

4 Efficacy of Phonics Teaching for Reading Outcomes

Indications from Post-NRP Research

Susan A. Brady
University of Rhode Island
and
Haskins Laboratories

Ten years ago, the National Reading Panel* (NRP) assembled available research from 1970 to 2000 to investigate whether systematic phonics instruction helps children learn to read alphabetic writing systems more effectively than either unsystematic phonics or instruction teaching no phonics. This question was one of several addressed by the panel regarding efficacy of components of reading instruction: Other domains included phoneme awareness, fluency, vocabulary, and comprehension, as well as the need to address teacher preparation to teach research-based methods. With respect to phonics, after a rigorous selection process, the findings from 38 studies were analyzed and from these 66 treatment-control group comparisons were obtained. The authors of the resulting report of the NRP (National Institute of Child Health and Human Development, 2000) were careful to acknowledge the limitations of the meta-analytic study and not to overstate the findings (also see Ehri, Nunes, Stahl, & Willows, 2001; McCardle & Chhabra, 2004). Even so, the case for the value of systematic, explicit phonics instruction was quite compelling. The convergence of the body of research indicated that code-based instruction is beneficial for pupils, particularly in the early grades. The report also noted the need for changes in the content of college and university teacher preparation programs if teachers were to have the knowledge

* The National Reading Panel was commissioned by the U.S. Congress to examine the effectiveness of instructional approaches to reading. The panel developed a methodology regarding which studies to review, restricting those that were included to experimental and quasi-experimental studies. They then reviewed, analyzed, and synthesized the evidence, conducting meta-analyses when possible. In the ensuing report, Part II of the section on Alphabets presents results pertaining to phonics.

and skills to apply the lessons from research on reading instruction. In the 10 years since, changes in teacher preparation and classroom activities have begun, but the shifts generally have been limited and substantial impediments to effective implementation of systematic phonics persist. Some of the difficulties in implementation have stemmed from inadequate representations of what is entailed by phonics and/or from resistance to using systematic and explicit methods of phonics instruction.

The goals of this chapter are (a) to provide a brief delineation of the parameters of phonics instruction that vary across studies and instructional programs, (b) to summarize the key findings of the NRP report regarding phonics instruction, (c) to note federal efforts after the report was published and responses to the report in the field of education, and (d) to present findings from subsequent research on phonics. In the final section, this chapter aims to examine whether research conducted in the last decade upholds and extends the main findings of the NRP regarding phonics instruction or, alternatively, shows them to be unsupported.

DIMENSIONS OF PHONICS INSTRUCTION

Beyond the finding by the NRP that systematic phonics instruction is beneficial, one of the key issues targeted by the panel, and persisting as a point of debate, concerns whether the particular method of teaching systematic phonics makes a difference in student progress in learning to read. Among other variations, methods vary in size of phonological or orthographic units, how explicitly patterns are identified, systematicity of sequencing, the extent of phonics concepts covered, and the types of activities employed. To set the stage for the topics in this chapter, these parameters of phonics instruction are described briefly.

UNIT SIZE

Approaches using larger units generally focus on onsets and rimes in word families, whereas methods using smaller linguistic units target all of the individual grapheme–phoneme correspondences (GPCs) in words.*

DEGREE OF EXPLICITNESS

More explicit programs provide explanations for children, fostering the discovery of orthographic patterns and/or giving clear descriptions of when a particular pattern is used. Instruction about the main types of vowel syllable patterns (closed,

* Syllables can be subdivided into onsets and rimes. The onset is the portion preceding the vowel, whereas the vowel and the remainder of the syllable are called the rime. The onset and/or rime may be a single phoneme (e.g., *me*: the onset is *m* and the rime is *e*). Yet often, the onset and rime are made up of more than one speech sound, as in the word *plant* (i.e., *pl* is the onset and *ant* is the rime). In reading instruction targeting onsets and rimes, word families often are employed that share an orthographic rime pattern (e.g., *e-ake*, *b-ake*, *m-ake*, *br-ake*, *fl-ake*, and *sh-ake*). In this approach, words are not segmented into all of the component phonemes as they are for methods targeting complete grapheme–phoneme analysis (e.g., *bed*: *b-e-d*).

open, silent-e, vowel team, r-controlled, and consonant-le) is one such method that gives children contextual strategies for knowing how to spell or read words (Shankweiler & Fowler, 2004). Approaches that are less explicit provide examples of phonics patterns in text but do not direct students' attention to the nature of the pattern or to the context in which it occurs (i.e., *implicit phonics*).

DEGREE OF SYSTEMATICITY

More systematic phonics programs take children through a planned set of lessons that generally start with regular spelling and decoding patterns, first introducing a set of consonants (selected on the basis of frequency and regularity), and regular, single-letter, vowel patterns. High-frequency words are taught in tandem with phonics to support reading of connected text. Patterns are added to the literacy activities in a way that builds on what has been learned, increasing accuracy and automaticity. Systematic sequencing is not restricted to grapheme level instruction. For example, a word family approach (e.g., Santa & Høien, 1999) also can follow a planned sequence that fosters expertise in a cumulative way. Programs with a less systematic approach are more haphazard in the presentation of patterns, with teachers often providing a pattern incidentally when a child has difficulty reading a word. In this version of phonics, sometimes coming under the labels *embedded phonics* or *phonics in context*, a phonics cue might be given after encouraging the use of other strategies (i.e., to guess based on the context, to look at the picture).

SCOPE AND DURATION

A further variation is the scope and duration of the phonics program. Illustrating a minimal scope, traditional whole-language programs typically teach children many of the consonant letter-sound correspondences in kindergarten and first grade but do not focus on vowel patterns. Those are to be acquired through exposure to authentic text (i.e., children's literature). An example of a broader scope of phonics instruction would be the one that extends beyond consonant graphemes to vowel graphemes with continued instruction in orthographic patterns (e.g., vowel syllable types, syllable division strategies, and more advanced spelling rules such as when to double consonants and when to drop "e" when adding a suffix), extending throughout the second grade or later.

TYPES OF ACTIVITIES

The final dimension to be noted pertains to the types of activities employed to support student learning. A division often has been made between so-called *synthetic phonics* and *analytic phonics*. In the former, children are encouraged to identify the sounds represented by the letter in each position of the word and then to blend those sounds to arrive at the word. Analytic phonics fosters awareness of sound segments by teaching students sets of words that share beginning (onset) or ending letter sequences (rimes) with a common pronunciation. The analytic approach (also linked

with *analogy phonics* in which the child is encouraged to think of how to read a word with the same rime pattern) is conducive to teaching only the onset and larger units, thereby avoiding decomposing words into all of the individual graphemes.

