Relative Effectiveness of Dialogic, Interactive, and Shared Reading Interventions

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This *CELLreview* includes a secondary analysis of three research syntheses produced by the What Works Clearinghouse on the effectiveness of reading instruction with preschoolers. The three methods were dialogic reading, interactive shared book reading, and shared book reading. Individual studies were coded according to the degree of child participation in the reading instruction episodes and variations in participation were related to variations in study outcomes. Results showed that child participation was one factor associated with reading-related outcomes. Implications for practice are described.

The primary purpose of this practice-based research synthesis was to determine the relative effectiveness of three different approaches to teaching beginning reading. The three reading interventions constituting the focus of analysis were dialogic reading (Zevenbergen & Whitehurst, 2003), interactive shared book reading (Wasik & Bond, 2001), and shared book reading (Button & Johnson, 1997). We were specifically interested in testing the hypothesis that active child involvement in learning to read would be a factor contributing to the benefits of the interventions. The purpose was accomplished by a secondary analysis of three research syntheses produced by the What Works Clearinghouse (2006a, 2006b, 2007).

The conduct of the research synthesis was guided by a characteristics and consequences framework (Dunst, Trivette, & Cutspec, 2002) that focuses on the identification of those intervention-related factors that are associated with variations in one or more outcomes. More specifically, we examined different characteristics and features of the three approaches to teaching reading to identify those practice characteristics that are associated with different reading-related outcomes.

BACKGROUND

Learning to read is one of if not the most important literacy skill young children master. The process of understanding written language encompasses alphabet awareness, print awareness, and text comprehension (Dunst, Trivette,

Masiello, Roper, & Robyak, 2006). According to Snow, Burns, and Griffin (1998), the foundations for learning to read include a variety of language and literacy-related experiences and skills that contribute to a child's awareness of the meaning of text and the ability to "cipher" printed or written material and engage in conventional reading. The characteristics of this type of skilled reading include, but are not limited to, word identification, an understanding of sentence structure, and oral and text comprehension.

Description of the Practices

Many different approaches have been used to teach preschoolers to read (e.g., Gunn, Simmons, & Kameenui, 1998; McGuinness, 2004; Stein, Johnson, & Gutlohn, 1999). The three methods examined in this *CELLreview* were dialogic reading, interactive shared book reading, and shared book reading. Table 1 shows the definitions of the practices included in the three What Works Clearinghouse

Table 1
Definitions of the Three Reading Instruction Practices

Reading Instruction Practice	Definition
Dialogic Reading	During the shared reading practice, the adult and the child switch roles so that the child learns to become the storyteller with the assistance of the adult who functions as an active listener and questioner.
Interactive Shared Book Reading	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.
Shared Book Reading	Shared book reading involves an adult reading a book to one child or a small group of children without requiring extensive interactions from them.

Sources: What Works Clearinghouse (2006a; 2006b; 2007).

reports that were the sources of information for our secondary analysis. All three practices are used to enhance young children's language and literacy skills in the context of book-reading interventions.

Dialogic reading involves five types of prompts to elicit child responses to different questions and queries (e.g., **Wh_____** questions) where a child's response to the adult is used to further prompt for elaborations and expansions. Interactive shared book reading involves a host of techniques used before, during, and after book reading to ask the child for answers to questions, provide explanations, attempt to read, point to pictures or words, etc. Shared book reading involves an adult reading a story to a child or group of children, often rereading the story, and providing the child or group of children the opportunity to retell the story.

The three practices differ, in part, according to the children's involvement in the reading experiences, with dialogic reading requiring the most involvement and shared book reading including the least or minimal amount of involvement. We coded the studies included in the three syntheses according to the degree of child involvement in the reading interventions on a continuum from passive to active participation for purposes of this secondary synthesis where we expected more active child participation to be related to more positive study outcomes. The hypothesis that active participation would be a factor influencing study outcomes is based on life-span research demonstrating that many different areas of human functioning are positively affected by the amount of active participation in learning episodes (e.g., Chaiklin, Hedegaard, & Jensen, 1999; Karuza, Zevon, Gleason, Karuza, & Nash, 1990; Rogoff, Paradise, Arauz, Correa-Chávez, & Angelillo, 2003).

