What Works Clearinghouse

INSTITUTE OF EDUCATION SCIENCES

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Interactive Shared Book Reading

Practice description

Interactive Shared Book Reading is a general practice that adults may use when reading with children and is intended to enhance young children's language and literacy skills. Typically, Interactive *Shared Book Reading* involves an adult reading a book to a child or a small group of children and using a variety of techniques to engage the children in the text. Two related practices are addressed in the What Works Clearinghouse (WWC) intervention reports on *Dialogic Reading* and *Shared Book Reading.*

Research

Two studies of *Interactive Shared Book Reading* met the WWC evidence standards and one study met the WWC evidence standards with reservations.[1] Together these three studies included over 100 preschool children from the Midwest and Florida, and they examined intervention effects on children's oral language, print knowledge, and early reading/writing. The majority of the children were from economically disadvantaged families and many were considered at-risk. This report focuses on immediate posttest findings to determine the effectiveness of the practice.[2]

Effectiveness

Interactive Shared Book Reading was found to have mixed effects on oral language, no discernible effects on print knowledge, and potentially positive effects on early reading/writing.

	Oral language	*Print knowledge*	*Phonological processing*	*Early reading/ writing*	*Cognition*	*Math*
Rating of effectiveness	Mixed effects	No discernible effects	N/A	Potentially positive effects	N/A	N/A
Improvement index[3]	Average: +3 percentile points Range: –20 to +17 percentile points	Average: –4 percentile points Range: –10 to +10 percentile points	N/A	Average: +26 percentile points	N/A	N/A

1. To be eligible for the WWC's review, the Early Childhood Education (ECE) intervention had to be implemented in English in center-based settings with children aged three to five or in preschool. One additional study is not included in the overall effectiveness ratings because it compared variations of *Interactive Shared Book Reading* interventions to each other, which does not allow the effects of *Interactive Shared Book Reading* to be determined. See the section titled "Findings for comparisons between variations of *Interactive Shared Book Reading*" and Appendix A5 for findings from this study.
2. The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.
3. These numbers show the average and range of improvement indices for all findings across the studies.

Additional practice information

Developer and contact

Interactive Shared Book Reading is a practice that 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. Readers interested in using *Interactive Shared Book Reading* practices in their classroom can refer to sources available through internet searches for information. A list of examples follows, although these sources have not been reviewed or endorsed by the WWC:

- "Strategies to Promote Emergent Literacy:" http://www.cfchildren.org/wwf/researchrvw/strategies.
- "Reading and Talking Together About Books:" http://www.emsc.nysed.gov/evenstart/parentinged/lessons/scale2/LII2_2.doc.
- Reading Rockets' Roots of Reading: Meet the Experts: http://www.pbs.org/launchingreaders/rootsofreading/meettheexperts_2.html.
- Stern Center for Language and Learning: http://www.sterncenter.org/BBsharedbookreading.htm.
- Royal Children's Hospital, Melbourne "Community Pediatric Review:" http://www.rch.org.au/emplibrary/ccch/CPR_Vol_13_No_1.pdf.
- Early Childhood Research & Practice Journal article: http://ecrp.uiuc.edu/v7n2/heisner.html.
- Child Trends' Poster presented at Head Start's 7th National Research Conference June 28, 2004: http://65.242.47.55/Files//Child_Trends-2004_06_30_SP_EmergentLiteracy.pdf.

Scope of use

Information is not available on the number or demographics of children or centers using this practice.

Teaching

In center-based settings, *Interactive Shared Book Reading* can be used by teachers with individual children or in small and large group settings. In a typical *Interactive Shared Book Reading* session, an adult reads a book to a child or a group of children and engages the children in the text through interactive techniques before, during, or after reading the text. For instance, before reading the book, the adult may ask the children to point to the title or make predictions about what might happen in the book. During book reading, the adult may ask questions, give explanations, pose prompts, or call on a child to answer a specific question. The adult may focus on modeling reading to the children and helping them with various aspects of print awareness, such as learning that text is read from top to bottom and left to right. After reading the book, the adult may discuss the book with the children and attempt to draw connections between events in the story and in the children's lives. The books chosen for reading often have large print, a small number of words per page, and illustrations throughout. Other factors to consider in selecting books include regional relevance (e.g., reading a story about children making snow angels may not be relevant to children in Southern California). Although *Interactive Shared Book Reading* practices vary in frequency, reading sessions are generally brief (e.g., 10 to 15 minutes) and occur several days a week. Specific teacher training on *Interactive Shared Book Reading* practices is not available.

Cost

Information is not available about the costs of teacher training and implementation of *Interactive Shared Book Reading* practices.

Research

Eight studies reviewed by the WWC investigated the effects of *Interactive Shared Book Reading* practices in center-based settings. Two studies (Lamb, 1986; Mautte, 1991) were randomized controlled trials that met WWC evidence standards. One study (McCormick & Mason, 1989) was a quasi-experimental design that met WWC evidence standards with reservations. One additional study met the WWC evidence standards (Justice & Ezell, 2002) and is included in this report; however, it compared two different variations of *Interactive Shared Book Reading* to each other, which does not allow the effects of *Interactive Shared Book Reading* to be determined. Therefore, this study is discussed separately and the findings are not included in the intervention ratings.[4] The remaining five studies did not meet WWC evidence screens.

Met evidence standards

Lamb (1986) included 36 three- to five-year-old low-income children from a day care center in Tallahassee, Florida. Lamb compared three intervention groups—read-aloud with language interaction, read-aloud only, and language interaction only—to a no-treatment comparison group participating in regular preschool activities. This WWC intervention report focuses on the comparison of oral language and print knowledge outcomes between the read-aloud with language interaction group (the *Interactive Shared Book Reading* condition) and the read-aloud only group (the comparison condition) with a total of 19 children. The comparison between the read-aloud with interaction group and the no-treatment comparison group was excluded from the review by the WWC because it did not meet WWC evidence screens.[5] The language interaction only intervention group was excluded from the WWC review because it cannot be used to isolate the effects of *Interactive Shared Book Reading.*

Mautte (1991) included 53 at-risk low-income four-year-olds from an inner-city Early Childhood Education center in Tampa, Florida. The children were primarily African-American and about half were female. Mautte compared two intervention groups—repeated reading with adult interaction and repeated reading without adult interaction—to a no-treatment comparison group participating in regular preschool pre-kindergarten curriculum activities. This WWC intervention report focuses on the comparison of oral language and print knowledge outcomes between the repeated reading with adult interaction group (the *Interactive Shared Book Reading* condition) and the repeated reading without adult interaction group (the comparison condition) with a total of 38 children. The comparison between the repeated reading with adult interaction group and the no-treatment comparison group was not used by the WWC because it did not meet WWC evidence screens.[6]

Met evidence standards with reservations

McCormick and Mason (1989) included 51 children from four Head Start classrooms in a small city in the Midwest. The children were primarily Caucasian. McCormick and Mason

4. Some of the other studies that are included in the WWC review may appear to be head-to-head comparisons of *Interactive Shared Book Reading.* However, in each of the other studies, the comparison condition does not involve one or more of the key components of this practice (e.g., McCormick and Mason is a comparison between an interactive reading condition and a condition that involves interaction but not the book), allowing the WWC to determine the effects of *Interactive Shared Book Reading.*

5. The researcher implemented the intervention in all three groups but had no or minimal contact with the children in the no-treatment comparison group; therefore, the agent of the intervention was confounded with study condition for any comparison between an intervention group and the no-treatment comparison group (i.e. the effects of the individual providing the intervention cannot be separated from the effects of the intervention).

6. The researcher implemented the intervention in both groups but had no or minimal contact with the children in the no-treatment comparison group; therefore, the agent of the intervention was confounded with study condition for any comparison between an intervention group and the no-treatment comparison group (i.e. the effects of the individual providing the intervention cannot be separated from the effects of the intervention).

Research *(continued)*

compared print knowledge and early reading/writing outcomes for children in a Book Recitation group (the *Interactive Shared Book Reading* condition involving storybook reading with adult interaction about print) to children in a Story Discussion group (the comparison condition involving story telling with discussion of pictures and no print).[7]

Effectiveness

Findings

The WWC review of interventions for early childhood education addresses children's outcomes in six domains: oral language, print knowledge, phonological processing, early reading/writing, cognition, and math.[8]

Oral language. Lamb (1986) reported non-statistically significant findings for two measures in this outcome domain. The direction of the effects favored the comparison group for both measures and the effects were large enough to be considered substantively important and negative according to WWC criteria.

Mautte (1991) analyzed one measure in this outcome domain and found a non-statistically significant effect; however, the effect favored the intervention group and was large enough to be considered substantively important and positive according to WWC criteria.

Print knowledge. Lamb (1986) reported non-statistically significant findings for one measure in this outcome domain. The direction of this effect favored the comparison group but was not large enough to be considered substantively important by WWC criteria. In this study, the effect was indeterminate, according to WWC criteria.

Mautte (1991) reported findings for one measure in this outcome domain. The effect favored the comparison group, but was reported as not being statistically significant. Further, the effect was not large enough to be considered substantively important by WWC criteria. In this study, the effect was indeterminate, according to WWC criteria.

McCormick and Mason (1989) analyzed two measures in this outcome domain. They found no statistically significant effects, and the effects were not large enough to be considered substantively important by WWC criteria. In this study, the effect was indeterminate, according to WWC criteria.

Early reading/writing. McCormick and Mason (1989) found a statistically significant difference favoring the intervention group for one measure in this outcome domain,[9] and the WWC confirmed the statistical significance of this effect. In this study, the effect was statistically significant and positive, according to WWC criteria.

Rating of effectiveness

The WWC rates the effects of an intervention in a given outcome domain as: positive, potentially positive, mixed, no discernible effects, potentially negative, or negative. The rating of effectiveness takes into account four factors: the quality of the research design, the statistical significance of the findings,[8] the size of the difference between participants in the intervention and the comparison conditions, and the consistency in findings across studies (see the WWC Intervention Rating Scheme).

7. McCormick and Mason (1989) implemented a second phase of the intervention when the children were in kindergarten. This phase is not included in this review because it did not meet the criterion for sample age (i.e., children aged three to five or in preschool) for the WWC review of ECE interventions.
8. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate the statistical significance. In the case of *Interactive Shared Book Reading,* a correction for multiple comparisons was needed.
9. The authors also assessed three other measures in this domain. The word label and new book measures were excluded from this report because they did not have sufficient face validity or reliability. The taught book measure was excluded from this report because the Book Recitation group had been exposed to the book during the intervention but the Story Discussion group had not, so it was not a fair measure of intervention effects.

The WWC found *Interactive Shared Book Reading* to have mixed effects for oral language, no discernible effects for print knowledge, and potentially positive effects for early reading/writing

Improvement index

The WWC computes an improvement index for each individual finding. In addition, within each outcome domain, the WWC computes an average improvement index for each study as well as an average improvement index across studies (see Technical Details of WWC-Conducted Computations). The improvement index represents the difference between the percentile rank of the average student in the intervention condition and the percentile rank of the average student in the comparison condition. Unlike the rating of effectiveness, the improvement index is based entirely on the size of the effect, regardless of the statistical significance of the effect, the study design, or the analyses. The improvement index can take on values between –50 and +50, with positive numbers denoting favorable results.

The average improvement index for oral language is +3 percentile points across the two studies, with a range of –20 to +17 percentile points across findings. The average improvement index for print knowledge is –4 percentile points across the three studies, with a range of –10 to +10 percentile points across findings. The improvement index for early reading/writing is +26 percentile points for the one outcome in one study.

Findings for comparisons between variations of *Interactive Shared Book Reading*

The study described below does not contribute to the overall rating of effectiveness because the study compared two variations of *Interactive Shared Book Reading,* which does not allow the effects of *Interactive Shared Book Reading* to be determined. However, the WWC believes that the findings from this comparison may provide useful information to practitioners who are making a determination about the relative merits of different variations of *Interactive Shared Book Reading* practices. The WWC reports the individual study findings here and in Appendix A5.

Justice and Ezell (2002) included 30 three- to five-year-old children from low-income households attending a Head Start center in a rural Appalachian region of southeastern Ohio. The children were primarily Caucasian and half of them were female. Justice and Ezell compared print knowledge outcomes for two groups of children participating in different types of Interactive Shared Book Reading: a reading group focusing on print and a reading group focusing on pictures.

Print knowledge. Justice and Ezell (2002) analyzed six measures[10] in this outcome domain. The authors reported statistically significant differences favoring the reading group focused on print over the reading group focused on pictures for three of these measures (print recognition, words in print, and alphabet knowledge) and the WWC confirmed the statistical significance for two of these measures (print recognition and words in print). In this study, the difference between the two groups was statistically significant and positive, according to WWC criteria. The average improvement index for print knowledge is +30 percentile points, with a range of +12 to +46 percentile points across findings.

Summary

The WWC reviewed eight studies on *Interactive Shared Book Reading.* Two of these studies met WWC evidence standards and one study met WWC evidence standards with reservations. One additional study that met WWC evidence standards is described in this report but is not included in the overall rating of effectiveness. The remaining studies did not meet WWC evidence screens. Based on the three studies included in the overall rating of effectiveness, the WWC found mixed effects for oral language, no discernible effects for print knowledge, and potentially positive effects for early reading/writing. Across these three studies, the effects of *Interactive Shared Book Reading* were measured relative to the effects of other preschool reading

10. Justice and Ezell also reported a print awareness composite score, which was a sum of scores across the six measures described above; the WWC does not include the print awareness composite in this report because the WWC includes the six individual measures used to develop the composite.

The WWC found *Interactive Shared Book Reading* to have mixed effects for oral language, no discernible effects for print knowledge, and potentially positive effects for early reading/writing *(continued)*

activities (i.e., shared book reading and story discussion). Based on the study that compared *Interactive Shared Book Reading* with a print focus to *Interactive Shared Book Reading* with a picture focus, the WWC found potentially positive effects on print knowledge. The evidence presented in this report may change as new research emerges.

References

Met WWC standards

Justice, L. M., & Ezell, H. K. (2002). Use of storybook reading to increase print awareness in at-risk children. *American Journal of Speech-Language Pathology, 11*(1), 17–29.

Additional source:

Justice, L. M. (2000). An experimental evaluation of an intervention to stimulate written language awareness in preschool children from low-income households. *Dissertation Abstracts International, 61*(07), 2587A. (UMI No. 9980417).

Lamb, H. A. (1986). The effects of a read-aloud program with language interaction. *Dissertation Abstracts International, 47*(5-A). (UMI No. 8616894).

Mautte, L. A. (1991). The effects of adult-interactive behaviors within the context of repeated storybook readings upon the language development and selected prereading skills of prekindergarten at-risk students. *Dissertation Abstracts International, 52*(1), 122A. (UMI No. 9115887).

Met WWC standards with reservations

McCormick, C. E., & Mason, J. M. (1989). Fostering reading for Head Start children with Little Books. In J. Allen & J. M. Mason (Eds.), Risk makers, risk takers, risk breakers: Reducing the risks for young literacy learners (pp. 154–177). Portsmouth, NH: Heinemann.

Additional source:

McCormick, C. E., & Mason, J. M. (1986). Use of little books at home: A minimal intervention strategy that fosters early reading. Center for the Study of Reading: Technical Report No. 338 (ED 314742).

Did not meet WWC evidence screens

Kertoy, M. K. (1994). Adult interactive strategies and the spontaneous comments of preschoolers during joint storybook readings. *Journal of Research in Childhood Education, 9*(1), 58–67.[11]

Mason, J. M., Kerr, B. M., Sinha, S., & McCormick, C. (1990). Shared book reading in an Early Start program for at-risk children. *National Reading Conference Yearbook, 39,* 189–198.[12]

Morrow, L. M. (1988). Young children's responses to one-to-one story readings in school settings. *Reading Research Quarterly, 23*(1), 89–107.[12]

Reese, E., & Cox, A. (1999). Quality of adult book reading affects children's emergent literacy. *Developmental Psychology, 35*(1), 20–28.[13]

For more information about specific studies and WWC calculations, please see the WWC *Interactive Shared Book Reading* Technical Appendices.

11. All outcome measures were confounded with the conditions of the study (i.e., the conditions of elicitation were different for the intervention and comparison groups) and no outcomes could be used in the effectiveness ratings.
12. Complete data were not reported: the WWC could not compute effect sizes based on the information provided.
13. Complete data were not reported: the WWC could not compute effect sizes because the posttests were adjusted by both pretest and an intervention-by-pretest interaction term rather than by pretest scores alone.

Appendix

Appendix A1.1 Study characteristics: Justice & Ezell, 2002 (randomized controlled trial)

Characteristic	Description
Study citation	Justice, L. M., & Ezell, H. K. (2002). Use of storybook reading to increase print awareness in at-risk children. *American Journal of Speech-Language Pathology, 11*(1), 17–29. *Additional source:* Justice, L. M. (2000). An experimental evaluation of an intervention to stimulate written language awareness in preschool children from low-income households. *Dissertation Abstracts International, 61*(07), 2587A. (UMI No. 9980417). This study, including the additional source, is not included in the overall effectiveness rating because it compared variations of *Interactive Shared Book Reading* to each other, which does not allow the effects of *Interactive Shared Book Reading* to be determined.
Participants	The study began with 38 three- to five-year-old children from low-income households who met the researchers' eligibility requirements. The four children who did not complete all project activities and the four age-matched children were dropped from the study, leaving a final sample of 30 children. The mean age of the children at the start of the study was 53 months. Half of the children were female, 90% were Caucasian, 7% were Asian, and 3% were African-American. All children in the study attended preschool at a Head Start center, were considered at-risk, and were from households with incomes at or below the 133% poverty line ($22,211 annual income for a family of four). The children were divided into 15 pairs matched on age; one from each pair was then randomly assigned to the print focus group and the other was assigned to the picture focus group.
Setting	The study took place at a Head Start center in a rural Appalachian region of southeastern Ohio.
Print focus group	The children in this group participated in *Interactive Shared Book Reading* with a print focus to enhance their familiarity with print during the reading of target books. The intervention lasted eight weeks and children participated in groups of three to five for a total of 24 sessions. Adult readers posed nine prompts. Each prompt was one of three general types: print conventions, concept of word, or alphabet knowledge. Scripts were developed for each book with three prompts of each type. During each reading session, the reader called on each child to respond to a prompt at least once and the reader also commented on enjoyment of the book reading activity.
Picture focus group	The children in this group participated in *Interactive Shared Book Reading* with a picture focus. The intervention lasted eight weeks and children participated in groups of three to five for a total of 24 sessions. Adult readers posed nine prompts focused on the pictures in the book. Each prompt was one of three general types: character focus, perceptual focus, or action focus. Each type of prompt occurred three times per book reading.
Primary outcomes and measurement	The primary outcome domain assessed was print knowledge, which was assessed with six non-standardized measures: letter orientation and discrimination, print concepts, print recognition, words in print, alphabet knowledge, and literacy terms. The authors also reported on a print awareness composite score that was a sum of scores across the six measures. However, the WWC does not include this composite in this report because the WWC includes the six individual measures used to develop the composite (see Appendix A2.2 for more detailed descriptions of outcome measures).
Teacher training	No information on teacher training was provided and the first author was the instructor for both intervention conditions. The WWC found no reasons to believe that the person implementing the intervention and comparison conditions was not equally trained and motivated to implement each condition.

Appendix A1.2 Study characteristics: Lamb, 1986 (randomized controlled trial)

Characteristic	Description
Study citation	Lamb, H. A. (1986). The effects of a read-aloud program with language interaction. *Dissertation Abstracts International, 47*(5A). (UMI No. 8616894).
Participants	The study included 36 three- to five-year-old children, who were predominantly from a minority racial group and low-income families. These children were randomly assigned to three intervention groups and one no-treatment comparison group participating in regular preschool activities. Results for the 19 children in the read-aloud with language interaction group and the read-aloud only group are included in this report.
Setting	The study took place at a day care center serving minority and lower socio-economic status children in Tallahassee, Florida.
Intervention	This study included three intervention groups: read-aloud with language interaction; language interaction only; and read-aloud only. The WWC chose the read-aloud with language interaction group as the *Interactive Shared Book Reading* intervention group for this report. For this group, the researcher read pre-selected books to the children daily for ten weeks, with discussion taking place prior to, during, and following reading of the text. The language interaction only group was excluded from the review because it is not an appropriate comparison group to isolate the effects of *Interactive Shared Book Reading.*
Comparison	The study included a no-treatment comparison group that did not receive read-aloud techniques, language interaction, or researcher contact. However, this comparison group could not be used to estimate the impacts of the interventions because the researcher implemented the intervention in all three groups but had no or minimal contact with the children in the no-treatment comparison group and the effects of the individual providing the intervention cannot be separated from the effects of the intervention. The WWC chose the read-aloud only group as the comparison group for this report. For this group, the researcher read the same pre-selected books to the children daily for ten weeks, but did not initiate any interaction.
Primary outcomes and measurement	The primary outcome domains assessed were oral language and print knowledge. Oral language was measured with a non-standardized test (Record of Oral Language) and a standardized test (Peabody Picture Vocabulary Test—Revised; PPVT-R). Print knowledge was measured with a standardized test (Concepts About Print: Sand and Stones) (see Appendices A2.1–2.2 for more detailed descriptions of outcome measures).
Teacher training	The article did not provide information on teacher training and the researcher was the instructor for the three intervention conditions. The WWC found no reasons to believe that the person implementing the intervention and comparison conditions was not equally trained and motivated to implement each condition.

Appendix A1.3 Study characteristics: Mautte, 1991 (randomized controlled trial)

Characteristic	Description
Study citation	Mautte, L.A. (1991). The effects of adult-interactive behaviors within the context of repeated storybook readings upon the language development and selected prereading skills of prekindergarten at-risk students. *Dissertation Abstracts International, 52*(1), 122A. (UMI No. 9115887).
Participants	The study began with 66 four-year-old at-risk low-income children from families with a history of abuse or neglect. All children were attending pre-kindergarten At-Risk Program classes in an Early Childhood Education Center in Tampa, Florida. Three children withdrew during the pre-testing phase and 10 children withdrew during the intervention leaving a total of 53 children. Fifty-one percent of the sample was female, 9% were Caucasian, 4% were Hispanic, and 87% were African-American. Results for the 38 children who had been randomly assigned within two developmental strata (average or delayed) to the repeated reading with adult interaction group or the repeated reading without adult interaction group are included in this report.[1]
Setting	The study took place at an inner-city Early Childhood Education center located in the third largest school system in Florida, the Hillsborough County School System in Tampa, Florida.[2] The center was open 12 months a year, five days a week. When the study was conducted, the center had a total enrollment of 267 children, of whom 243 were black non-Hispanics, 7 were white non-Hispanics, and 17 were Hispanics.
Intervention	There were two storybook reading intervention groups: repeated reading of Big Book storybooks with adult interaction and repeated reading of Big Book storybooks without adult interaction. The WWC chose the repeated reading with adult interaction group as the intervention group for this report. Children in this group listened to stories in groups of seven. The researcher read a story to each small group three times per week for 20 weeks. Each session lasted about 25 minutes and only one book was used per week. In the first reading session each week, the researcher read the story to the children and interacted with them before, during, and after reading of the text. In the second and third reading sessions each week, the researcher read the story to the children and interacted with them in a manner designed to generate more elaborative responses and encourage children in the storybook reading.
Comparison	The study included a no-treatment comparison group that participated in their regular pre-kindergarten curriculum activities as mandated by the Hillsborough County Department of Early Childhood Education. However, this comparison group could not be used to estimate the impacts of the intervention because the researcher implemented the intervention in both groups but had no or minimal contact with the children in the no-treatment comparison group and the effects of the individual providing the intervention cannot be separated from the effects of the intervention. The WWC chose the repeated reading without adult interaction group as the comparison group for this report. For this group, there were the same number of sessions that followed a similar format as described above; however, the researcher did not implement the story reading model or elicit discussion or interaction. The children were exposed to a reading of the storybooks without adult interaction.
Primary outcomes and measurement	The primary outcome domains assessed were oral language and print knowledge. Oral language was measured using a standardized measure (Preschool Language Scale; PLS) and print knowledge was also measured using a standardized measure (Test of Early Reading Ability; TERA) (see Appendices A2.1-2.2 for more detailed descriptions of outcome measures).
Teacher training	The article did not provide information on teacher training and the researcher was the instructor for both intervention conditions. The researcher enlisted the assistance of reading instructors from the University of Florida to listen to tape-recorded treatment sessions and check adherence of sessions to scripts in order to ensure fidelity of treatment. The WWC found no reasons to believe that the person implementing the intervention and comparison conditions was not equally trained and motivated to implement each condition.

1. The study was not downgraded by the WWC due to differential attrition because the authors demonstrated pre-test equivalence between the children remaining in the repeated reading with adult interaction group and the repeated reading without adult interaction group.
2. The other inner-city center in the Hillsborough School System was used to field-test materials.

Appendix A1.4 Study characteristics: McCormick & Mason, 1989 (quasi-experimental design)[1]

Characteristic	Description
Study citation	McCormick, C. E., & Mason, J. M. (1989). Fostering reading for Head Start children with Little Books. In J. Allen & J. M. Mason (Eds.), Risk makers, risk takers, risk breakers: Reducing the risks for young literacy learners (pp. 154–177). Portsmouth, NH: Heinemann. *Additional source:* McCormick, C. E., & Mason, J. M. (1986). Use of little books at home: A minimal intervention strategy that fosters early reading. Center for the Study of Reading: Technical Report No. 338 (ED 314742).
Participants	The study included 51 three- to five-year-old children with a mean age of 4 years, 7 months.[2] Ninety-six percent were Caucasian and four percent were African-American. To form intervention and comparison groups, the authors divided in half an alphabetized list of children from four classes; the first half of the list from two classes and the last half of the list from the other two classes were placed in the intervention group and the remaining children were placed in the comparison group.
Setting	The study took place in four Head Start classrooms in a small city in the Midwest.
Intervention	The children in the intervention group participated in a 10- to 15-minute "Book Recitation" session once a week over a six-week period. Children were taught in small groups of four to six. Each group was introduced to one new book each week (Little Books were chosen from the Pint Size Print series). In this intervention, children were encouraged to make predictions about each story based upon its cover and they were encouraged to relate their own experiences relevant to the story topic. The teacher modeled reading by showing the children the pictures and text and pointing to the words as she read. Lastly, the teacher encouraged children to accompany her in reading the text. Each child received a copy of the book of the week in the mail at home.
Comparison	The children in the comparison group participated in a 10 to 15-minute "Story Discussion" session once a week over a six-week period. Children were taught in small groups of four to six. Each group was introduced to one new classic story, such as the Three Little Pigs, The Three Bears, and Little Red Riding Hood, each week. The teacher told the story while presenting illustrations from the storybook and children did not see the text (i.e., reading was based on the illustrations). The children were asked to retell the story and the illustrations served as prompts. Each child received a copy of the illustrations from the story of the week in the mail at home.
Primary outcomes and measurement	The primary outcome domains assessed were print knowledge and early reading/writing. Print knowledge was measured by two non-standardized measures, letter naming and points to print. Early reading/writing was assessed with four non-standardized measures including picture label, word label, taught book, and new book. The WWC only includes the picture label measure in this report. The word label and new book measures did not have sufficient face validity or reliability to be included. The taught book measure was excluded from this report because the Book Recitation group had been exposed to the book during the intervention but the Story Discussion group had not, so it was not a fair measure of intervention effects. The researchers also included a parent questionnaire from which two outcome measures were developed, a parent estimate of child literacy and a parent literacy support measure. These measures are not included in this report because they are not relevant to the WWC review (see Appendices A2.2-2.3 for more detailed descriptions of outcome measures).
Teacher training	The article did not provide information on teacher training and the first author implemented both conditions. The WWC found no reasons to believe that the person implementing the intervention and comparison conditions was not equally trained and motivated to implement each condition.

1. McCormick and Mason (1989) implemented a second phase of the intervention when the children were in kindergarten. This phase is not included in the WWC review because it did not meet the criterion for sample age (i.e., children aged three to five or in preschool) for the WWC review of ECE interventions.
2. The additional source for this study (McCormick and Mason, 1986) indicated that 52 children comprised the sample.

Appendix A2.1 Outcome measures in the oral language domain

Outcome measure	Description
Peabody Picture Vocabulary Test—Revised (PPVT-R)	A standardized measure of children's receptive vocabulary that requires them to identify pictures that correspond to spoken words (as cited in Lamb, 1986).
Record of Oral Language	A non-standardized measure of children's oral language proficiency that requires them to repeat sentences (as cited in Lamb, 1986).
Preschool Language Scale (PLS)	A standardized measure of children's receptive and expressive language (as cited in Mautte, 1991).

Appendix A2.2 Outcome measures in the print knowledge domain

Outcome measure	Description
Print concepts	A researcher adaptation of a test to assess children's knowledge of print- and book-reading conventions (as cited in Justice & Ezell, 2002).
Print recognition	A researcher adaptation of a test to assess children's ability to recognize print in context (as cited in Justice & Ezell, 2002).
Words in print	A researcher-developed measure of children's awareness of printed words as discrete elements of written language (as cited in Justice & Ezell, 2002).
Letter orientation/ discrimination	A researcher adaptation of a measure to assess children's ability to recognize letters presented to them in different orientations (e.g. upside down, sideways) (as cited in Justice & Ezell, 2002).
Alphabet knowledge	A researcher-developed measure designed to assess children's knowledge of the letters in the alphabet (as cited in Justice & Ezell, 2002).
Literacy terms	A researcher adaptation of a measure of children's knowledge of literacy-related words such as reading and writing (as cited in Justice & Ezell, 2002).
Concepts about print: Sand and stones	A standardized test of children's knowledge of book orientation, direction of words and lines of print, and other basic print concepts (as cited in Lamb, 1986).
Test of Early Reading Ability (TERA)[1]	A standardized measure of young children's early reading skills that captures the following constructs: awareness of print in environmental contexts, vocabulary, listening, comprehension, knowledge of alphabet, and concepts about printed language (as cited in Mautte, 1991).
Letter naming	A non-standardized researcher-developed measure of children's ability to identify ten uppercase letters in print (as cited in McCormick & Mason, 1989).
Points to print	A non-standardized researcher-developed measure in which children were shown pictures of common objects with a one-word label for the objects beneath the pictures and children were asked to point to the text (as cited in McCormick & Mason, 1989).

1. By name, this measure sounds like it should be captured under the early reading/writing domain; however, the description of the measure identifies constructs that are pertinent to print knowledge such as knowing the alphabet, understanding print conventions, and environmental print.

Appendix A2.3 Outcome measure in the early reading/writing domain

Outcome measure	Description
Picture label	A non-standardized measure for which children were presented with black-and-white drawings of common objects such as a box of crayons and were required to name the picture (as cited in McCormick & Mason, 1989).

Appendix A3.1 Summary of study findings included in the rating for the oral language domain[1]

Outcome measure	Study sample	Sample size (children)	Author's findings from the study: Mean outcome (standard deviation[2]) — *Interactive Shared Book Reading* group	Author's findings from the study: Mean outcome (standard deviation[2]) — Comparison group	WWC calculations: Mean difference[3] (*Interactive Shared Book Reading* – comparison)	WWC calculations: Effect size[4]	WWC calculations: Statistical significance[5] (at $\alpha = 0.05$)	WWC calculations: Improvement index[6]
Lamb, 1986 (randomized controlled trial)[7]								
PPVT-R	3–5 year olds	19	27.30 (14.03)	27.44 (18.23)	–0.14	–0.01	ns	–0.3
Record of oral language	3–5 year olds	19	8.75 (8.30)	13.88 (10.51)	–5.13	–0.52	ns	–20
Average[8] for oral language (Lamb, 1986)						–0.27	ns	–10
Mautte, 1991 (randomized controlled trial)[9]								
PLS-total score	4 year olds	38	64.79 (5.62)	61.34 (9.34)	3.46	0.43	ns	+17
Average[8] for oral language (Mautte, 1991)						0.43	ns	+17
Domain average[8] for oral language across all studies						0.08	na	+3

ns = not statistically significant
na = not applicable

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices. Subgroup findings from the same studies are not included in these ratings, but are reported in Appendix A4.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes.
3. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group.
4. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between groups.
6. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and the percentile rank of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting favorable results.
7. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate statistical significance. In the case of Lamb (1986), no corrections for clustering or multiple comparisons were needed.
8. The WWC-computed average effect sizes for each study and for the domain across studies are simple averages rounded to two decimal places. The average improvement indices are calculated from the average effect size.
9. In the case of Mautte (1991), no corrections for clustering or multiple comparisons were performed. However, students received the intervention in small groups, so clustering induced by grouping may have affected study findings.

Appendix A3.2 Summary of study findings included in the rating for the print knowledge domain[1]

Outcome measure	Study sample	Sample size (children)	Author's findings from the study: Mean outcome (standard deviation[2]) — *Interactive Shared Book Reading* group	Author's findings from the study: Mean outcome (standard deviation[2]) — Comparison group	WWC calculations: Mean difference[3] (*Interactive Shared Book Reading* – comparison)	WWC calculations: Effect size[4]	WWC calculations: Statistical significance[5] (at $\alpha = 0.05$)	WWC calculations: Improvement index[6]
Lamb, 1986 (randomized controlled trial)[7]								
Concepts about print: Sand and stones	3–5 year olds	19	3.60 (2.95)	4.22 (2.05)	–0.62	–0.23	ns	–9
Average[8] for print knowledge (Lamb, 1986)						–0.23	ns	–9
Mautte, 1991 (randomized controlled trial)[9]								
TERA	4 year olds	38	8.13 (4.69)	9.79 (8.17)	–1.66	–0.24	ns	–10
Average[8] for print knowledge (Mautte, 1991)						–0.24	ns	–10
McCormick & Mason, 1989 (quasi-experimental design)[10]								
Letter naming	3–5 year olds	51	2.80 (nr)[11]	2.70 (nr)[11]	0.10	0.07	ns	+3
Points to print	3–5 year olds	51	4.20 (nr)[11]	3.30 (nr)[11]	0.90	0.27	ns	+10
Average[8] for print knowledge (McCormick & Mason, 1989)						0.17	ns	+7
Domain average[8] for print knowledge across all studies						–0.10	na	–4

ns = not statistically significant
na = not applicable
nr = not reported

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices. Findings for Justice and Ezell (2002) are reported in Appendix A5 because it compares two *Interactive Shared Book Reading* interventions to each other, which does not allow the effects of *Interactive Shared Book Reading* to be determined.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes.
3. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group.
4. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between groups.
6. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and the percentile rank of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting favorable results.

(continued)

Appendix A3.2 Summary of study findings included in the rating for the print knowledge domain *(continued)*

7. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate statistical significance. In the case of Lamb (1986), no corrections for clustering or multiple comparisons were needed.
8. The WWC-computed average effect sizes for each study and for the domain across studies are simple averages rounded to two decimal places. The average improvement indices are calculated from the average effect size.
9. In the case of Mautte (1991), no corrections for clustering or multiple comparisons were performed. However, students received the intervention in small groups, so clustering induced by grouping may have affected study findings.
10. In the case of McCormick and Mason (1989), no corrections for clustering or multiple comparisons were needed.
11. McCormick and Mason (1989) reported means but not the associated standard deviations. The authors were unable to provide standard deviations, so the WWC calculated the effect size based on the sample size and results from the author reported one-way ANOVA for letter naming [$F(1, 50) = 0.07$] and for points to print [$F(1, 50) = 0.93$].

Appendix A3.3 Summary of study findings included in the rating for the early reading/writing domain[1]

Outcome measure	Study sample	Sample size (children)	Author's findings from the study: Mean outcome (standard deviation[2]) — *Interactive Shared Book Reading* group	Author's findings from the study: Mean outcome (standard deviation[2]) — Comparison group	WWC calculations: Mean difference[3] (*Interactive Shared Book Reading* – comparison)	WWC calculations: Effect size[4]	WWC calculations: Statistical significance[5] (at $\alpha = 0.05$)	WWC calculations: Improvement index[6]
McCormick & Mason, 1989 (quasi-experimental design)[7]								
Picture label	3–5 year olds	51	13.10 (nr)[8]	11.60 (nr)[8]	1.50	0.70	Statistically significant	+26
Domain average[9] for early reading/writing						0.70	Statistically significant	+26

nr = not reported

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes.
3. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group.
4. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between groups.
6. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and the percentile rank of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting favorable results.
7. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate statistical significance. In the case of McCormick and Mason (1989), no corrections for clustering or multiple comparisons were needed.
8. McCormick and Mason (1989) reported means but not the associated standard deviations. The authors were unable to provide standard deviations, so the WWC calculated the effect size based on the sample size and results from the author reported one-way ANOVA [F(1, 50) = 6.52].
9. This row provides the study average, which in this instance is also the domain average. The WWC-computed domain average effect size is a simple average rounded to two decimal places. The domain improvement index is calculated from the average effect size.

Appendix A4 Summary of subgroup findings for the oral language domain[1]

Outcome measure	Study sample	Sample size (children)	Author's findings from the study: Mean outcome (standard deviation[2]) — *Interactive Shared Book Reading* group	Author's findings from the study: Mean outcome (standard deviation[2]) — Comparison group	WWC calculations: Mean difference[3] (*Interactive Shared Book Reading* – comparison)	WWC calculations: Effect size[4]	WWC calculations: Statistical significance[5] (at $\alpha = 0.05$)	WWC calculations: Improvement index[6]
Mautte, 1991 (randomized controlled trial; average developmental level)[7]								
PLS—total score	4 year olds	17	69.25 (2.60)	69.67 (3.97)	–0.42	–0.12	ns	–5
TERA	4 year olds	17	11.50 (5.53)	14.67 (10.15)	–3.17	–0.36	ns	–14
Mautte, 1991 (randomized controlled trial; delayed developmental level)[8]								
PLS—total score	4 year olds	21	60.10 (3.60)	54.45 (6.20)	5.65	1.06	Statistically significant	+35
TERA	4 year olds	21	7.00 (2.79)	6.00 (2.68)	1.00	0.35	ns	+14

ns = not statistically significant

1. This appendix presents subgroup findings for measures that fall in the oral language domain. Total scale scores were used for rating purposes and are presented in Appendix A3.1.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes.
3. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group.
4. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between groups.
6. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and the percentile rank of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting favorable results.
7. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools (corrections for multiple comparisons were not done for findings not included in the overall intervention rating). For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate statistical significance. In the case of Mautte (1991), no correction for clustering was performed. However, students received the intervention in small groups, so clustering induced by grouping may have affected study findings.
8. In the case of Mautte (1991), no correction for clustering was needed.

Appendix A5 Summary of findings for comparisons between variations of *Interactive Shared Book Reading* for the print knowledge domain[1]

Outcome measure	Study sample	Sample size (children)	Author's findings from the study: Mean outcome (standard deviation[2]) — First *Interactive Shared Book Reading* group[3]	Author's findings from the study: Mean outcome (standard deviation[2]) — Second *Interactive Shared Book Reading* group[3]	WWC calculations: Mean difference[4] (first group – second group)	WWC calculations: Effect size[5]	WWC calculations: Statistical significance[6] (at $\alpha = 0.05$)	WWC calculations: Improvement index[7]
Justice & Ezell, 2002 (randomized controlled trial)[8]								
Print concepts	3–5 year olds	30	11.92 (4.02)	10.88 (2.22)	1.04	0.31	ns	+12
Print recognition	3–5 year olds	30	5.93 (3.30)	1.33 (1.40)	4.60	1.77	Statistically significant	+46
Words in print	3–5 year olds	30	7.43 (4.31)	3.04 (3.14)	4.39	1.13	Statistically significant	+37
Letter orientation/discrimination	3–5 year olds	30	17.45 (1.93)	15.18 (3.18)	2.27	0.84	ns	+30
Alphabet knowledge	3–5 year olds	30	10.92 (6.63)	7.75 (6.37)	3.18	0.48	ns	+18
Literacy terms	3–5 year olds	30	10.03 (3.93)	8.57 (2.13)	1.45	0.45	ns	+17
Domain average[9] for print knowledge						0.83	Statistically significant	+30

ns = not statistically significant

1. This appendix presents a summary of study findings for measures that fall in the print knowledge domain for a study that is not included in the overall effectiveness ratings.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes.
3. The posttest means are covariate-adjusted means provided by the study author. The first *Interactive Shared Book Reading* group is the print focus condition. The second *Interactive Shared Book Reading* group is the picture focus condition.
4. Positive differences and effect sizes favor the first *Interactive Shared Book Reading* group; negative differences and effect sizes favor the second Interactive Shared Book Reading group.
5. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
6. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between groups.
7. The improvement index represents the difference between the percentile rank of the average student in the first *Interactive Shared Book Reading* condition and the percentile rank of the average student in the second *Interactive Shared Book Reading* condition. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the first *Interactive Shared Book Reading* group.
8. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate statistical significance. In the case of Justice and Ezell (2002), a correction for multiple comparisons was needed, so the significance levels may differ from those reported in the original study. Clustering effects due to the grouping of children may also have been present; however, we do not have sufficient information to conduct a post-hoc clustering correction. Therefore, the statistical significance of findings may be overestimated due to clustering.
9. This row provides the study average, which in this instance is also the domain average. The WWC-computed domain average effect size is a simple average rounded to two decimal places. The domain improvement index is calculated from the average effect size.

Appendix A6.1 *Interactive Shared Book Reading* rating for the oral language domain

The WWC rates the effects of an intervention in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.[1]

For the outcome domain of oral language, the WWC rated *Interactive Shared Book Reading* as having mixed effects. It did not meet the criteria for positive effects or potentially positive effects because no studies showed statistically significant and positive effects and one study showed a substantively important and negative effect. The remaining ratings (no discernible effects, potentially negative effects, and negative effects) were not considered, as *Interactive Shared Book Reading* was assigned the highest applicable rating.

Rating received

Mixed effects: Evidence of inconsistent effects as demonstrated through either of the following criteria.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect, and at least one study showing a statistically significant or substantively important *negative* effect, but no more such studies than the number showing a statistically significant or substantively important *positive* effect.

  Met. One study had substantively important and positive effects and one study had substantively important and negative effects.

- Criterion 2: At least one study showing a statistically significant or substantively important effect, and more studies showing an *indeterminate* effect than showing a statistically significant or substantively important effect.

  Not met. One study had substantively important and positive effects, one study had substantively important and negative effects, and no studies showed indeterminate effects.

Other ratings considered

Positive effects: Strong evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: Two or more studies showing statistically significant *positive* effects, at least one of which met WWC evidence standards for a strong design.

  Not met. No studies showed statistically significant and positive effects.

- Criterion 2: No studies showing statistically significant or substantively important *negative* effects.

  Not met. One study had substantively important and negative effects.

Potentially positive effects: Evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect.

  Met. One study had substantively important and positive effects.

- Criterion 2: No studies showing a statistically significant or substantively important *negative* effect and fewer or the same number of studies showing *indeterminate* effects than showing statistically significant or substantively important *positive* effects.

  Not met. One study had substantively important and negative effects, no studies had indeterminate effects, and one study showed substantively important and positive effects.

1. For rating purposes, the WWC considers the statistical significance of individual outcomes and the domain level effects. The WWC also considers the size of the domain level effects for ratings of potentially positive or potentially negative effects. See the WWC Intervention Rating Scheme for a complete description.

Appendix A6.2 *Interactive Shared Book Reading* rating for the print knowledge domain

The WWC rates the effects of an intervention in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.[1]

For the outcome domain of print knowledge, the WWC rated *Interactive Shared Book Reading* as having no discernible effects. It did not meet the criteria for positive effects, potentially positive effects, mixed effects, potentially negative effects, or negative effects, as no studies showed statistically significant or substantively important effects, either positive or negative.

Rating received

No discernible effects: No affirmative evidence of effects.

- Criterion 1: None of the studies shows a statistically significant or substantively important effect, either *positive* or *negative.*

  Met. No studies showed a statistically significant or substantively important effect, either positive or negative.

Other ratings considered

Positive effects: Strong evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: Two or more studies showing statistically significant *positive* effects, at least one of which met WWC evidence standards for a strong design.

  Not met. No studies showed statistically significant and positive effects.

- Criterion 2: No studies showing statistically significant or substantively important *negative* effects.

  Met. No studies showed statistically significant or substantively important and negative effects.

Potentially positive effects: Evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect.

  Not met. No studies showed a statistically significant or substantively important and positive effect.

- Criterion 2: No studies showing a statistically significant or substantively important *negative* effect and fewer or the same number of studies showing *indeterminate* effects than showing statistically significant or substantively important *positive* effects.

  Not met. No studies showed a statistically significant or substantively important effect, either positive or negative. Three studies showed indeterminate effects.

Mixed effects: Evidence of inconsistent effects as demonstrated through either of the following criteria.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect, and at least one study showing a statistically significant or substantively important *negative* effect, but no more such studies than the number showing a statistically significant or substantively important *positive* effect.

  Not met. No studies showed a statistically significant or substantively important effect, either positive or negative.

- Criterion 2: At least one study showing a statistically significant or substantively important effect, and more studies showing an *indeterminate* effect than showing a statistically significant or substantively important effect.

  Not met. No studies showed a statistically significant or substantively important effect.

(continued)

Appendix A6.2 *Interactive Shared Book Reading* rating for the print knowledge domain *(continued)*

Potentially negative effects: Evidence of a negative effect with no overriding contrary evidence

- Criterion 1: At least one study showing a statistically significant or substantively important *negative* effect.

  Not met. No studies showed a statistically significant or substantively important and negative effect.

- Criterion 2: No studies showing a statistically significant or substantively important *positive* effect, or more studies showing statistically significant or substantively important *negative* effects than showing statistically significant or substantively important *positive* effects.

  Met. No studies showed a statistically significant or a substantively important effect, either positive or negative.

Negative effects: Strong evidence of a negative effect with no overriding contrary evidence.

- Criterion 1: Two or more studies showing statistically significant *negative* effects, at least one of which met WWC evidence standards for a strong design.

  Not met. No studies showed statistically significant and negative effects.

- Criterion 2: No studies showing statistically significant or substantively important *positive* effects.

  Met. No studies showed statistically significant or substantively important and positive effects.

1. For rating purposes, the WWC considers the statistical significance of individual outcomes and the domain level effects. The WWC also considers the size of the domain level effects for ratings of potentially positive or potentially negative effects. See the WWC Intervention Rating Scheme for a complete description.

Appendix A6.3 *Interactive Shared Book Reading* rating for the early reading/writing domain

The WWC rates the effects of an intervention in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.[1]

For the outcome domain of early reading/writing, the WWC rated *Interactive Shared Book Reading* as having potentially positive effects. It did not meet the criteria for positive effects as it had only one study. The remaining ratings (mixed effects, no discernible effects, potentially negative effects, and negative effects) were not considered, as *Interactive Shared Book Reading* was assigned the highest applicable rating.

Rating received

Potentially positive effects: Evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect.

  Met. One study showed statistically significant and positive effects.

- Criterion 2: No studies showing a statistically significant or substantively important *negative* effect and fewer or the same number of studies showing *indeterminate* effects than showing statistically significant or substantively important *positive* effects.

  Met. No studies showed statistically significant and negative, substantively important and negative, or indeterminate effects.

Other ratings considered

Positive effects: Strong evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: Two or more studies showing statistically significant *positive* effects, at least one of which met WWC evidence standards for a strong design.

  Not met. Only one study showed statistically significant and positive effects and this study did not meet WWC evidence standards for a strong design.

- Criterion 2: No studies showing statistically significant or substantively important *negative* effects.

  Met. No studies showed statistically significant or substantively important and negative effects.

1. For rating purposes, the WWC considers the statistical significance of individual outcomes and the domain level effects. The WWC also considers the size of the domain level effects for ratings of potentially positive or potentially negative effects. See the WWC Intervention Rating Scheme for a complete description.