The particular attributes of phonics instruction often cluster, with more systematic instruction also tending to be more explicit, focusing on the grapheme level and using synthetic methods. Less systematic instruction tends to utilize more embedded approaches that target onset-rime elements and analytic activities.

MAIN FINDINGS OF THE NRP: EFFECTS OF PHONICS INSTRUCTION

Overall, research reviewed in the NRP report indicates that students taught with systematic phonics instruction have better reading scores, whether measured at the end of the training period or at the end of the school year of instruction (Cohen's $d = .44$).^{*} Systematic phonics instruction was found to produce better reading growth than all of the types of nonsystematic or nonphonics instruction (i.e., basal programs, whole-language approaches, regular curriculum, whole word curriculum, and miscellaneous programs). Further, systematic phonics was found to be effective whether taught through individual tutoring ($d = .57$), through small groups ($d = .43$), or to the whole class ($d = .39$).

At the same time, comparisons of three different types of phonics instruction did not yield significant differences in the reading gains of students. The three types of phonics instruction compared were (a) synthetic phonics programs that emphasized teaching students to convert letters (graphemes) into sounds (phonemes) and then to blend the sounds to form words, (b) larger-unit phonics programs that emphasized the analysis and blending of larger phonological subparts of words (e.g., onsets and rimes in word families), and (c) miscellaneous programs that taught phonics in other ways than the other two or that were not sufficiently clear about the nature of the approach. The effect sizes for the three programs were all significantly greater than zero (synthetic phonics, $d = .45$; larger-unit programs, $d = .34$; miscellaneous programs, $d = .27$) but as noted did not differ significantly from each other.

The largest impact on student reading achievement was documented for students who had received phonics instruction during the early grades. Phonics instruction had its biggest effect on reading achievement when conducted in kindergarten ($d = .56$) and first grade ($d = .54$). Positive results also were documented for phonics instruction provided in the later grades, though the mean effect size was smaller ($d = .27$).

In addition to facilitating reading acquisition for normally achieving students, noteworthy benefits of systematic phonics instruction were documented for

* The effect size measures how much the mean of a treatment group exceeds the mean of a comparison group. Conventionally, an effect size of $d = .20$ is small, that of $d = .50$ is moderate, and that of $d = .80$ or higher is large (Cohen, 1988). In the present case, the larger the effect size difference, the more likely that the difference in instructional methods is educationally meaningful.

students in a variety of circumstances: (a) Phonics instruction was found to yield strong growth in reading for kindergarten children at risk of having future reading difficulties ($d = .58$) and for first-grade students at risk ($d = .74$). (b) Instruction in phonics also raised the reading performance of disabled readers (defined as students with average IQ but low reading achievement) ($d = .32$) but did not exert a significant effect on the reading achievement of low-achieving readers in grades 2–6 (i.e., students with reading difficulties who may have other cognitive weaknesses contributing to their low achievement). (c) Children at all SES levels made greater gains in reading when provided with systematic phonics instruction (low SES students, $d = .66$; middle-class students, $d = .44$).

The validity of the NRP findings is underscored by the fact that the positive effects of systematic instruction were equally robust when only the best designed experiments in the set of studies were examined, suggesting that the overall pattern of findings could not be attributed to other factors such as preexisting differences between the treatment and control groups.

The panel members concluded that the results of the analysis indicate the positive value of including systematic phonics programs in today's classrooms. At the same time, they made sensible cautionary remarks about implementing phonics: (a) Children also need to be aware of the phonemes in spoken words (i.e., to have phoneme awareness) in order to grasp the significance of letter–sound correspondences. (b) Phonics programs need to have an appropriate balance between teaching letter–sound relations and practice implementing those concepts in daily reading and writing activities. (c) Further research is needed to investigate critical parameters of phonics instruction concerning the optimal duration and extent of phonics instruction and regarding the ideal combination of practice with connected text and writing activities. They also acknowledged that the role of the teacher needs to be understood further in terms of motivational factors, consistency of program implementation, degree of scripting, and requisite teacher knowledge.

The results of this careful scientific analysis of the value of code-based instruction converged with earlier large-scale studies examining the merits of different approaches to reading instruction, as discussed in two important books synthesizing the prior findings (Adams, 1990; Chall, 1967). Subsequent major reviews have targeted research on how to reduce children's reading difficulties (National Research Council, 1998) and on how research informs the teaching of reading (McCardle, Chhabra, & Kapinus, 2008; Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001; Vellutino, Fletcher, Snowling, & Scanlon, 2004).

AFTERMATH OF THE NRP: SUPPORT AND PUSHBACK FOR TEACHING EXPLICIT, SYSTEMATIC PHONICS

In the years since the NRP report was released, widely varying responses to the publication have occurred. At the U.S. federal level, major initiatives were designed to ameliorate the reading weaknesses of American students, especially for economically disadvantaged children. Toward that goal, under the legislation for the No Child Left Behind (NCLB) Act of 2001 (PL 107-110), the Reading First

program was launched with the aim to foster implementation of evidence-based reading practices^a in the early grades in phonics as well as in the other areas identified by the NRP, in low-performing schools in each state and U.S. territory. It is important to underscore that this enterprise did not constitute a research project to further test the efficacy of systematic, explicit instruction, as some thought. Rather, the purpose was to facilitate the implementation of research-based practices in the classrooms of disadvantaged pupils. States were given latitude in choosing measures, training models, type of data recorded, instructional materials, and other features of implementation. This flexibility was intended in part to allow decision making at state and local levels while still building experience with the process of documenting student progress and student outcomes. However, it led to considerable variation in states' Reading First programs and contributed to difficulties ascertaining the effects of Reading First. As such, the questions that can be asked regarding the outcomes pertain to the conditions under which it was more or less successful (e.g., quality/extent of professional development for the teachers, extent to which assessment data were used to inform instruction, level of state, and local administrative commitment to scientifically based instructional methods). Consequently, instead of allowing nationwide evaluation of the project, it primarily has been possible to examine outcomes on a more restricted scale and to explore ingredients influencing magnitude of gains for particular approaches to implementation.

A case in point is Reading First in Alabama, which has been recognized for having positive implementation procedures and outcomes. The educational leadership in that state embraced the content and goals of Reading First, seeking to disseminate the NRP findings not just to a small number of disadvantaged schools or school districts but on a statewide level, together with professional development and teacher support for how to use evidence-based methods. In addition to effective leadership, there was an ongoing focus on data and on how to continually use the data to identify and refine the necessary elements for successful implementation (K. Mitchell, personal communication, 2008; RMC Research Corporation, 2007). Following this multiyear effort, unusually large gains were obtained by minority fourth-grade students in Alabama on the 2007 National Assessment of Educational Progress (National Center for Education Statistics, 2007): African American students increased their reading scores by 13 points—an extraordinary outcome.