SEARCH STRATEGY

The standard What Works Clearinghouse (2006c) search procedures were used to identify relevant studies. This included electronic database searches, hand searches

of core journals, Web site searches, conference proceedings, submissions by researchers and other individuals, and outreach to topic experts and relevant organizations. All obtained studies were screened for relevance and to determine if the studies met threshold relevancy and methodological rigor.

Selection Criteria

Studies were included if they met the What Works Clearinghouse (2006c) standards for type of research design and associated experimental controls. The studies had to be implemented in English in center-based programs with 3- to 5-year-old children in order to be included in the three What Works Clearinghouse syntheses.

SEARCH RESULTS

Participants

Thirteen studies were included in the three syntheses that involved reading instruction with 729 children. Table 2 lists the studies and the background characteristics of the study participants. The largest majority of the children, on average, were between 48 and 52 months of age. Fifty-four percent of the children were male and 46% were female.

Ethnicity was reported in 11 studies. Sixty percent were African American, 24% were Caucasian, 5% were Latino, and 2% were Asian American. The largest majority of the children were from low socioeconomic backgrounds. Two studies (Crain-Thoreson & Dale, 1999; Mautte, 1991) included children with identified developmental delays or children eligible for preschool special education.

Study Characteristics

Table 3 shows the study designs, the settings in which the interventions were conducted, and the length and session duration of the interventions. All but one study used a randomized design. All of the studies were implemented in a preschool setting or a center-based program. All but one study involved group instruction. Two studies included

both group and individual instruction. A single study used just individual instruction. The length of interventions ranged from 6 to 64 days, with most lasting 30 days or more. The session duration per day ranged from 10 minutes to 35 minutes. The length of individual sessions was not included for five studies.

Interventions

Additional information about the characteristics of the reading interventions is included in Table 4. Six studies investigated dialogic reading, four studies investigated interactive shared reading, and three studies investigated shared reading. The comparison groups against which the reading interventions were compared are also shown.

The interventions constituting the focus of investigation were coded according to type of reading instruction and degree of child participation in the reading episodes for the purpose of isolating practices that contributed to the study outcomes. Type of intervention was coded according to the three approaches to reading constituting the focus of the What Works Clearinghouse syntheses. Degree of child participation was coded on a 7-point continuum from passive to active child involvement in the reading instruction episodes (Table 4). For purposes of this secondary synthesis, child participation scores that were less than five were coded as passive participation and scores of five or higher were coded as active participation. In addition to the two reading practices characteristics, we examined the influences of child age, length of reading session, and length of intervention as factors influencing study outcomes.

Outcomes

Table 5 lists the outcome domains and measures that were used to evaluate the effectiveness of the interventions. Oral language outcomes were included in 11 studies, print knowledge outcomes were included in 5 studies, phonological processing outcomes were included in 3 studies, and early reading/writing were included in 2 studies. The outcome measures included a mix of standardized instruments (e.g., Peabody Picture Vocabulary Test–Revised and Woodcock-Johnson Psychoeducational Battery) and investigator developed measures. For purposes of this secondary synthesis, the two print-related outcomes (print knowledge and early reading/writing) and the two linguistic processing skills (oral language and phonological processing) were combined for evaluating the relative effectiveness of the three approaches to reading.

Effectiveness

All three What Works Clearinghouse reports included Hedges's g effect sizes as the index for judging the effectiveness of the interventions. We weighted the effect sizes (Shadish & Haddock, 1994) for the secondary analysis be-

cause the sample sizes in the different studies varied (Table 2). The Z test was used to ascertain if the practice-related characteristics were related to variations in the outcomes (Hedges, 1994).

