success for All, a comprehensive school reform model that focuses on literacy instruction from kindergarten to fifth grade (Borman, Slavin, Cheung, Chamberlain, Madden, & Chambers, 2007).

**Implications for Assessment**

Assessment is a critical aspect of intervention. Curriculum-based measures (CBMs) of phonics such as nonsense word fluency (NWF) have been a frequent topic for research in the past 10 years as well.

Nonsense word fluency (NWF) and letter-sound fluency (LSF) are two CBM measures that measure phonics skills. In LSF, the student identifies the sounds of isolated letters arranged in random order on a sheet of paper. In the past 10 years, LSF performance in kindergarten has been shown to predict later performance on oral reading fluency measures, although it accounted for slightly less variation in oral reading fluency than letter naming fluency (Stage, Sheppard, Davidson, & Browning, 2001). Relatedly, LSF performance is effective in identifying students who are struggling or will struggle in reading (Ritchey, 2008).

In NWF, the student reads VC and CVC nonsense, or make-believe, words for one minute. NWF assesses a student’s ability to match a letter with its most common sound, and to some extent it also assesses a student’s ability to blend those sounds into a word. NWF measures have been used for screening (identifying students who may have early reading difficulties) or monitoring the progress of students who are receiving intervention in early reading skills. When monitoring the progress of students who are receiving intervention, NWF performance is measured frequently. With frequent measurements, both the absolute level of performance and student’s rate of growth are key indicators of intervention success. Recent studies have shown that the level of NWF performance is predictive of early reading performance for English Language Learners and native English speakers (Fein, et al., 2008; Vanderwood, Linklater, & Healy, 2008). Recent research has also established the importance of a student’s rate of progress in addition to his or her level of performance (Good, Baker, & Peyton, 2009).

Other common assessments include measures of phonics, but these assessments have not been the focus of recent research. Most diagnostic reading assessments (e.g., Comprehensive Test of Phonological Processing) measure phonics skills in some way. Many of these assessments have been used in recent research, but have not been the focus of recent research. Additionally, most standardized achievement tests include subtests measuring how efficiently and accurately students apply the alphabetic principle to words, typically nonsense words. An example is the Pseudoword Decoding subtest of the Wechsler Individual Achievement Test, 4th edition.
However, standardized achievement batteries typically provide an overall reading or early reading score. Using student scores on individual subtests is not recommended since these scores do not have adequate psychometric properties for decision-making.

**Implications for Intervention**

Research on phonics intervention following the NRP’s review has focused on systematic, explicit interventions, both commercialized and non-commercialized. The What Works Clearinghouse (www.ies.ed.gov/ncee.wwc/) is one resource that reviews the research base supporting interventions in a variety of areas, including beginning reading. The What Works Clearinghouse maintains a list of interventions and describes the evidence supporting them. Below is a review of a few of the phonics interventions that have been researched since the publication of the NRP’s review: word boxes and word sorts, Reading Mastery, and Reading Recovery.

*Word boxes and word sorts*

Word boxes are a technique that helps children understand how sounds of individual letters make words. This technique has been used as part of intervention programs such as Reading Recovery (described below), but have also been used and researched in isolation. To conduct a word box intervention, a rectangle is divided into boxes according to the number of sounds, or phonemes, in a word or group of words. The instructor presents a word orally, then students then move tile letters or write letters into each box to make the word. Students practice sounding out the word and then blending the sounds together to say it fast.

In a word sort, the instructor identifies a number of categories based on how a word sounds and chooses an exemplar of each category. Then, he or she gives the student a set of words; each word fits into one of the categories. The student sorts the words, and the instructor gives feedback.

Used as a package and individually, word boxes and word sorts have been shown to enhance word identification and spelling in single case and case study research (Joseph, 2002; Joseph & Orlins, 2005).

*Reading Mastery*

Reading Mastery is a curriculum that delivers systematic, explicit phonics instruction to students who are struggling with reading. Reading Mastery is the new name for the Direct Instruction System for Teaching Arithmetic and Reading (DISTAR); both are Direct Instruction programs. Direct Instruction has a number of features that are common across reading and math programs: explicit, systematic instruction; fast-paced instruction with many opportunities to respond and receive feedback; and frequent assessment.

Within Reading Mastery, students who require support in phonics are grouped in small, ability-based groups to learn letter-sound correspondence and blending sounds to make
words, then practice reading decodable words in connected text. Generally, the earlier students begin the program and the longer they continue, the larger the reading skill gains (Carlson & Francis, 2002). Research has shown that Reading Mastery is effective in enhancing the decoding skills of English language learners in addition to native English speakers (Gunn, Biglan, Smolkowski, & Ary, 2000; Gunn, Smolkowski, Biglan, Black, & Blair, 2005).

**Reading Recovery**

Reading Recovery is a supplemental reading intervention meant to accelerate the growth of reading and writing skills for the lowest-achieving group of first graders. Students receive daily, one-on-one 30-minute sessions from a trained Reading Recovery instructor. Each lesson includes a specific set of components, including word work, writing, and reading new and practiced books. Teachers document progress through a Running Record. Students who make sufficient progress are discontinued from the intervention, while students who do not are referred for assessment and/or other services.

There is a considerable amount of research investigating Reading Recovery; much of this evidence has shown that Reading Recovery accelerates reading growth and that these gains are generally maintained. A recent meta-analysis confirmed these results, but acknowledged that a portion of the results could be attributed to regression to the mean (D’Agostino & Murphy, 2004). Additionally, effect sizes are often inflated by inclusion of only students who successfully complete the program and excluding students who are referred to other services. Although Reading Recovery is evidence-based, it is rooted primarily in constructivist theory rather than in direct, explicit instruction. Therefore, it is antithetical to the NRP’s findings that support direct, explicit instruction.

**Conclusion**

Phonics is a skill that typically develops after the student is aware of the sounds, or phonemes, that make up words. Phonics skills include the knowledge that specific printed letters correspond to a certain sounds and the application of these letter-sound corresponding to reading printed words. As the student practices these associations, word recognition becomes more automatic. Fluent and automatic word recognition facilitates effortless reading and reading comprehension.

Although many students will easily learn letter-sound correspondences and learn to apply them to print, many students will require extensive instruction and intervention as well as assessment to measure the effects of instruction and intervention. The NRP’s review suggested that systematic, explicit phonics instruction is more effective than embedded, implicit methods. This finding has been reinforced in current research; additionally, the majority of instructional and intervention packages researched in the past 10 years use a systematic and explicit approach to phonics.
References


Steubing, K. K., Barth, A. E., Cirino, P. T., Francis, D. J., & Fletcher, J. M. (2008). A response to recent reanalyses of the National Reading Panel report: Effects of systematic phonics instruction are practically significant. *Journal of Educational Psychology, 100*, 123-134.