When more formal evaluation of Reading First was undertaken focusing on a set of states (Gamse, Jacob, Horst, Boulay, & Unlu, 2008), the results indicated that teachers spent more time on reading instruction and that students performed significantly better on a word reading task, but not on a comprehension measure.

^a If a program is developed based on research that demonstrated the effectiveness of a type of instruction, then it can be called *research-based*. When research evidence is available to show that a particular program or approach is effective, one can call that program or approach *evidence-based*, a stronger level of assurance that it is worthwhile to use with students (McCardle et al., 2008). Of course, it is important in either case that the research conducted meets scientific standards (e.g., with appropriate assessment instruments, with a control or comparison group). Despite the technical difference between the terms, in nonresearch settings they often are used interchangeably.

This research endeavor was criticized for having methodological weaknesses (e.g., sharing of training resources in experimental and control sites) that limited accurate evaluation of Reading First outcomes (Francis, 2008; Mitchell et al., 2008). Related to this point, a study by Wong-Ratliff, Powell, and Holland (2010) indicated that Reading First practices helped produce positive reading outcomes in both Reading First and non-Reading First schools. Nonetheless, the results of the Gamse et al. study have led to mixed responses to Reading First in political and educational circles, and hence have been interpreted by some within mainstream education as lessening the impetus to emphasize phonics and other elements of scientifically based instruction at the core of Reading First (Cassidy & Cassidy, 2010).

A second development with implications for the use of systematic, explicit phonics instruction has been the increasing shift toward the use of response to intervention (RTI) methods to identify and treat reading difficulties, instead of classifying students as reading disabled based on a specified discrepancy score between aptitude and achievement measures (e.g., Fletcher, Lyon, Fuchs, & Barnes, 2006; Haager, Klinger, & Vaughn, 2007; Lyon et al., 2001; U.S. Department of Education, Office of Special Education and Rehabilitative Services, 2002; U.S. Department of Education, Office of Elementary and Secondary Education, 2002). This change in classification procedures has been included as an option in the current version of the Individuals with Disabilities Education Improvement ACT (IDEA) of 2004 (PL 108-446). The goals of the RTI method are to provide optimal, evidence-based classroom instruction for all students (Tier 1), with timely provision of early intervention, as needed. For students demonstrating weak responses to Tier 1 instruction, the intervention shifts from whole class to small-group instruction (Tier 2), with progression to more intensive delivery of instructional services as needed (Tiers 3 and higher, depending on the version of RTI). The model entails regular assessment of student progress and establishment of short-term educational goals selected to ameliorate identified areas of weakness. Because the majority of students encountering difficulty in learning to read have weaknesses with word reading skills both in decoding and in rapid word identification, knowing how to effectively teach the continuum of phonics concepts and to foster automaticity in word recognition is among the necessary mainstays of an RTI approach.

However, as the authors of the NRP report concluded, that the pertinent body of knowledge to teach phonics and word level skills has not been part of teacher preparation (see also Brady & Moats, 1997; National Research Council, 1998), with implications for the effectiveness of RTI efforts (B. F. Foorman, Carlson, & Santi, 2007). In the years since the NRP report, two studies have examined syllabi of reading-methods courses in teacher preparation programs, concluding that this shortcoming has not yet changed notably. In these studies, few education departments appear to have incorporated the body of knowledge identified by the NRP report as important for teaching students to read (Steiner & Rozen, 2004; Walsh, 2006). Likewise, a review of textbooks used in reading education courses found inadequate, and sometimes incorrect, coverage of the five components of literacy instruction recommended by the NRP report (Joshi, Binks, Graham, et al., 2009).

Correspondingly, in a study of instructors responsible for the training of preservice and in-service teachers, many were not well informed about the concepts pertinent to phonics instruction (Joshi, Binks, Hougen, et al., 2009). In turn, it follows that studies conducted both before and after the NRP report consistently have documented weaknesses in practicing teachers' knowledge of concepts central to code-based instruction (e.g., Bos, Mather, Dickson, Podhajski, & Chard, 2001; McCutchen et al., 2002; L. C. Moats, 1994; Spear-Swerling, Brucker, & Alfano, 2005), whether the teachers are recent graduates or not (e.g., Brady et al., 2009; Cunningham, Perry, Stanovich, & Stanovich, 2004).

The underpreparation of teachers in the area of code instruction is thought to be a consequence, in part, of the prevalence of meaning-emphasis programs for teaching reading, most commonly in accord with the whole-language philosophy (Lieberman & Lieberman, 1990; Pressley, 2006; Rayner et al., 2001). This approach, still permeating mainstream reading instruction, relies heavily on the child's experience with language: Motivation is central and children are encouraged to guess words that would fit in the context of the text. Proponents advocate the use of authentic children's literature, rather than decodable text. They suggest that children naturally acquire the knowledge necessary for skilled reading without direct instruction, much in the same way that spoken language develops. Indeed, key figures in this approach, Goodman (1970, 1993) and Smith (1979, 2003) maintain that phonics should not be taught. A central theme in whole-language approaches incorporates a constructivist perspective: Based on early research in cognitive psychology that described memory in terms of schemata and highlighted the importance of learners' prior knowledge, children are to be encouraged to construct meaning from text, connecting what they are reading with their background knowledge. A second theme emphasizes respect for experiential differences, including cultural influences, that would contribute to varying interpretations of an author's message.

These views are apparent in a recent study of teacher preparation for reading instruction. Risko et al. (2008) reviewed and critiqued 82 studies conducted in the United States on teacher preparation for reading instruction between 1990 and 2006. Most frequently, the studies were located within undergraduate programs preparing teachers for elementary and upper-grades teaching certification and targeted methods classes, asking whether the programs were successful in changing prospective teachers' knowledge and beliefs. In 73% of the studies, the researchers represented a cognitive or constructivist orientation, described as considering the "impact of prior knowledge and situated events in the teacher education program on learning to teach" (p. 258). Twenty-two percent of the studies were described as representing a sociocultural perspective: "Researchers in this category drew attention to the importance of learning about multicultural and social inequities issues and the use of this information on cultural responsive pedagogy" (p. 258). The remaining 5% were described as having a positivist/behavioral approach. Changes in knowledge and beliefs were reported for prospective teachers for the various approaches; however, the lack of focus on the specifics of the content and professional knowledge in the studies reviewed was

striking, as Risko et al. noted. Further, the kinds of questions that might have reflected appreciation of the importance of current research on reading acquisition and reading instruction from the NRP report or earlier publications (e.g., Adams, 1990) were absent. The review by Risko et al. augments concern about a persisting gap between the in-service professional development goals articulated in the NRP report and the approaches to preparation of future teachers typically practiced in education departments.

In light of the theoretical backdrop of whole language and indications about teacher preparation practices, it is understandable that the recommendations in the NRP report regarding the merit of systematic, explicit instruction in phonics would have been met with discomfort. The underlying assumptions driving phonics instruction—that learning to read is not natural and that learning the alphabetic writing system is aided by direct teaching of graphemes and key orthographic patterns (Lieberman, 1989)—clearly run counter to the core beliefs of whole-language approaches. Thus, it is not surprising that the response to recommendations regarding the use of phonics by individuals and organizations with this perspective has been tempered. A few of the influential responses will be summarized here to represent the degree of acceptance of phonics instruction and how the NRP findings are being interpreted within the education field. First, I will focus on the International Reading Association (IRA), a major organization for teachers of reading that has been aligned with the whole-language philosophy. In 1997, the organization released a position paper regarding the role of phonics in a total reading program (International Reading Association, 1997). While acknowledging the merit of phonics, no discussion of the key features of phonics was provided. In 2002, International Reading Association published *Evidence-Based Reading Instruction: Putting the National Reading Report into Practice*, a compilation of articles from *The Reading Teacher* (International Reading Association, 2002). In the section addressing phonics instruction, four articles were included, prefaced by an emphasis on the finding in the NRP report that there were no differences between different types of systematic phonics instruction. Three of the articles (Santa & Høien, 1999; Stahl, 1992; Wagstaff, 1997) endorsed using phonological units larger than the phoneme (i.e., onsets and rimes) to teach phonics, and the fourth (Morrow & Tracey, 1997) was positive about incidental instruction. Although many cogent points were made, such as the importance of integrating phonics in a total reading program, the set of articles sends a mixed message about the teaching of phonics, communicating that phonics instruction above the level of the phoneme will suffice.

A second prominent source, *Best Practices in Literacy Instruction* (Gambrell, Morrow, & Pressley, 2007) has a chapter by P. Cunningham entitled “Best practices in teaching phonological awareness and phonics.” Once again, there is an emphasis on the finding in the NRP report about the lack of significant differences found between different approaches to teaching phonics, with attention drawn to the fact that three studies using different methods all had positive student results (Davis, 2000; Juel & Minden-Cupp, 2000; McCandliss, Beck, Sandak, & Perfetti, 2003). In the chapter, Cunningham provides no discussion of the content or sequencing

of systematic phonics instruction. Instead, she presents three phonics activities to illustrate "best practices in action" (p. 162). One (labeled Making Words) is an enjoyable review activity for students who already have learned a broad array of orthographic patterns, rather than a systematic means for teaching those patterns (i.e., words with short vowels, r-controlled vowels, vowel teams, and two syllables were included in the sample activity). The second (Using Words) presents an analogy strategy for figuring out how to spell words ("if ice is spelled i-c-e, twice is probably spelled t-w-i-c-e," p. 172). The third (Word Detectives) is suggested for students in the upper grades, focusing on morphemes (prefixes, suffixes, and roots). While each of these activities has merit if offered at appropriate points, a teacher seeking specific guidance on how, when, and how much to implement explicit, systematic instruction would not gain it from this chapter, despite the title. No mention of synthetic phonics methods was made, regardless of the fact that in the NRP report synthetic phonics had the largest effect size on reading outcomes. The absence of this more fine-grained method of phonics instruction is noteworthy. In the study mentioned earlier regarding the knowledge base of instructors teaching methods' courses in departments of education, Joshi, Binks, Hougen, et al. (2009) reported that the instructors did not cite synthetic phonics as suitable for beginning reading instruction, instead listing balanced instruction, whole language, or language experience approaches.

It is also notable that a second chapter in the volume by Gambrell et al. (2007), advocating balance in comprehensive literacy instruction (Pearson, Raphael, Benson, & Mada, 2007), conveyed two concerns regarding instruction in phonics. The first is reflected in a diagram included from Au and Raphael (1998) consisting of two dimensions: one indicating the person who is responsible for the learning process (i.e., teacher-controlled or student-controlled learning) and the second charting the level of engagement by the pupil (i.e., on a passive to active continuum). Explicit instruction is linked with teacher-led instruction and passive learning on the part of the child. This representation carries a negative valence with the attribution that explicit instruction has to entail passive learning rather than being engaging, varied, and discovery oriented as most phonics experts would maintain. The second concern by Pearson et al. was that in the wake of the NRP report, too much attention might be given to phonics, short-changing the many other topics relevant to literacy achievement and not providing adequately balanced literacy instruction. While the representation of pertinent areas of literacy was heavily skewed to depict sound/symbol learning as only 1 of 24 areas of literacy development, with no other components of word-level skills included, the problem of having sufficient time for all aspects of literacy instruction is a dilemma widely recognized by educators.

One other influential publication, *Reading Instruction That Works: The Case for Balanced Teaching* by Pressley (2006), will be mentioned here. Pressley wrestled with the same issues vexing those cited in the previous paragraph (i.e., the appropriate unit size for phonics instruction and the relative emphasis to be given to phonics in the literacy curriculum). Although he did so in a way that acknowledged the substantial body of research on the importance of word reading skills

for reading success and the value of systematic phonics instruction, he reached similar conclusions. In the section on learning to read words, Pressley strongly endorsed the positive effects of explicit teaching of the alphabet, letter-sound associations, and sounding out of words, noting the consistently favorable evidence associated with synthetic phonics. Nonetheless, he went on to recommend teaching children to read by using word families and teaching students to decode by analogy, while allowing flexibility of methods as needed and providing balanced literacy instruction. Drawing on his own research (e.g., Pressley et al., 2001), Pressley emphasized that outstanding first-grade teachers provide a good balance of explicit skills instruction together with whole-language reading and writing activities.

The challenge for combined approaches, of course, is how to define the appropriate mix. Pressley attests to the "real variety out there among teachers who call themselves whole-language instructors" (p. 175), noting there are those who are very resistant to skills instruction (and do little), while others attempt to balance skills and whole-language components. A recent study by Cunningham, Zibulsky, Stanovich, and Stanovich (2009) collected responses from 121 first-grade teachers regarding what instructional practices they would propose for a 2-hr language arts block. Almost one in five teachers specified literature-based instruction in the relative absence of phonics instruction. The opposite subgroup, teachers who chose to emphasize phonics (27% of the sample), incorporated a relatively balanced collection of literature- and skills-based instructional experiences. This asymmetry may be predictable: The assumptions underlying explicit phonics instruction are not at odds with appreciation of the other components critical for becoming a skilled reader, whereas a corresponding acceptance of phonics does conflict with the assumptions central to a strong whole-language perspective.

In sum, as of 2000 when the NRP report was published, the convergence of a body of research indicated that systematic, explicit code-based instruction is beneficial for pupils, particularly in the early grades. Since that time extensive federal programs (No Child Left Behind; Reading First) were put in place, with mixed outcomes, to support the implementation of evidence-based practices on phonics and other elements of reading acquisition in schools. Likewise, the expansion of the RTI model for providing services for students encountering reading difficulties has increased focus on the assessment and intervention of subskills of reading, though numerous challenges remain for the reliable implementation of RTI, such as the need for professional development of preservice and in-service educators. At the same time, in the field of education, one of the main responses to NRP recommendations about phonics instruction has been to advocate using onset-rime units in the context of word family patterns, analytic approaches, and decoding by analogy, thus avoiding completely decomposing words into individual phonemes or using synthetic phonics activities. A second response has been to promote balanced instruction that, in genuine versions, incorporates direct instruction in phonics as part of a comprehensive literacy program.

By and large, the call in the NRP report for changes in the content of college and university teacher preparation programs has not been met. Indications from

research studies on teacher knowledge and teacher preparation point to little focus on phonemic or orthographic units or on explicit, systematic ways of teaching phonics, most notably synthetic phonics methods. This may follow from the favor given to word-family approaches that do not utilize smaller units and generally do not address more advanced orthographic patterns. In turn, changes in teacher knowledge may not be seen as necessary. Stahl (1992), cited earlier, suggested that exemplary phonics instruction should focus on having children read words, not learn rules. Although he added that pointing out rules to students might be helpful in some instances, his stance may be perceived as undercutting the need for teachers to acquire knowledge of the spelling patterns of English.

Much of what has transpired in the last 10 years in educational practices regarding phonics hinges on the outcome reported in the NRP report that there were no significant differences in student outcomes between different methods of systematic phonics instruction. That finding has provided a rationale for avoiding a detailed focus on complete GPC in words with an emphasis instead on rime approaches. A second development has been the growing call for balanced instruction, sometimes troubling because the loose description of this approach has permitted resistors to give lip service to teaching phonics (L. Moats, 2007), while not providing any form of systematic instruction. In looking at the research from the subsequent decade, it is interesting to examine whether subsequent research sheds light on the issues of unit size in phonics instruction and whether, when done appropriately, a broader literacy program promotes reading acquisition better than a narrower focus on phonics.

POST-NRP RESEARCH ON PHONICS

In reviewing research on phonics published since the release of the NRP report, two main points emerge. First, the findings build the case for the benefits of teaching phonics systematically and explicitly, with advantages evident for complete analysis of the grapheme–phoneme composition of one-syllable words. As corollaries, this benefit is evident beyond the beginning of first grade and not just for struggling readers. Second, better literacy outcomes generally occur as a result of teaching other reading components in addition to phonics.

PHONICS INSTRUCTION: EFFECTS OF UNIT SIZE AND SYSTEMATICITY

Studies published in the last decade have continued to document the benefits of phonics instruction with most using methods that include explicit instruction of grapheme–phoneme units. For example, Connelly, Johnston, and Thompson (2001) reported that 6-year-old beginning readers taught to read by a synthetic phonics approach scored better in phoneme segmentation and on nonword reading tasks than students in a nonphonics group, as might be predicted given the attention to the alphabetic principle and decoding in phonics approaches. Although the students in the nonphonics group read known words more rapidly, those in the phonics group produced more contextually appropriate errors, made

more attempts at reading unknown words, and had higher reading comprehension. Likewise, Jeynes (2008) published a meta-analysis documenting the positive relationship between phonics instruction and achievement for urban elementary school students.

More relevant to questions regarding the relative efficacy of different component of phonics instruction, Johnston and Watson (2004) compared reading achievement for 5-year-old new school entrants in Scotland who each were taught by one of the three different early reading programs. One group of students received synthetic phonics instruction with a grapheme-phoneme focus, whereas two groups were taught via analytic phonics using a word family method. (One of the analytic phonics cohorts received training in phoneme awareness in addition, whereas it was not included for the other two groups.) Instruction for all groups took place for 20 min per day for 16 weeks. Within each group, the classes participating represented both socially deprived and comparatively advantaged groups, although the synthetic phonics group came from relatively more deprived backgrounds. Nonetheless, the children who received synthetic phonics instruction had significantly better reading, spelling, and phoneme awareness at the end of the study than the children in the two groups taught analytic phonics. Further, those in the synthetic phonics group were the only ones who could read by analogy, and they also demonstrated significantly better reading of both irregular words and nonwords. A second experiment controlled for differences in the pace of letter learning across conditions; once again students in the synthetic phonics group read better than those in the analytic phonics condition. It was concluded that synthetic phonics is a more effective method than analytic phonics, and that with the former technique it is not necessary to carry out supplementary training in phoneme awareness.

Another study comparing synthetic and analytic methods reported equivalent gains with both methods (P. D. Walton, Walton, & Felton, 2001). However, the researchers seem to have used a synthetic method that minimized direct instruction. Words occasionally were sounded out while students were reading text, but the words that were selected for instruction did not build on structural redundancies that could help establish phonics knowledge (e.g., an example of words used on a single day were *hat* and *bed*, rather than words, for this condition of the study, that avoid word families, but still systematically progress [e.g., *hat/had* or *hat/hit*]). A second study by these authors (P. D. Walton & Walton, 2002) reported better results for beginning readers taught both rime analogy strategies and limited phonological knowledge (rhyming, initial phoneme identity, and letter-sound knowledge), rather than either alone. The combined method gave more opportunities for children to discern the structures of spoken and written words, but still did not constitute fully systematic methods of either phoneme awareness or code instruction (e.g., focusing only on initial phoneme identity is a low level of phoneme awareness, often grouped under an earlier stage of phonological awareness termed phonological sensitivity [Scarborough & Brady, 2002]). Consequently, while it may be productive to combine methods of instruction (Juel & Minden-Cupp, 2000; M. Lovett, Lacerenza, & Borden, 2000), this study does

not adequately evaluate the value of systematic methods and illustrates that it is important to look beyond the labels when examining the efficacy of particular methods.

One of the insights from recent studies is that although various approaches to phonics enhance some literacy skills, more explicit, systematic methods of phonics instruction appear to facilitate more advanced code skills. Illustrating this are two studies that were carefully designed to match the instructional materials while varying the instructional methods. The first, conducted by de Graff, Bosman, Hasselman, and Verhoeven (2009), compared a systematic phonics approach with one that was nonsystematic. (A third group of children were in a nontreatment control condition.) Computer programs were used to teach the same 10 Dutch grapheme–phoneme correspondences (GPCs) to kindergarten students in the two experimental groups. Instruction in each of the phonics programs took place in fifteen 15-min sessions that were distributed over a period of 5 weeks. In the nonsystematic program, the sequence was not prespecified, the order of practice activities was chosen freely from a set of 10 different letter–sound and phonics activities, and the instruction did not gradually increase in difficulty. In contrast, in the systematic approach, children encountered a planned set of phonics-through-spelling and synthetic-phonics activities. Interestingly, both groups progressed to the same extent on letter–sound knowledge with both better than the control group. However, the systematic phonics group made significantly more progress than the other two groups on phoneme awareness, as well as on more advanced spelling and reading measures.

The second study, by Christensen and Bowey (2005), compared the efficacy of three programs: an orthographic rime (OR) program (i.e., word families), an approach focusing on GPC, and the regularly provided whole-language approach to teaching reading. The participants were children in their second year of schooling in elementary schools in Australia, described by the authors as being at an advanced beginner phase of reading acquisition. Two earlier studies failed to show effects based on the size of the orthographic unit (Haskell, Foorman, & Swank, 1992; Levy & Lysynchuk, 1997), but both were fairly brief (6 and 4 weeks in duration, respectively). The Christensen and Bowey training program was implemented for 20 min per day for 14 weeks in small groups of six to eight children. The lessons in the OR and GPC conditions followed the same basic format, practicing the same number of words in each session and the same words across each of six modules of 10 lessons (8 lessons introducing a set of four new words and 2 review lessons). However, the words within sets for each program were presented in different orders and combinations so that the OR group had sets of rhyming words (e.g., top, mop, hop, and shop), whereas the corresponding GPC cohort had lists that did not contain any rhyming words (e.g., mat, hop, run, and shin). The results of this well-designed study showed significant superiority on interim and posttest measures for the OR and GPC groups over the classroom control group on nearly all of the reading and spelling assessments, consistent with the findings of the NRP meta-analysis. The point of particular interest to the present discussion is that groups of children receiving the two decoding programs

did not differ statistically on the easier accuracy measures requiring reading or spelling the words that had been taught in the program and reading sentences. On the other hand, the GPC group had significantly better performance on the more demanding tasks. On measures of the accuracy and speed of reading transfer words with the same orthographic patterns as those taught in the programs, the GPC cohort tested significantly higher on accuracy and speed for the transfer words than both the OR and the nontreatment control groups. This last finding has important implications regarding the importance of explicit phonics approaches for building decoding skills that support abilities to read the large number of novel words that young readers encounter during reading, particularly as they reach the middle elementary grades (Nagy & Anderson, 1984). Similar findings were found for the spelling measures, and the GPC group also performed significantly better than the other two groups on assessment of reading comprehension. In sum, the de Graff et al. (2009) and Christensen and Bowey studies are strong indicators that in designing experiments to compare methods of reading instruction, it is necessary, in addition to holding other design features constant, to have a sufficient range of outcome measures in order to be certain that the impact of instructional characteristics is adequately assessed. Further, the outcomes, along with those of the Johnston and Watson (2004) study, add evidence that choice of phonic methods is, indeed, consequential, with benefits associated with using synthetic methods at the grapheme-phoneme level.

BEYOND FIRST GRADE

The NRP report cited stronger benefits from systematic, explicit code instruction in kindergarten and first grade than in the second through the sixth grades. Tellingly, documentation of teaching practices indicates that generally less time is spent on code instruction after first grade. For example, B. Foorman et al. (2006) reported that approximately 28% of the instruction during 90- to 120-min language arts periods in the first grade incorporated explicit code instruction, whereas only 14% of the language arts sessions in the second grade did so. A similar reduction of code instruction by half in the second grade also was noted by Connor, Morrison, and Underwood (2007). The prevailing assumption appears to be that it is more important to provide code instruction in first grade. However, for children who get off to a slow start, an examination of reading growth trajectories (Spira, Bracken, & Fischel, 2005) indicates an important role for instruction in the second grade, at least for struggling readers. Pointing to even broader significance, striking results obtained by Connor et al. indicate that classroom instructional practices in the second grade in phonics may make a significant impact on all students' reading development, not just those encountering difficulty. In this longitudinal study, 108 students were followed from the first through the third grade. The 2007 publication focused on first- and second-grade achievement and on the characteristics of classroom instruction. Connor et al. classified instruction along two dimensions, child managed versus teacher managed and code focused versus meaning focused. Child-by-instruction interactions were evident: (a) Students who entered

first grade with weaker letter–word reading scores had stronger letter–word reading at the end of second grade when they had received more teacher-managed, code-focused instruction in both the first and second grades. (b) Students who entered first grade with stronger letter–word reading progress had better second-grade reading scores when they received less teacher-managed code instruction in the first grade (Connor, Morrison, & Katch, 2004), but more in the second grade. The latter pattern perhaps reflects a poor fit between the level of code instruction provided in the first grade for the advanced entering students, with a better match between the content of code instruction and the students' instructional level in the second grade. For this discussion, what is compelling is the dramatic difference in reading achievement for all students, hinging on whether they received direct instruction in phonics in the second grade. For the students who had started first grade with stronger letter–word skills, spending some time in second grade on teacher-managed, code instruction resulted in reading performance several years above grade level, whereas not having this instruction was linked with grade level achievement. For the students who began first grade with deficient letter–word knowledge, the data indicated they would reach grade level letter–word reading at the end of second grade only if they were in classes in which teacher-managed, code-focused instruction occurred during both the first and second grades. While more research on these issues would be helpful, these observational results point to the need to incorporate systematic, explicit instruction in code concepts in the second grade, and possibly beyond (Ganske, 2000; Gaskins, 2000; Henry, 2010).