SYNTHESIS FINDINGS

The individual nonweighted effect sizes for the 57 outcome measures included in the three What Works Clearinghouse reports are shown in Table 5. The average weighted effect size for all studies and all measures combined was .34 (95% Confidence Interval = .27 to .41), Z = 9.00, p < .0001. The weighted effect sizes and confidence intervals for the linguistic processing and print-related outcomes were .28 (95% CI = .19 to .36) and .53 (95% CI = .38 to .68) with Zs of 6.41 and 6.92, ps < .0001, respectively. These findings, taken together, indicate that the covariation between reading methods and the outcomes were statistically greater than zero, demonstrating that the interventions as a whole were effective.

The average weighted effect sizes according to interventions, study characteristics, and outcomes are shown in Table 6. Twenty-two of the 29 Z statistic results (76%), including at least three effect sizes, were statistically greater than zero. This shows that the largest majority of the practice-related factors and characteristics were associated with more positive study outcomes. There were, however, within practice characteristics differences for a number of comparisons.

For all outcome measures combined, the Zs for dialogic and interactive shared book reading were significantly different than zero, indicating that the use of the practices was associated with more positive effects compared to the control or contrast groups. Dialogic reading was significantly related to the linguistic processing outcomes, and interactive shared reading was significantly related to the print-related outcomes. Shared reading was not associated with more positive study outcomes in any of the analyses.

The degree of active child participation in the reading episodes was significantly related to both the linguistic processing and print-related outcomes as well as to all outcomes combined. The relationship between studies coded as more passive interventions was also significantly related to all outcomes combined, but not as strongly related with studies coded as involving more active participation.

The three reading practices taken together were more effective when implemented with older children as evidenced by the relatively larger Zs for the studies including mostly children 48 months of age or older. Young children significantly benefited from the reading practices but not as much as older children.

Reading sessions lasting 15 minutes or less were more effective than sessions that were longer than 15 minutes.

The length of the interventions mattered only in terms of the linguistic processing outcomes, with interventions lasting 30 or more days having a stronger relationship with this outcome. The length of the interventions did not seem to matter as much for the print related outcomes or for all measures combined, although there was a trend showing shorter interventions were associated with more positive effects.

CONCLUSION

Results from this secondary analysis of three What Works Clearinghouse research syntheses indicate that reading interventions that more actively involved young children in reading episodes were likely to result in more positive benefits. The two interventions that were most effective were dialogic reading and interactive shared book reading. Both procedures included a number of different techniques and strategies for engaging children in asking questions, prompting descriptions, asking for elaboration, completing part of a story, etc. Of these two reading methods, dialogic reading is the more structured procedure.

The findings from this practice-based research synthesis are very similar to those that have included additional reading studies (Cutspec, 2004, 2006). The common themes across most if not all studies having positive effects is the variety of ways the practices actively involve children in the reading episodes. This is in contrast to practices and often prescribed recommendations to "read to children everyday." How one reads to children seems to matter more than the sheer amount of reading in terms of developing reading skills.

Implications for Practice

A content analysis of the dialogic reading (What Works Clearinghouse, 2006a) and interactive shared reading (What Works Clearinghouse, 2007) reports indicates that certain reading techniques and procedures are strong candidates for routine, everyday book reading at home and at school with an individual child or a small group of children. These techniques that actively involve children in the reading process include asking **Wh____** questions about the story being read, asking for descriptions or explanations of book pictures, prompting elaborations and expansions of child language, asking a child to complete or fill in the end of a sentence, adding to or expanding upon child language, and providing the child the necessary supports and assistance to be an active part of the book-reading episode. The use of any of these techniques and procedures is likely to be most effective if done in the context of interest-based learning opportunities where a child's interest in a topic is the basis for the book(s) being read. Findings from both the series of What Works Clearinghouse reports (2006a, 2007) and this secondary analysis are being used

to develop practice guides that will include many of the key features of evidence-based intervention procedures for reading to young children.

