

What Works Clearinghouse



Phonological Awareness Training

Program Description¹

Phonological awareness, or the ability to detect or manipulate the sounds in words independent of meaning, has been identified as a key early literacy skill and precursor to reading. For the purposes of this review, *phonological awareness training* refers to any practice targeting young children’s phonological awareness abilities.

Phonological awareness training can involve various activities that focus on teaching children to identify, detect, delete, segment, or blend segments of spoken words (i.e., words, syllables, onsets and rimes, phonemes) or to identify, detect, or produce rhyme or alliteration. *Phonologic awareness training* can occur in both regular and special education classrooms. Various curricula are available to support this training.

Research²

Four studies of *phonological awareness training* that fall within the scope of the Early Childhood Education Interventions for Children with Disabilities review protocol meet What Works Clearinghouse (WWC) evidence standards without reservations. The four studies included 78 children with disabilities or developmental delays attending preschool in four locations across the United States. Based on these four studies, the WWC considers the extent of evidence of *phonological awareness training* on children with learning disabilities in early education settings to be small for one domain: communication/language competencies. Six other domains are not reported in this intervention report. (See the Effectiveness Summary for further description of all domains.)

Effectiveness

Phonological awareness training was found to have potentially positive effects on communication/language competencies for children with learning disabilities in early education settings.

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Table 1. Summary of findings³

Outcome domain	Rating of effectiveness	Improvement index (percentile points)		Number of studies	Number of students	Extent of evidence
		Average	Range			
Communication/language competencies	Potentially positive effects	+13	-16 to +46	4	78	Small

Program Information

Background

Phonological awareness training does not have a single developer responsible for providing information or materials. The interventions described in this report were developed by the study authors and are not available for distribution through a common developer. However, many online resources are available for readers interested in using *phonological awareness training* practices. A list of examples follows, although these sources have not been reviewed or endorsed by the WWC:

- Florida Center for Reading Research: <http://www.fcrr.org>
- Foundations of Reading: Effective Phonological Awareness Instruction and Progress Monitoring: http://www.meadowscenter.org/vgc/materials/primary_phono_awareness.asp
- Ideas and Activities for Developing Phonological Awareness Skills: A Teacher Resource Supplement to the Virginia Early Intervention Reading Initiative: http://www.doe.virginia.gov/instruction/response_intervention/resources/ideas_activities_develop_phonological.pdf
- Improving Reading Fluency: Phonological Awareness Training: http://www.speechpathology.com/Articles/article_detail.asp?article_id=68
- National Reading Panel: <http://www.nationalreadingpanel.org>
- Phonological Awareness: Instructional and Assessment Guidelines: <http://www.idonline.org/article/6254>
- Phonological Awareness Skills and Spelling Skills: <http://cla.calpoly.edu/~jrubba/phon/phonaware.html>
- Reading Recovery Council of North America: Phonics: http://www.readingrecovery.org/reading_recovery/phonics/index.asp
- Reading Rockets: Teacher Toolbox—Phonological Awareness: The Phive Phones of Reading: <http://www.readingrockets.org/firstyear/fyt.php?SUB=33>
- Target the Problem! Phonological and Phonemic Awareness: <http://www.readingrockets.org/helping/target/phonologicalphonemic>
- University of Oregon—Center on Teaching and Learning: Big Ideas in Beginning Reading: <http://reading.uoregon.edu/>

Program details

Phonological awareness training practices vary in their scope and may include a variety of activities that are intended to enable children to detect and understand sounds in language.⁴ In particular, *phonological awareness training* practices tend to focus on teaching children to rhyme or to detect alliteration in language. Examples of these activities include:

- rhyme detection training (e.g., teachers engage children in a game involving rhyming words and questions about which word in a series of three does not sound like the others),
- blending training (e.g., teachers say three sounds and teach children how to blend the sounds together to make a word), and
- segmentation training (e.g., teachers say a short word such as “cat” and teach children how to separate the word into the three sounds that make up the word) at the phoneme, syllable, or word level.

Phonological awareness training practices can be used by teachers or practitioners with children individually, in pairs, or in small groups. These practices may be part of the core curriculum or used as a supplement to the regular classroom curriculum, and they have been used with specific subpopulations of children, such as those with developmental delays and speech/language or learning disabilities.

Cost

Information is not available about the costs of teacher or practitioner training and implementation of *phonological awareness training* practices.

Research Summary

Two hundred twenty-five studies reviewed by the WWC investigated the effects of *phonological awareness training* on children with learning disabilities in early education settings. Four studies (O’Connor, Jenkins, Leicester, & Slocum, 1993; Sweat, 2003; Tyler, Lewis, Haskill, & Tolbert, 2003; Tyler, Gillon, Macrae, & Johnson, 2011) are randomized controlled trials that meet WWC evidence standards without reservations. Those four studies are summarized in this report. The remaining 221 studies do not meet either WWC eligibility screens or evidence standards. (See references beginning on p. 6 for citations for all 225 studies.)

Table 2. Scope of reviewed research

Grade	Pre-kindergarten
Delivery method	Individual/Small group
Program type	Practice/Curriculum
Studies reviewed	225
Meets WWC standards without reservations	4 studies
Meets WWC standards with reservations	0 studies

Four additional studies were reviewed against the pilot Single-Case Design standards. One study met the pilot Single-Case Design standards without reservations, no studies met the pilot Single-Case Design standards with reservations, and three did not meet pilot Single-Case Design standards. Studies reviewed against pilot Single-Case Design standards are listed in Appendix E and do not contribute to the intervention’s rating of effectiveness.

Summary of studies meeting WWC evidence standards without reservations

O’Connor et al. (1993) examined the effects of *phonological awareness training* on 22 children ages 4 to 6 with developmental delays in a university preschool. The study used a randomized block design, stratifying children by age and whether they were in a morning or afternoon class, and ranking them by a cognitive pretest. Children were assigned to one of three types of *phonological awareness training* or a no-treatment comparison group, but only one set of contrasts across the groups met WWC standards: *phonological awareness training with a blending focus* versus the comparison group.⁵ Children in the *phonological awareness training with a blending focus* group participated in small groups (three to five children) for 10 minutes a day, four times a week, for seven weeks.

Sweat (2003) randomly assigned 20 children ages 3 to 5 with morphological and phonological impairments to one of two groups. Children in the intervention group received *phonological awareness training*, and children in the comparison group participated in a morphosyntactic intervention, which focused on finite morphemes (e.g., /s/ as in “sleeps” or /d/ as in “happened”). Both interventions included weekly individual and group sessions over a 12-week period. The children in the sample attended one of four preschools.

Tyler et al. (2003) examined the effects of *phonological awareness training* (relative to a morphosyntactic intervention) in a sample of 20 children ages 3 to 5 with co-occurring speech and language impairments. Children in the intervention group received *phonological awareness training*, which included goal attack strategies related to awareness of target sounds, differences and similarities between target sounds, and production practice. Children in the comparison group received a morphosyntactic intervention, which included goal attack strategies related to awareness of morphosyntactic targets in the context of children’s books and songs, focused stimulation, and elicited production of target morphemes. Both of the interventions included weekly individual and group sessions over a 12-week period.

Tyler et al. (2011) randomly assigned children ages 3 to 5 with co-occurring speech and language impairments, using a matched pairs design. The children attended preschool in one of two sites, either the United States or New Zealand; this WWC review includes 16 children attending the US site.⁶ Children in the intervention group received a phonemic awareness intervention, with an integrated direct speech focus. Children in the comparison group received a morphosyntactic intervention, focusing on morphophonemic interactions and finite morphemes. Each

group received its assigned intervention in a small-group setting, with instruction totaling 24 hours administered over 12 weeks separated into two blocks.

Summary of studies meeting WWC evidence standards with reservations

No studies of *phonological awareness training* meet WWC evidence standards with reservations.

Effectiveness Summary

The WWC review of interventions for Early Childhood Education Interventions for Children with Disabilities addresses student outcomes in seven domains: cognitive development, communication/language competencies, literacy, math achievement, social-emotional development and behavior, functional abilities, and physical well-being. The four studies that contribute to the effectiveness rating in this report cover one domain: communication/language competencies. The findings below present the authors’ estimates and WWC-calculated estimates of the size and statistical significance of the effects of *phonological awareness training* on children with learning disabilities in early education settings. For a more detailed description of the rating of effectiveness and extent of evidence criteria, see the WWC Rating Criteria on p. 41.

Summary of effectiveness for the communication/language competencies domain

Four studies reported findings in the communication/language competencies domain.

O’Connor et al. (1993) found, and the WWC confirmed, three statistically significant positive differences between the intervention (*phonological awareness training with a blending focus*) and comparison groups on outcomes targeting “blending” knowledge in the communication/language competencies domain. Because there were three statistically significant positive impacts and no statistically significant negative impacts, this study is characterized as having statistically significant positive effects.

Sweat (2003) found two statistically significant differences between the intervention and comparison groups.⁷ However, according to WWC calculations, neither of these differences was statistically significant. The average effect size across all findings is large enough to be considered substantively important. Therefore, the study is characterized as having substantively important positive effects according to WWC criteria (that is, at least 0.25 standard deviation).

Tyler et al. (2003) found, and the WWC confirmed, no statistically significant differences between the intervention and comparison groups. According to WWC criteria, this study is characterized as having an indeterminate effect.

Tyler et al. (2011) found, and the WWC confirmed, no statistically significant differences between the intervention and comparison groups. According to WWC criteria, this study is characterized as having an indeterminate effect.

Thus, for the communication/language competencies domain, one study showed a statistically significant positive effect, one study showed a substantively important positive effect, no studies showed a statistically significant or substantively important negative effect, and two studies showed an indeterminate effect. This results in a rating of potentially positive effects, with a small extent of evidence.

Table 3. Rating of effectiveness and extent of evidence for the communication/language competencies domain

Rating of effectiveness	Criteria met
<p>Potentially positive effects <i>Evidence of a positive effect with no overriding contrary evidence.</i></p>	<p>The review of <i>phonological awareness training</i> in the communication/language competencies domain had one study showing a statistically significant positive effect, one study showing a substantively important positive effect, no studies showing a statistically significant or substantively important negative effect, and two studies showing an indeterminate effect.</p>
Extent of evidence	Criteria met
<p>Small</p>	<p>The review of <i>phonological awareness training</i> in the communication/language competencies domain was based on four studies that included 10 locations and 78 children.</p>

References

Studies that meet WWC evidence standards without reservations

- O'Connor, R. E., Jenkins, J. R., Leicester, N., & Slocum, T. A. (1993). Teaching phonological awareness to young children with learning disabilities. *Exceptional Children*, 59(6), 532–546.
- Sweat, L. M. (2003). Comparing the effects of morphosyntax and phonology intervention on final consonant clusters in finite morphemes and final consonant inventories. *Masters Abstracts International*, 42(01), 31–231.
- Tyler, A. A., Gillon, G., Macrae, T., & Johnson, R. L. (2011). Direct and indirect effects of stimulating phoneme awareness vs. other linguistic skills in preschoolers with co-occurring speech and language impairments. *Topics in Language Disorders*, 31(2), 128–144.
- Tyler, A. A., Lewis, K. E., Haskill, A., & Tolbert, L. C. (2003). Outcomes of different speech and language goal attack strategies. *Journal of Speech, Language, and Hearing Research*, 46(5), 1077–1094.

Studies that do not meet WWC evidence standards

- Klein, E. S. (1996). Phonological/traditional approaches to articulation therapy: A retrospective group comparison. *Language, Speech, and Hearing Services in Schools*, 27(4), 314–323. The study does not meet WWC evidence standards because it uses a quasi-experimental design in which the analytic intervention and comparison groups are not shown to be equivalent.
- Laing, S. P., & Espeland, W. (2005). Low intensity phonological awareness training in a preschool classroom for children with communication impairments. *Journal of Communication Disorders*, 38(1), 65–82. The study does not meet WWC evidence standards because it uses a quasi-experimental design in which the analytic intervention and comparison groups are not shown to be equivalent.
- Tyler, A. A., Lewis, K. E., Haskill, A., & Tolbert, L. C. (2002). Efficacy and cross-domain effects of a morphosyntax and a phonology intervention. *Language, Speech, and Hearing Services in Schools*, 33(1), 52–66. The study does not meet WWC evidence standards because it uses a quasi-experimental design in which the analytic intervention and comparison groups are not shown to be equivalent.
- Tyler, A. A., & Watterson, K. H. (1991). Effects of phonological versus language intervention in preschoolers with both phonological and language impairment. *Child Language Teaching and Therapy*, 7(2), 141. The study does not meet WWC evidence standards because it is a randomized controlled trial in which the combination of overall and differential attrition rates exceeds WWC standards for this area, and the subsequent analytic intervention and comparison groups are not shown to be equivalent.
- Van Kleeck, A., Gillam, R. B., & McFadden, T. U. (1998). A study of classroom-based phonological awareness training for preschoolers with speech and/or language disorders. *American Journal of Speech-Language Pathology*, 7(3), 65–76. The study does not meet WWC evidence standards because it uses a quasi-experimental design in which the analytic intervention and comparison groups are not shown to be equivalent.
- Wolfe, V., Presley, C., & Mesaris, J. (2003). The importance of sound identification training in phonological intervention. *American Journal of Speech-Language Pathology*, 12(3), 282–288. The study does not meet WWC evidence standards because the measures of effectiveness cannot be attributed solely to the intervention—there was only one unit assigned to one or both conditions.

Studies that are ineligible for review using the Early Childhood Education Interventions for Children with Disabilities Evidence Review Protocol

- Abadzi, H. (2003). *Teaching adults to read better and faster: Results from an experiment in Burkina Faso* (Policy Research Working Paper Series: 3057). Washington, DC: The World Bank. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.

- Abshire, S. A. (2006). *Exploring implicit versus explicit methods of teaching phonemic awareness instruction to kindergarten students* (Unpublished doctoral dissertation). Louisiana State University, Baton Rouge. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Adema, S. S. (1998). *An examination of phonological awareness training and kindergarten children's spelling* (Unpublished master's thesis). Calvin College, Grand Rapids, MI. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Alexander, A. W., Andersen, H. G., Heilman, P. C., & Voeller, K. K. (1991). Phonological awareness training and remediation of analytic decoding deficits in a group of severe dyslexics. *Annals of Dyslexia*, 41, 193–206. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Almost, D., & Rosenbaum, P. (1998). Effectiveness of speech intervention for phonological disorders: A randomized controlled trial. *Developmental Medicine and Child Neurology*, 40(5), 319–325. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Al Otaiba, S., Puranik, C. S., Ziolkowski, R. A., & Montgomery, T. M. (2009). Effectiveness of early phonological awareness interventions for students with speech or language impairments. *Journal of Special Education*, 43(2), 107–128. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Aoyama, K., Peters, A. M., & Winchester, K. S. (2010). Phonological changes during the transition from one-word to productive word combination. *Journal of Child Language*, 37(1), 145–157. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Arrow, A. W. (2007). *Potential precursors to the development of phonological awareness in preschool children* (Unpublished doctoral dissertation). University of Auckland, New Zealand. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Asfendis, G. (2009). Phonemic awareness and early intervention: An evaluation of a pilot phonemic awareness program. *Dissertation Abstracts International*, 69(8-A), 3027. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Atwill, K., Blanchard, J., Christie, J., Gorin, J. S., & Garcia, H. S. (2010). English-language learners: Implications of limited vocabulary for cross-language transfer of phonemic awareness with kindergartners. *Journal of Hispanic Higher Education*, 9(2), 104–129. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Barker, T., & Torgesen, J. K. (1995). An evaluation of computer-assisted instruction in phonological awareness with below average readers. *Journal of Educational Computing Research*, 13(1), 89–103. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Barron, R. W., Golden, J. O., Seldon, D. M., & Tait, C. F. (1992). Teaching prereading skills with a talking computer: Letter-sound knowledge and print feedback facilitate nonreaders' phonological awareness training. *Reading and Writing*, 4(2), 179–204. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Beach, D. W. (2004). *The effects of a school district's kindergarten readiness summer program on phonological awareness skills of at-risk prekindergarten students: A regression discontinuity analysis* (Unpublished doctoral dissertation). Utah State University, Logan. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample either includes less than 50% students with identified disabilities or more than 50% students with autism.
- Bennett, L. S. M. (1998). Teaching phonological awareness with an emphasis on linkage to reading. *Dissertation Abstracts International*, 60(06A), 211-1962. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.

- Bentin, S., & Leshem, H. (1993). On the interaction between phonological awareness and reading acquisition: It's a two-way street. *Annals of Dyslexia*, 43, 125–148. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Berninger, V. W., Vaughan, K. B., Abbott, R. D., Abbott, S. P., Rogan, L. W., Brooks, A.,...Graham, S. (1997). Treatment of handwriting problems in beginning writers: Transfer from handwriting to composition. *Journal of Educational Psychology*, 89(4), 652–666. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Bianco, M., Bressoux, P., Doyen, A., Lambert, E., Lima, L., Pellenq, C., & Zorman, M. (2010). Early training in oral comprehension and phonological skills: Results of a three-year longitudinal study. *Scientific Studies of Reading*, 14(3), 211–246. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Biwer, D. L. (2002). Effects of three phonological awareness programs on kindergarten students identified as at risk for reading failure. *Dissertation Abstracts International*, 63(06A), 140-2106. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Blachman, B. A. (1991). Early intervention for children's reading problems: Clinical applications of the research in phonological awareness. *Topics in Language Disorders*, 12(1), 51–65. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Blachman, B. A. (1994). What we have learned from longitudinal studies of phonological processing and reading, and some unanswered questions: A response to Torgesen, Wagner, and Roshotte. *Journal of Learning Disabilities*, 27(5), 287–291. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Blachman, B. A., Tangel, D. M., Ball, E. W., Black, R., & McGraw, C. K. (1999). Developing phonological awareness and word recognition skills: A two-year intervention with low-income, inner-city children. *Reading and Writing: An Interdisciplinary Journal*, 11(3), 239–273. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Blumsack, J. B. (1998). Teaching phonological awareness to children with language impairments. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, 58(7-A), 2587. The study is ineligible for review because it does not disaggregate findings for the age or grade range specified in the protocol.
- Bodé, S., & Content, A. (2011). Phonological awareness in kindergarten: A field study in Luxembourgish schools. *European Journal of Psychology of Education*, 26(1), 109–128. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Bowers, P. N., Kirby, J. R., & Deacon, S. H. (2010). The effects of morphological instruction on literacy skills: A systematic review of the literature. *Review of Educational Research*, 80(2), 144–179. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Bowyer-Crane, C., Snowling, M. J., Duff, F. J., Fieldsend, E., Carroll, J. M., Miles, J....Hulme, C. (2008). Improving early language and literacy skills: Differential effects of an oral language versus a phonology with reading intervention. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 49(4), 422–432. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Brady, S., Fowler, A., Stone, B., & Winbury, N. (1994). Training phonological awareness: A study with inner-city kindergarten children. *Annals of Dyslexia*, 44, 26–59. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Brennan, F., & Ireson, J. (1997). Training phonological awareness: A study to evaluate the effects of a program of metalinguistic games in kindergarten. *Reading and Writing*, 9(4), 241–263. The study is ineligible for review

because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.

- Brooks, G. (1999). What works for slow readers? *Support for Learning*, 14(1), 27. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Burrows, C., Marinac, J. V., & Pitty, K. (2009). *Phonological awareness training for high schools (PATHS)*. San Diego, CA: Plural Publishing. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Bus, A. G., & van Ijzendoorn, M. H. (1999). Phonological awareness and early reading: A meta-analysis of experimental training studies. *Journal of Educational Psychology*, 91(3), 403–414. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Butler, K. G. (1999). From oracy to literacy: Changing clinical perceptions. *Topics in Language Disorders*, 20(1), 14–32. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Cardoso-Martins, C., Mesquita, T. C. L., & Ehri, L. (2011). Letter names and phonological awareness help children to learn letter-sound relations. *Journal of Experimental Child Psychology*, 109(1), 25–38. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Casalis, S., & Cole, P. (2009). On the relationship between morphological and phonological awareness: Effects of training in kindergarten and in first-grade reading. *First Language*, 29(1), 113–142. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Chen, S. (2004). *Identifying reading disabilities in Taiwanese aboriginal students* (Unpublished doctoral dissertation). National Taiwan Normal University, Taipei. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Chen, Y. (2005). The role of phonological and morphological awareness in early Chinese reading of young children who are deaf or hard of hearing in Taiwan. *Dissertation Abstracts International*, 66(05A), 152-1712. The study is ineligible for review because it does not examine an intervention conducted in English.
- Chera, P., & Wood, C. (2003). Animated multimedia “talking books” can promote phonological awareness in children beginning to read. *Learning and Instruction*, 13(1), 33–52. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Chih-Hsin, L. (2006). *The role of phonological awareness in Taiwanese students’ English reading and pronunciation acquisition* (Unpublished master’s thesis). National Tsing Hua University, Hsinchu City, Taiwan. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Claessen, M., Heath, S., Fletcher, J., Hogben, J., & Leitao, S. (2009). Quality of phonological representations: A window into the lexicon? *International Journal of Language & Communication Disorders*, 44(2), 121–144. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Cologon, K., Cupples, L., & Wyver, S. R. (2006). *Phonological awareness and “silent reading”: The benefits of intervention and early intervention in reading for children who have Down syndrome* (Unpublished doctoral dissertation). Macquarie University, Sydney, Australia. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Colon, E. P. (2006). Utility of the Lindamood Phoneme Sequencing Program (LiPS) for classroom-based reading instruction. *Dissertation Abstracts International*, 67(1-A), 131. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Constantine, J. L. (2001). Integrating thematic-fantasy play and phonological awareness activities in a speech-language preschool environment. *Journal of Instructional Psychology*, 28(1), 9–14. The study is ineligible for review because it does not use a comparison group design or a single-case design.