STUDENTS MAKING INADEQUATE PROGRESS IN LEARNING TO READ

A number of studies have documented significant gains in reading skills as a result of systematic, explicit phonics instruction for students who are not making good progress in learning to read (e.g., Hatcher, Hulme, & Snowling, 2004; Lovett et al., 2000; Vadasy & Sanders, 2008). In one investigation by McCandliss et al. (2003), the researchers examined the students' decoding attempts prior to the intervention and identified a pattern of accurate decoding of the first grapheme of a word, followed by relatively worse performance on subsequent vowels and consonants, suggesting that the students (7–10 years of age) were not fully decoding the words. To address this problem, the intervention systematically focused attention over 20 sessions on each grapheme position within the word by a procedure of minimal pairing of words that differed only by a single grapheme (i.e., Beck's Word Building method [Beck, 1989]). In comparison to students assigned to a control group, those in the intervention group had greater improvements in decoding attempts at all grapheme positions and also had significantly greater improvements in standardized measures of decoding, reading comprehension, and phonological awareness.

Along similar lines, Blachman et al. (2004) reported the results of 8 months of intervention conducted with students in the second and third grades. During the sessions, Blachman and her team implemented a set of instructional activities that included sound-symbol instruction, manipulation of word structures using sound

boards or scrabble tiles (e.g., changing *fan* to *fat* to *sat* to *sag*), fluency building for regular and irregular high-frequency words, oral reading practice with different types of text (controlled, trade books, and expository), and spelling/writing practice. In addition to the manipulation of graphemes on "sound boards" (a procedure similar to that used in the McCandless et al. study), Blachman et al. incorporated instruction on the six syllable types of English as a strategy to help students master vowel patterns, typically the most difficult part of beginning reading. The students in the treatment group made significantly greater gains than the students in the regular school-provided intervention program on numerous measures (real word reading, nonword reading, reading rate, passage reading, and spelling). These gains largely were maintained a year later when follow-up testing was conducted. The finding of significant improvement in spelling for treatment students is noteworthy; in the NRP, older poor readers were not found to have improved in spelling following phonics instruction. The mnemonics provided for the vowel syllable types and the associated understanding of contextual influences on vowel spelling may have played a role in this encouraging outcome.

Using other intervention programs, a study by Torgesen et al. (2001) also achieved impressive outcomes with struggling students beyond first grade. Torgesen et al. compared the outcomes of two types of intensive remedial instruction for children between 8 and 10 years of age who previously had been identified as learning disabled with serious weaknesses on word-level reading skills. It is important to point out that both forms of remediation contained explicit, systematic instruction on phonics, as well as other activities including reading connected text. A key part of what differed was the ratio of time allotted to phonics. In one approach, most of a session (85%) was spent on stimulating phonemic/articulatory awareness and building facility at decoding and encoding individual words, with a small portion of the time allotted to reading decodable text. In the second approach, 50% of the time was spent on activities involving meaningful text and only 20% on phonemic decoding and spelling (including phonetic rules and patterns), with additional time on reading sight words accurately and fluently. Despite substantial differences in duration, both methods targeted the grapheme-phoneme elements throughout words, rather than just rime units, and provided explicit instruction on spelling patterns in words. Interestingly, both instructional programs produced very large improvements in reading skills and student performance in each remained improved over a 2-year follow-up period. Torgesen et al. concluded "that within explicit 'structured language' approaches that follow sound instructional principles, there may be considerable latitude for arranging components of instruction according to teacher and student preference." (p. 56) (also see Mathes et al., 2005).

Studies with even older poor readers likewise have documented the benefits of addressing code weaknesses beyond the early grades. Bhattacharya and Ehri (2004) demonstrated that graphosyllabic instruction facilitated adolescent students' ability to decode novel words, providing a bridge to decoding multisyllabic structures. Using peer-mediated instruction that targeted both decoding and comprehension domains, Calhoon (2005) attained improved reading acquisition for middle school students. M. Lovett, Lacerenza, De Palma & Frijters (in press) documented

robust gains with struggling readers in high school using a reading intervention program that incorporated word identification instruction together with the teaching of text structures and reading comprehension strategies. Two recent meta-analytic studies (Edmonds et al., 2009; Scammacca et al., 2007) likewise reported moderate effect size gains from word-level interventions with students in grades 6–12.

Relevant findings also are emerging from research investigating the RTI model with implementation of secondary and tertiary tiers of intervention, as needed, for students in regular classes who have been targeted as being at risk for reading problems (e.g., Coyne, Kame'enui, Simmons, 2001; B. Harn, Kame'enui, & Simmons, 2007; Kamps et al., 2008; McMaster, Fuchs, Fuchs, & Compton, 2005; O'Connor, Harty, & Fulmer, 2005). The findings indicate that more explicit, systematic methods of instruction, offered with greater intensity than in regular classroom instruction, result in improvements in basic literacy skills, with some students advancing to grade level performance. Research on the application of the RTI model in later grades is beginning to be done (e.g., Vaughn et al., 2010), though many issues remain concerning whether the conceptualization of RTI needs to be somewhat different (Fuchs, Fuchs, & Compton, 2010). It should be noted that thus far systematic, explicit phonics interventions with severely disabled readers generally succeed at narrowing the gap in reading problems, but not closing it (Torgesen, 2004). In addition, the breadth of reading weaknesses varies for different students, requiring differentiation of intervention and often multifaceted approaches (Fletcher et al., 2006; Leach, Scarborough, & Rescorla, 2003; also see Snowling (Chapter 6) and Catts and Adlof (Chapter 7)).

Other efforts likewise indicate the need to adjust the intensity of services to help students attain success. In an informal report of the steps implemented to raise reading achievement in a school district in Washington state (Fielding, Kerr, & Rosier, 2007), the authors reported that school personnel determined over a period of years that an inverse relationship holds between the amount of intervention required and how far behind students are: The further behind, the more intervention necessary to achieve catch-up growth. (This sensible approach runs counter to the common school practice of providing a fixed duration of intervention regardless of a student's extent of difficulty.) Researchers have verified that increasing the intensity of intervention in terms of the amount of time and/or the duration is beneficial (e.g., Al Otaiba, Schatschneider, & Silverman, 2005; Denton, Fletcher, Anthony, & Francis, 2006; B. A. Harn, Linan-Thompson, & Roberts, 2008; O'Connor, 2000). While agreeing with this general principle, a study by Simmons, Kame'enui, Harn, Coyne, Stoolmiller et al. (2007) linked the importance both of the content of remedial instruction and of the intensity of delivery. Using a randomized experimental design with three levels of intervention, Simmons et al. compared the effects of beginning reading interventions on early decoding, spelling, and phonemic awareness outcomes for 96 kindergartners who had been identified as at-risk for reading difficulty. The three instructional programs varied systematically along two dimensions, duration and instructional specificity. The outcomes indicated that more explicit instructional designs maximize the use of instructional time, attenuating the need to increase the duration of instruction.

MORE THAN PHONICS

The value of direct instruction on phonics that is explicit and systematic is ever more apparent after another 10 years of pertinent research since the NRP report. What is emerging as well is evidence that engaging students in processes of reading and writing, in addition to providing them with quality phonics instruction, is better than focusing solely on phonics. In 2004, Xue and Meisels reported the findings of a large sample of kindergarten children ($n = 13,609$) in 2690 classrooms from the base year of the Early Childhood Longitudinal Study. In the study, student reading performance was measured both with direct cognitive test scores and with indirect teacher ratings of children's language and literacy abilities. In addition, the teachers provided reports of their literacy instruction practices, rating how often they conducted particular curricular and instructional activities on a 6-point scale ranging from never to daily. This information led to two composite measures of instructional foci on phonics and integrated language arts. Xue and Meisels determined that the phonics approach was moderately, positively correlated with integrated language arts ($r = .55$). Further, they concluded that children performed better when both types of instruction were used more frequently and that the benefits were reciprocal: "Phonics is more effective when it is combined with integrated language arts activities in the classroom. Conversely, integrated language arts instruction works better in classrooms where phonics is also taught more frequently" (p. 219). (Also see Vadasy, Sanders, & Peyton, 2005). These observations echo those of Chall (1967) and the NRP report and fit with evidence from current instructional and intervention studies showing greater gains from multicomponent programs (e.g., Fletcher, Denton, Fuchs, & Vaughn, 2005; M. W. Lovett et al., 2005; M. Lovett et al., in press; Torgesen, 2005). A further source regarding the benefits of offering good instruction on both phonics and integrated language arts comes from observations of exemplary teachers and typical teachers in first-grade classrooms, as mentioned earlier (e.g., Pressley, 2006; Pressley et al., 2001).

CLOSING REMARKS

In the 10 years since the NRP released their conclusions regarding phonics instruction, developments in research have confirmed and extended the findings of the NRP. The sizeable body of research conducted in the intervening decade indicates that how phonics is taught matters: Systematic, explicit methods of code instruction are more effective than approaches that are less explicit (e.g., focusing on rime units; only using analogy techniques) and/or less systematic (e.g., incidental and unstructured methods). From the research that has accrued, normally achieving students, students at risk, and severely disabled readers all have been documented to benefit from systematic, explicit instruction, with variations in the intensity required. Likewise, research outcomes are pointing to the value of extending code-based instruction beyond first grade not only for struggling readers but also for those with stronger prowess in basic skills. Yet, whereas the studies

conducted have supported use of a systematic, direct focus on grapheme–phoneme units, the amount of time devoted to this portion of the literacy curriculum varied widely. In addition, evidence is building that rather than solely providing quality code instruction, outcomes are superior when code instruction is accompanied by rich and varied literacy instruction with opportunities to read and write (e.g., Lyon & Weiser, 2009; Pressley, 2006).

Meanwhile, in educational settings, whether in public schools serving children or in higher education programs, current teacher practices and recommendations by leaders in literacy often represent adoption of an overtly neutral stance regarding phonics, emphasizing that no method is better than any other. At the same time, many educational leaders recommend the use of rime/analogy approaches rather than more fully systematic, explicit phonics instruction. Examination of textbook content and instructor knowledge for teacher education programs suggests that gaps pertaining to code instruction are not uncommon, contributing to inadequate preparation of future teachers to provide evidence-based literacy practices. Correspondingly, studies of teachers' knowledge of code concepts indicate that there still are marked discrepancies between the implications of research and teachers' knowledge base. Although fostering shifts in school practices and gains in student achievement require more than bolstering teacher knowledge (e.g., Smith & Brady, in preparation), this is a necessary ingredient. On the other hand, compatible with the growing research evidence, much of the education community already is endorsing the use of multifaceted literacy instruction (e.g., phonics, text reading, writing, fluency, and comprehension). With the appropriate balance, this approach results in beneficial literacy learning environments for students.

In moving forward, four challenges stand out. First, it will be important to overcome continued resistance in the education community to systematic, explicit phonics instruction and to undercut the claims that all methods of phonics instruction are equally effective. With supportive leadership from within the education field, it can be hoped that educators will become more aware of the additional wave of research since the NRP report and more accepting that direct teaching of the code is in the best interest of students. Perhaps the evidence that explicit instruction reduces the time it takes to launch successful readers will make it more palatable, particularly with the attendant message that doing so in the context of rich, comprehensive literacy instruction is optimal.

Second, teacher preparation programs will need to expand their curricula to build teacher expertise in code instruction (L. Moats, 2009; Stotsky, 2009). Recent research showed an interaction between teacher knowledge of code concepts and whether students benefited from instruction on phonics: When teachers had poor knowledge about phonics, more teaching about the code was detrimental and, when teachers had good knowledge, more teaching was beneficial (Piastra, Connor, Fishman, & Morrison, 2009). Further, programs will need to model quality integration of code instruction within comprehensive literacy curricula, rather than providing token support for systematic, explicit phonics.

Third, and central to the preceding two challenges, it will be important to provide clarification of what constitutes explicit, systematic instruction and

of what kinds of activities achieve constructive synthetic methods. Prominent teacher resources on phonics instruction too often include many valuable complementary activities, but lack sufficient information regarding the content and procedures central to explicit, systematic methods (e.g., Cunningham, 2007; Pinnell & Fountas, 2003). The increasing research support for grapheme-phoneme instruction with sufficient systematic attention to the final and medial portions of words, not just the initial phoneme, needs to be conveyed to practitioners, as does the value of extending instruction to more advanced code concepts beyond first grade.

Fourth, despite the converging results from dozen more studies since the NRP report, numerous topics require further investigation, of course. Among these, more needs to be understood about the optimal duration and scope of instructional ingredients: The amount of time allocated to successful systematic, explicit phonics methods and the mix of instructional components varied widely across experimental studies/conditions leaving questions about the instructional requirements, and whether the aim should be confirming student mastery of components rather than specifying duration. Likewise, research on the benefits of advanced phonics instruction needs to be explored further: In addition to teaching letter-sound correspondences, how much attention to orthographic spelling patterns and morphological structures helps students gain mastery of the English writing system? What are the underlying weaknesses and instructional solutions for those children who are inadequate responders? What is the interplay between oral language development and ability to profit from code instruction?

While these and many other questions remain to be investigated; nonetheless, the research gains from the last 10 years have added to a coherent and consistent picture regarding the merit of systematic, explicit phonics instruction for normally developing readers and for those, younger and older, experiencing difficulty. Perhaps most important, the results from the growing scientific literature underscore the importance of ongoing research on reading instruction and that research can, and should, make a difference regarding educational practices.

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