A nontechnical summary of this practice-based research synthesis highlights the main results reported in this paper (*CELLnotes*, Volume 1, Number 2). This summary is useful for providing parents and practitioners information about the research foundations of evidence-based reading practices and ideas about what they can do to more actively involve children in reading episodes. A more detailed description of the framework used by the *Center for Early Literacy Learning* for developing evidence-based literacy learning practices can be found in a companion paper (Dunst et al., 2006).

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Table 2
Background Characteristics of the Study Participants

Study	Sample Size	Mean Age (months)	Percent Males	Ethnicity	Percent	Socioeconomic Status
Crain-Thoreson & Dale (1999)	22	52	69	NR	–	NR
Irlen (2003, Sample 1)	33	57	52	Caucasian African American Asian Latino Not specified	39 24 16 10 11	Lower to middle income (100%)
Irlen (2003, Sample 2)	30	57	52	Caucasian African American Asian Latino Not specified	39 24 16 9 12	Lower to middle income (100%)
Justice & Ezell (2002)	30	53	50	Caucasian Asian African American	90 7 3	Low income (100%) (All at or below 133% of poverty line)
Lamb (1986)	19	48	NR	NR	–	Low-income
Lonigan et al. (1999, Sample 1)	61	45	54	African American Not specified	77 23	Mostly low-income (Eligible for subsidized child care)
Lonigan et al. (1999, Sample 2)	66	45	54	African American Not specified	77 23	Mostly low-income (Eligible for subsidized child care)
Lonigan & Whitehurst (1998)	75	33-60	46	African American Not specified	91 9	Low income (100%)
Mautte (1991)	38	48	49	African American Caucasian Latino	87 9 4	Low income (100%) (All at risk)
McCormick & Mason (1989)		55	NR	Caucasian African American	96 4	Mostly low income (Head Start)
Wasik & Bond (2001)	121	52	NR	African American Not specified	94 6	Low income (100%) (All eligible for free or reduced lunch)
Whitehurst, Arnold, et al. (1994)	67	42	55	African American Latino Not specified	55 23 6	Low income (100%) (Most eligible for subsidized child care)
Whitehurst, Epstein, et al. (1994)	167	48	56	Caucasian African American Latino Asian	46 45 8 1	Low income (100%) (At risk)

NR = Not reported.

Table 3
Selected Characteristics of the Studies

Study	Research Design	Location	Group vs. Individual	Length of Intervention (days)	Session Duration (minutes)
Crain-Thoreson & Dale (1999)	Randomly assigned control w/differential attrition	Classrooms (5 sites in 3 districts)	Individual	48	NR
Irlen (2003, Sample 1)	Randomly assigned control	Preschools (3 sites)	Group	8.5	35
Irlen (2003, Sample 2)	Randomly assigned control	Preschools (3 sites)	Group	8.5	35
Justice & Ezell (2002)	Randomly assigned control	Head Start center (1 site)	Group	24	NR
Lamb (1986)	Randomly assigned control	Day care center (1 site)	Group	50	NR
Lonigan et al. (1999, Sample 1)	Randomly assigned control	Child care centers (5 sites)	Group	30	10–15
Lonigan et al. (1999, Sample 2)	Randomly assigned control	Child care centers (5 sites)	Group	30	10–15
Lonigan & Whitehurst (1998)	Randomly assigned control	Child care centers (4 sites)	Group	30	10
Mautte (1991)	Randomly assigned control	Early childhood education center (1 site)	Group	60	25
McCormick & Mason (1989)	Quasi-experimental	Head Start (1 site, 4 classrooms)	Group	6	10–15
Wasik & Bond (2001)	Randomly assigned control	Title I Early Learning center (1 site)	Group	60	NR
Whitehurst, Arnold, et al. (1994)	Randomly assigned control w/ differential attrition	Day care centers (5 sites)	Group at school; Individual at home	30	10
Whitehurst, Epstein, et al. (1994)	Randomly assigned control	Head Start (4 sites)	Group at school; Individual at home	16 wks. 3–5 times a wk., plus reading at home & sound foundations 1–3 times a wk.	NR

NR = Not reported.

Table 4

Characteristics of the Reading Interventions and the Comparisons Against Which the Practices Were Assessed

Study	Reading Type	Experimental Group		Comparison Group
		Intervention	Degree of Child Participation	
Crain-Thoreson & Dale (1999)	Dialogic reading	Staff implemented one-on-one Dialogic Reading	6	No one-on-one dialogic reading
Irlen (2003, Sample 1)	Shared book reading	Listened to adult read story Retold story as a group	3	1. Watched a video 2. Retold story as a group
Irlen (2003, Sample 2)	Shared book reading	Story book repeat Listen to story twice	2	Video repeat Watch story twice
Justice & Ezell (2002)	Interactive shared book reading	Print focus: Interactive shared reading w/print focus. Adult posed prompts in 3 types: print conventions, concept of word, alphabet, knowledge. Reader calls on each child to respond to a prompt.	4	Picture focus: Interactive shared reading w/print focus. Prompts based on pictures, 3 types: character forms, perceptual focus, action focus.
Lamb (1986)	Interactive shared book reading	Read aloud w/language interaction (discussion prior, during, & after the reading)	5	Read aloud only
Lonigan et al. (1999, Sample 1)	Shared book reading	Typical shared book reading	1	No treatment
Lonigan et al. (1999, Sample 2)	Dialogic reading	Dialogic reading	6	No treatment
Lonigan & Whitehurst (1998)	Dialogic reading	Dialogic reading at school group, plus dialogic reading at home & school group	6	No treatment
Mautte (1991)	Interactive shared book reading	Repeated reading w/adult interaction (two developmental strata: average & delayed)	5	Repeated reading without adult interaction
McCormick & Mason (1989)	Interactive shared book reading	Book recitation Children made predictions about book based on cover Adult modeled reading by showing pictures & text and pointing to words while reading Child received copy of book so they could accompany in reading text	5	Story discussion Adult told story while displaying pictures. Children didn't see text. Children asked to retell story w/ pictures as prompts Children received copy of illustrations to follow along
Wasik & Bond (2001)	Dialogic reading	Dialogic reading plus reinforcement activities—targeting certain vocabulary	7	Reading of same books by teachers without dialogic reading training
Whitehurst, Arnold, et al. (1994)	Dialogic reading	Dialogic reading at school group plus Dialogic reading at home & school group	6	Small group play activities (construction toys)
Whitehurst, Epstein, et al. (1994)	Dialogic reading	Dialogic reading (at school and home) w/adapted sound foundations curriculum—7 consonant sounds at beg. & end of words, 2 vowel sounds at beg. & manuscript letters corresponding to curriculum sounds	6	No treatment (regular Head Start program)

Table 5
Outcome Measures and Effect Sizes for the Interventions

Study	Outcome Domain	Outcome Measures	Effect Sizes
Crain-Thoreson & Dale (1999)	Oral language	Mean length of utterance	0.27
		Number of utterances	0.31
		Number of different words used	0.09
		Ratio of child participation	0.40
		PPVT-R[a]	0.20
		EOWPVT-R[b]	−0.14
Irlen (2003, Sample 1)	Oral language	Prompted score (Paris rubric score)	0.09
		Prompted and Unaided score (Marshall checklist)	−0.02
		Unaided retelling score (Marshall checklist)	0.18
Irlen (2003, Sample 2)	Oral language	Prompted score (Paris rubric score)	0.11
		Prompted and Unaided score (Marshall checklist)	0.11
		Unaided retelling score (Marshall checklist)	−0.07
Justice & Ezell (2002)	Print knowledge	Letter orientation and discrimination	0.84
		Print concepts	0.31
		Print recognition	1.77
		Words in print	1.13
		Alphabet knowledge	0.48
		Literacy terms	0.45
Lamb (1986)	Oral language	Record of Oral Language[c]	−0.52
	Print knowledge	PPVT-R	−0.01
		Concepts About Print: Sand and Stones[d]	−0.23
Lonigan et al. (1999, Sample 1)	Oral language Phonological processing	Oral Language Measures	
		PPVT-R	−0.05
		EOWPVT-R	0.04
		ITPA-VE[e]	0.48
		WJ-LC[f]	0.29
		Phonological Processing Measures	
		Rhyme oddity detection	−0.11
		Alliteration oddity detection	1.26
		Sound blending	−0.08
		Sound elision	−0.17
Lonigan et al. (1999, Sample 2)	Oral language Phonological processing	Oral Language Measures	
		PPVT-R	−0.49
		EOWPVT-R	0.05
		ITPA-VE	0.30
		WJ-LC	0.38
		Phonological Processing Measures	
		Rhyme oddity detection	0.11
		Alliteration oddity detection	1.46
		Sound blending	0.02
		Sound elision	0.17
Lonigan & Whitehurst (1998)	Oral language	PPVT-R	−0.07
		EOWPVT-R	0.04
		ITPA-VE	0.43

Table 5, continued

Study	Outcome Domain	Outcome Measures	Effect Sizes
Mautte (1991)	Oral language	PLS[g]	−0.12
	Print knowledge	TERA[h]	−0.36
		PLS (delayed development)	1.06
		TERA (delayed development)	0.35
McCormick & Mason (1989)	Print knowledge	Letter naming	0.07
	Early reading/writing	Points to print	0.27
		Picture label	0.70
		Word label, taught book, and new book were excluded	
Wasik & Bond (2001)	Oral language	Receptive language measure (subset of vocabulary words presented in interactive book reading)	1.58
		Expressive language measure (pictures representing words presented during interactive book reading)	2.05
Whitehurst, Arnold, et al. (1994)	Oral language	PPVT-R	0.19
		EOWPVT-R	0.32
		ITPA-VE	0.00
		"Our Word" (researcher developed, measures knowledge of novel vocabulary)	0.21
Whitehurst, Epstein, et al. (1994)	Oral language	21 outcome measures reduced to 4 factors:	
	Phonological processing	Language factor	0.08
	Print knowledge	Print concepts factor	0.64
	Early reading/writing	Linguistic awareness factor	0.02
	domains	Writing factor	0.54

[a]PPVT-R = Dunn, L. M., & Dunn, L. M. (1981). *PPVT: Peabody Picture Vocabulary Test* (Rev. ed.). Circle Pines, MN: American Guidance Service.

[b]EOWPVT-R = Gardner, M. E. (1990). *EOWPVT-R: Expressive One-Word Picture Vocabulary Test-Revised*. Novato, CA: Academic Therapy.

[c]Record of Oral Language = Clay, M. M. (1983). *Record of oral language and biks and gutches*. Exeter, NH: Heinemann.

[d]Concepts About Print: Sand and Stones = Clay, M. M. (1985). *Concepts about print: Sand and stones*. Westport, CT: Heinemann.

[e]ITPA-VE = Kirk, S. A., McCarthy, J. J., & Kirk, W. D. (1968). *Illinois Test of Psycholinguistic Abilities*. Urbana, IL: University of Illinois Press.

[f]WJ-LC = Woodcock, R. W., & Johnson, M. B. (1977). *Woodcock-Johnson Psycho-Educational Battery*. Allen, TX: DLM Teacher Resources.

[g]PLS = Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (2002). *Preschool language scale* (4th ed.). San Antonio, TX: Psychological.

[h]TERA = