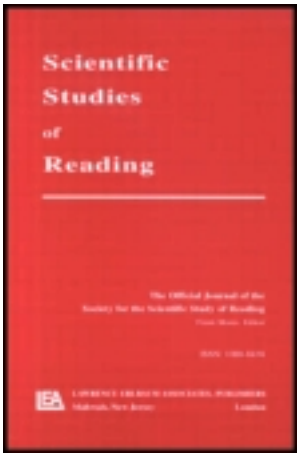

Scientific Studies of Reading
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/hssr20

Peter Effect in the Preparation of Reading Teachers

Emily Binks-Cantrell [a], Erin K. Washburn [b], R. Malatesha Joshi [a] & Martha Hougen [c]

[a] Texas A&M University

[b] State University of New York at Binghamton

[c] University of Texas at Austin

Version of record first published: 19 Jan 2012.

To cite this article: Emily Binks-Cantrell, Erin K. Washburn, R. Malatesha Joshi & Martha Hougen (2012): Peter Effect in the Preparation of Reading Teachers, Scientific Studies of Reading, 16:6, 526-536

To link to this article: http://dx.doi.org/10.1080/10888438.2011.601434

SCIENTIFIC STUDIES OF READING, *16*(6), 526–536

ISSN: 1088-8438 print / 1532-799X online
DOI: 10.1080/10888438.2011.601434

Routledge
Taylor & Francis Group

Peter Effect in the Preparation of Reading Teachers

Emily Binks-Cantrell
Texas A&M University

Erin K. Washburn
State University of New York at Binghamton

R. Malatesha Joshi
Texas A&M University

Martha Hougen
University of Texas at Austin

The Peter Effect (Applegate & Applegate, 2004) claimed that one cannot be expected to give what one does not possess. We applied this notion to reading teacher preparation and hypothesized that teacher educators who do not possess an understanding of basic language constructs would not prepare teacher candidates with an understanding of these constructs considered essential for early reading success. Results from a survey of basic language constructs revealed similar patterns in performance between teacher educators and their respective teacher candidates, which served as initial validation of the Peter Effect in reading teacher preparation.

The Peter Effect is based on the biblical story of the Apostle Peter, who when asked for money by a beggar replied that he could not give what he himself did not have (Acts 3:5). Applegate and Applegate (2004) applied the principle of the Peter Effect as an explanation to their findings from an investigation of teacher candidates' attitudes toward enjoyment of reading. Findings revealed that 54.3% of 195 teacher candidates were classified as unenthusiastic about reading and only

Correspondence should be sent to R. Malatesha Joshi, Department of Teaching, Learning, and Culture, Texas A&M University, College Station, TX 77843. E-mail: mjoshi@tamu.edu

25.2% of teacher candidates reported unqualified enjoyment of reading. In the present study, we hypothesized not only that can teachers not pass on an enthusiasm for reading when they do not possess it but also that teachers cannot pass on understanding of the basic language constructs considered essential for early reading success when they do not possess that understanding.

Although research has outlined essential components of early reading instruction (National Institute of Child Health and Human Development, 2000), teachers have demonstrated limited knowledge of such concepts. Poor classroom instruction has been attributed to a lack of basic understanding of the concepts related to the English language needed to teach reading skills (Bos, Mather, Dickson, Podhajski, & Chard, 2001; Moats, 1994; Spear-Swerling & Brucker, 2003). Poor instruction due to poor teacher knowledge due to poor teacher preparation has been suggested as one of the major causes of reading failure (Brady & Moats, 1997). However, little research has analyzed the current level of understanding of those preparing teachers to teach early reading and how this might carry over to the teacher candidates they teach. The main purpose of this study was to determine whether teacher educators who have a higher understanding of basic language constructs have teacher candidates with a higher understanding of basic language constructs as well.

Basic language constructs considered essential for early reading success include phonological and phonemic awareness, the alphabetic principle/phonics, and morphology (Adams, 1990; Moats, 1999). The National Reading Panel (National Institute of Child Health and Human Development, 2000) recommended that teachers have an explicit knowledge of such concepts for the effective teaching of decoding skills in a direct, systematic manner to enable the successful acquisition of early reading skills for all beginning readers. Ironically, colleges of education may not provide teacher candidates with this information (Joshi, Binks, Hougen, Dahlgren, et al., 2009) leaving future teachers unprepared to effectively teach reading to their future students, as one cannot teach what one does not know.

In one of the first studies of teacher knowledge, experienced reading, language arts, and special education teachers were assessed in their awareness of language elements (e.g., phonemes and morphemes) and how these elements were represented in writing (e.g., knowledge of sound–symbol correspondences; Moats, 1994). The results indicated that even highly motivated and experienced teachers generally had a poor understanding about spoken and written language structure. A second study found that teachers had "insufficiently developed concepts about language and pervasive conceptual weaknesses in the very skills that are needed for direct, systematic, language-focused reading instruction, such as the ability to count phonemes and to identify phonic relationships" (Moats & Lyon, 1996, p. 79). More recently, Moats and Foorman (2003) reported that teachers continued to struggle particularly with (a) manipulating speech sounds; (b) knowledge of

differing letter-sound combinations; (c) conceptualization of functional spelling units such as digraphs, blends, and silent-letter spellings; (d) common syllable types and division patterns; and (e) recognition of children's difficulties with phonological, orthographic, and syntactic learning. Similarly, Spear-Swerling and Brucker (2003) found that none of the elementary and special education teacher participants scored at a high level on all of the tasks assessing knowledge of reading constructs and very few scored a high level on any task. Further, none had received intensive preparation in structured and systematic phonics instruction. Cunningham, Perry, Stanovich, and Stanovich (2004) in turn found that not only did K–3 teachers know very little about phonemic awareness and phonics, but also teachers were often unable to calibrate their knowledge of reading.

These findings are also not specific to inservice teachers or to the United States. Bos et al. (2001) reported that 53% of teacher candidates and 60% of inservice educators were unable to correctly answer nearly half of the items assessing their knowledge of language structure. Although teachers indicated that they believe such reading instructional practices were important, their knowledge in such "important" practices was lacking (Bos et al., 2001). Similarly, teachers in Australia demonstrated a poor knowledge of the role of metalinguistics in the process of learning to read (Fielding-Barnsley & Purdie, 2005). Further, even though there were some differences in the patterns of understanding between the two populations, teacher candidates from both the United States and England demonstrated an insufficient understanding of English phonology, phonics, and morphology needed to effectively teach early reading skills (Binks, Joshi, & Washburn, 2009). Furthermore, Washburn, Joshi, and Binks-Cantrell (2011a, 2011b) found that a majority of teacher candidates and inservice teachers reported misconceptions about dyslexia in conjunction with weak explicit knowledge about phonology, phonetics, and morphology.

On the other hand, explicit teacher preparation in basic language constructs and the teachers' use of systematic instruction seems to improve students' performance in reading-related skills. K–5 teachers with intensive professional development in basic language constructs produced students with significantly higher scores on reading tasks compared to students who were taught by teachers without this knowledge (McCutchen, Abbott, et al., 2002; McCutchen & Berninger, 1999; McCutchen, Harry, et al., 2002; McCutchen, Green, Abbott, & Sanders, 2009). In large, urban, high-poverty schools, professional development teachers not only scored higher on the teachers' knowledge survey but also improved students' overall reading achievement significantly more than their counterparts (Moats & Foorman, 2003). However, it is important to note that knowledge alone does not seem to improve students' reading achievement—teachers must also apply it in their instruction. In a recent study by Piasta, Connor McDonald, Fishman, and Morrison (2009), a significant interaction effect for teacher knowledge and number of observations of explicit decoding instruction

was reported. Thus, students whose teachers were both knowledgeable and devoted more time to explicit decoding instruction made significantly higher gains in word reading.

A possible explanation for the persistently poor performance of teachers and teacher candidates on basic language knowledge assessments may reside with the finding that many teacher educators themselves lack an understanding of the linguistic constructs (Joshi, Binks, Hougen, Graham, et al., 2009). We hypothesized that the teacher educators' lack of understanding of language constructs results in the poor performance of teacher candidates and inservice teachers on these constructs, suggestive of a Peter Effect in preparing reading teachers. In this study, we examined (a) whether teacher educators who have participated in a professional development have a better understanding of basic language constructs than teacher educators who did not participate, and (b) if they did have a better understanding, did their teacher candidates also possess a better understanding of basic language constructs than their teacher candidate counterparts? The second question in particular addresses an issue that would offer some evidence to validate the proposed Peter Effect.

METHOD

Participants

Teacher educators included persons who had instructed early childhood to fourth-grade (EC-4) teacher candidates in reading education within the past academic year of survey participation. Two types of teacher educators were assessed: those who had voluntarily participated in a teacher education professional development program geared toward the promotion of research-based reading instruction for a minimum of 3 years (PD-TE; $n = 48$) and those who had volunteered to participate in the same professional development program but had not yet begun their participation (NPD-TE; $n = 66$). The professional development consisted of multiple 2-day seminars, workshops, and conferences, as well as reading and teaching materials, online collaboration, observational feedback, and syllabus evaluation. Participation in the survey of basic language constructs was voluntary. Eighty-nine percent of NPD teacher educators and 84% of PD teacher educators had a doctorate (with the others working on their doctoral degree), and all had previously taught in elementary schools. All teacher educators were currently teaching two to four courses in reading education at the university level to EC-4 teacher candidates and were from approximately 30 different public and private universities and colleges, community colleges, and/or alternative certification programs in southwestern part of the United States. The number of years involved with teacher education ranged from 1 to 20 years, with a mean of 9.0 ($SD = 4.5$) years for the

TABLE 1
Demographic Comparison Between NPD and PD Teacher Educator Participants

Category	*NPD*	*PD*
Total	66	48
Ethnic distribution		
White	0.91	0.88
Hispanic	0.06	0.08
Black	0.03	0.04
Other	0.00	0.00
Gender		
Male	0.12	0.13
Female	0.88	0.87
Location		
West region	0.05	0.04
North region	0.36	0.38
East region	0.15	0.15
South region	0.30	0.33
Central region	0.14	0.10

Note. All the values represent proportions with the exception of the total, which represents the actual number of teacher educators. Regions refer to regions within the U.S. Southwest. NPD = no professional development; PD = professional development.

NPD-TE group, and 8.3 ($SD = 3.8$) years for the PD-TE group. Demographic information is presented in Table 1. Among the teacher educators, no significant differences were found between PD-TE and NPD-TE groups in ethnicity, gender, location, number of years in teacher education, level of education, number of courses currently being taught, and department. Further, overall teacher educator demographic information (including the nonrespondents) was obtained from the professional development organization, which collected demographic information for all of its enrollees (Higher Education Collaborative, 2006). No significant differences were found between the teacher educator survey nonrespondents and respondents, which offered some evidence that the teacher educators who did not agree to participate were similar to those who did participate in the survey.

Teacher candidate participants were undergraduates in EC-4 teacher certification programs and surveyed at the conclusion of their reading education coursework. Both teacher candidates taught by PD teacher educators (PD-TC; $n = 55$) and teacher candidates taught by NPD teacher educators (NPD-TC; $n = 118$) were surveyed for their understanding of basic language constructs. The PD-TC group had taken an average of 3.6 ($SD = 1.4$) courses in reading education, and the NPD-TC group had taken an average of 3.4 ($SD = 1.5$) courses in reading education. The teacher candidates taught by PD teacher educators had taken an

TABLE 2
Demographic Comparison Between PD and NPD Teacher Candidate Participants

	PD	*NPD*
Total	55	118
Ethnic distribution		
White	0.82	0.81
Hispanic	0.09	0.11
Black	0.04	0.03
Other	0.05	0.04
Gender		
Male	0.05	0.04
Female	0.95	0.96
Location		
West region	0.05	0.04
North region	0.38	0.36
East region	0.16	0.15
South region	0.31	0.33
Central region	0.10	0.12

Note. All the values represent proportions with the exception of the total, which represents the actual number of teacher educators. Regions refer to regions within the U.S. Southwest. PD = professional development; NPD = no professional development.

elementary-level reading education course from that PD teacher educator within the past academic year. Participation in the survey of basic language constructs was voluntary. Demographic information for the PD-TC and NPD-TC groups is displayed in Table 2. Among the teacher candidate survey respondents, no significant differences in terms of ethnicity, gender, and number of reading courses taken were found between the groups. In addition, no statistically significant differences were found between the location distributions of the teacher educator participants and the teacher candidate participants. Further, no statistically significant differences were found between the overall population of new EC-4 teachers (Fuller & Berry, 2006) and the teacher candidate survey respondents, which offered some evidence that the teacher candidates who did not agree to participate are similar to those who did participate in the survey.

Measure

To measure the participants' understanding of language constructs, a survey was developed that consists of 46 items refined from a former 52-item survey used in earlier studies (Joshi, Binks, Dean, & Graham, 2006; Joshi, Binks, Hougen, Dahlgren, et al., 2009). The survey was based on surveys and questionnaires

used by other researchers in the field (Bos et al., 2001; McCutchen, Harry, et al., 2002; Moats, 1994) and designed to assess understanding of the basic language constructs related to research-based reading instruction: phonology, phonics, and morphology (38 items). The phonology items were specified as either measuring phonemic awareness (the ability to hear and manipulate the individual sounds of spoken language, or phonemes) or other phonological awareness skills (such as rhyming, sentence segmentation, syllabication, and onset/rime). The items were also categorized as to whether they assessed explicit knowledge (e.g., items that asked participants to define terms and rules, such as of a phonics generalization) or implicit ability (e.g., items that asked participants to complete a task, such as to read a pseudoword based upon a phonics generalization). Figure 1 outlines the item breakdown of the survey. Copies of the survey, answer key, and validation information can be obtained from the first author.

Item responses were scored as either right or wrong for the analysis. Overall survey scores as well as individual item scores were used for analysis within and between groups. The survey design allowed to determine patterns in understanding among the different constructs (phonological, phonemic, phonics, and morphological) and between-group analysis was used to look for similarities and differences between the groups. Understanding items were also categorized by level of understanding (knowledge and ability) for further analysis within and between groups (see Figure 1). This survey was standardized for reliability, item difficulty, item discrimination, and model fit using exploratory factor analyses.

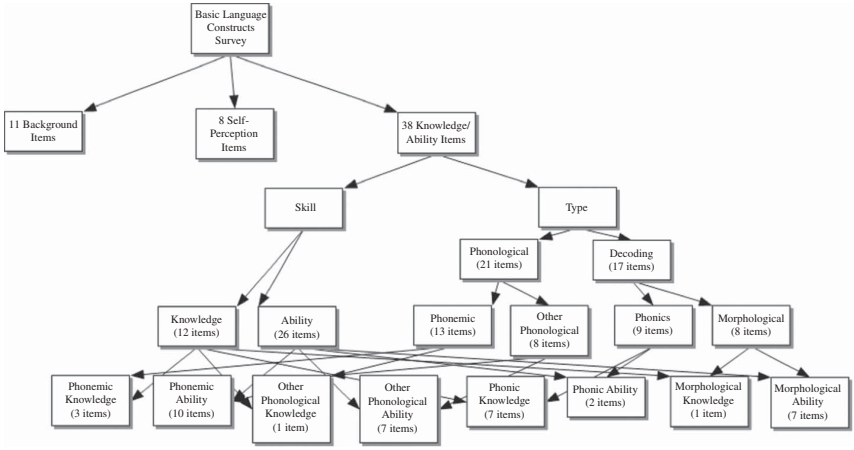

FIGURE 1 Although there are 27 different numbered items on the survey, the actual number of answers that were scored and evaluated for analysis per survey totaled 46 when considering each separate answer into the total number. Eight items assess perception, and 19 [38] items assess knowledge.

The reliability for the scores on the basic language constructs survey was found to be .90 (Cronbach's alpha). The reliability coefficients for the subscales were .75 for knowledge, .85 for ability, .78 for phonological, .76 for phonemic, .71 for phonics, and .88 for morphological.

Procedure

The survey was conducted via the Internet and was not part of the professional development. Teacher educators were encouraged but not required to participate in the survey at conferences and through e-mail correspondence. Both groups of teacher educators facilitated access to teacher candidates from their programs for the authors to invite to complete the survey. All survey participants were strongly discouraged from using outside resources to complete the survey through a prefaced statement as well as limited time to complete the survey (45 min, with the average time to complete the survey during pilot testing being 20 min) and the ability to only access the survey once. The participants were informed that the responses would remain anonymous and no form of individual evaluation would be conducted. However, gender, ethnicity, and university information for each participant was obtained for further analysis.

RESULTS

Table 3 displays the mean proportions and standard deviations of items answered correctly for each group of participants within each category of items. Table 3 indicates that PD participants (including both teacher educators and teacher candidates) outscored their NPD counterparts (teacher educators and teacher candidates) on most understanding (knowledge and ability) items of the survey. The PD-TE group performed consistently better than the NPD-TE group, and the PD-TC group performed consistently better than the NPD-TC group with the exception of the phonological ability items (which favored the NPD-TC group by less than .02).

To explore the possible effects of rank and PD status on the total score, a one-way analysis of variance was performed with group (PD-TE, NPD-TE, PD-TC, and NPD-TC) as the fixed factor and the total score as the dependent variable. The effect of group was significant, $F(3, 283) = 39.419$, $p < .001$, $\eta^2 = .259$. Post hoc comparisons using Tukey's Honestly Significant Difference test indicated that the PD-TE group scored significantly higher on the total survey than NPD-TE and the both teacher candidate groups. In addition, the PD-TC group scored significantly higher than the NPD-TC group. The same was true for all of the different categories except for phonological ability. Most of the phonological ability items

TABLE 3
Mean Proportions of Items Answered Correctly and Standard Deviations for Sample Subsets by Item Category

Item Category	*Overall*	*NPD Teacher Educators*[a]	*PD Teacher Educators*[b]	*NPD Teacher Candidates*[c]	*PD Teacher Candidates*[d]
Knowledge	0.526 (0.499)	0.562 (0.497)	0.754 (0.431)	0.373 (0.484)	0.614 (0.487)
Ability	0.622 (0.485)	0.595 (0.491)	0.782 (0.413)	0.551 (0.498)	0.679 (0.467)
Phonological	0.874 (0.332)	0.873 (0.333)	0.938 (0.242)	0.862 (0.345)	0.846 (0.362)
Phonemic	0.641 (0.480)	0.624 (0.485)	0.790 (0.408)	0.531 (0.499)	0.766 (0.423)
Phonics	0.503 (0.500)	0.556 (0.497)	0.722 (0.448)	0.348 (0.477)	0.580 (0.494)
Morphological	0.330 (0.470)	0.265 (0.442)	0.638 (0.481)	0.215 (0.411)	0.384 (0.487)
Total for understanding	0.595 (0.155)	0.615 (0.198)	0.773 (0.161)	0.491 (0.120)	0.658 (0.181)

Note. NPD = no professional development; PD = professional development.
[a]$n = 66$. [b]$n = 48$. [c]$n = 118$. [d]$n = 55$.

involved implicit awareness (syllable counting) on which most participants did very well (and hence, these items had a low discrimination index).

DISCUSSION

Coinciding with our hypothesis that teacher educators with a higher/lower understanding of basic language constructs will also have teacher candidates with a higher/lower understanding, both the PD teacher educators and their teacher candidates had higher mean scores than their NPD counterparts on each category of the survey, with the exception of phonological ability. Teacher educators who lack a thorough understanding of basic language constructs were unable to give this knowledge to their teacher candidates, and teacher educators with a higher understanding were more likely to pass on this understanding to their teacher candidates; this validates the Peter Effect in reading teacher education. The effect sizes associated with the impact of professional development on understanding scores, though small, still seem to have practical significance.

Although a lack of teacher expertise in basic language constructs has been demonstrated in previous studies, little research has focused on the knowledge and abilities of the teachers of teachers. This study addressed an area of research that could be vital to improving the high incidence of reading difficulties and low reading achievement seen in U.S. schools today—the level of understanding of those teaching our teachers. The results of this study showed that teacher educators do not possess a good understanding of basic language constructs (also see Joshi, Binks, Hougen, Dahlgren, et al., 2009). This may be at least one reason for poor teacher understanding—as teacher educators cannot give what they themselves

do not possess. Effective teaching is the best weapon against reading failure, and, in order for preservice teacher preparation to be improved, an increase in teacher educators' understanding of the critical basic language constructs of reading is needed.

Further research is needed to expand upon how to improve teacher educators' knowledge and ability in basic language constructs. Limitations of this study included somewhat small sample sizes; small effect sizes for the impact of professional development; unsupervised survey completion; and the ability to draw only correlational, not causal, relationships from the data and analyses at hand. Future studies need to address these limitations by, for example, employing larger sample sizes, in-person survey completion, and an experimental design.

REFERENCES

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.

Applegate, A. J., & Applegate, M. D. (2004). The Peter Effect: Reading habits and attitudes of teacher candidates. *The Reading Teacher*, *57*, 554–563.

Binks, E., Joshi, R. M., & Washburn, E. K. (2009, July). *Teacher knowledge and preparation in scientifically-based reading research in the United Kingdom*. Poster presented at the annual meeting of the Society for the Scientific Study of Reading, Boston, MA.

Bos, C., Mather, N., Dickson, S., Podhajski, B., & Chard, D. (2001). Perceptions and knowledge of teacher candidates and inservice educators about early reading instruction. *Annals of Dyslexia*, *51*, 97–120.

Brady, S., & Moats, L. C. (1997). *Informed instruction for reading success—Foundations for teacher preparation* (Position paper). Baltimore, MD: International Dyslexia Association.

Cunningham, A. E., Perry, K. E., Stanovich, K. E., & Stanovich, P. J. (2004). Disciplinary knowledge of K–3 teachers and their knowledge calibration in the domain of early literacy. *Annals of Dyslexia*, *54*, 139–167.

Fielding-Barnsley, R., & Purdie, N. (2005). Teachers' attitude to and knowledge of metalinguistics in the process of learning to read. *Asia-Pacific Journal of Teacher Education*, *33*, 65–75.

Fuller, E., & Berry, B. (2006). *Texas teacher quality data: Prospects and problems*. Hillsborough, NC: Center for Teaching Quality.

Higher Education Collaborative. (2006). *Texas Reading First Higher Education Collaborative: 2005–2006 annual report*. Austin, TX: Vaughn Gross Center for Reading and Language Arts.

Joshi, R. M., Binks, E., Dean, E. O., & Graham, L. (2006, November). *Roadblocks to reading acquisition: Is teacher knowledge one of them?* Paper presented at the annual Meeting of the International Dyslexia Association, Indianapolis, IN.

Joshi, R. M., Binks, E., Hougen, M., Dahlgren, M., Dean, E., & Smith, D. (2009). Why elementary teachers might be inadequately prepared to teach reading. *Journal of Learning Disabilities*, *42*, 392–402.

Joshi, R. M., Binks, E., Hougen, M., Graham, L., Zhao, J., Padakannaya, P., . . . Washburn, E. (2009, July). *Peter Effect in preparing reading teachers*. Paper presented at the annual meeting of the Society for the Scientific Study of Reading, Boston, MA.

McCutchen, D., Abbott, R. D., Green, L. B., Beretvas, S. N., Cox, S., Potter, N. S., . . . Gray. A. L. (2002). Beginning literacy: Links among teacher knowledge, teacher practice, and student learning. *Journal of Learning Disabilities*, *35*, 69–86.

McCutchen, D., & Berninger, V. (1999). Those who know, teach well: Helping teachers master literacy-related subject-matter knowledge. *Learning Disabilities Research & Practice*, *14*, 215–226.

McCutchen, D., Green, L., Abbott, R. D., & Sanders, E. A. (2009). Further evidence for teacher knowledge: Supporting struggling readers in grades three through five. *Reading and Writing: An Interdisciplinary Journal*, *22*, 401–423.

McCutchen, D., Harry, D. R., Cunningham, A. E., Cox, S., Sidman, S., & Covill, A. E. (2002). Reading teachers' knowledge of children's literature and English phonology. *Annals of Dyslexia*, *52*, 207–225.

Moats, L. C. (1994). The missing foundation in teacher education: Knowledge of the structure of spoken and written language. *Annals of Dyslexia*, *44*, 81–102.

Moats, L. C. (1999). *Teaching reading is rocket science*. Washington, DC: American Federation of Teachers.

Moats, L. C., & Foorman, B. R. (2003). Measuring teachers' content knowledge of language and reading. *Annals of Dyslexia*, *53*, 23–45.

Moats, L. C., & Lyon, G. R. (1996). Wanted: Teachers with knowledge of language. *Topics in Language Disorders*, *16*, 73–86.

National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups* (NIH Publication No. 00–4754). Washington, DC: U.S. Government Printing Office.

Piasta, S. B., Connor McDonald, C., Fishman, B. J., & Morrison, F. J. (2009). Teachers' knowledge of literacy concepts, classroom practices, and student reading growth. *Scientific Studies of Reading*, *13*, 224–248.

Spear-Swerling, L., & Brucker, P. O. (2003). Teachers' acquisition of knowledge about English word structure. *Annals of Dyslexia*, *53*, 72–103.

Washburn, E. K., Joshi, R. M., & Binks-Cantrell, E. S. (2011a). Are preservice teachers prepared to teach struggling readers? *Annals of Dyslexia*, *61*, 21–43.

Washburn, E. K., Joshi, R. M., & Binks-Cantrell, E. S. (2011b). Teacher knowledge of basic language concepts and dyslexia. *Dyslexia*, *17*, 165–183.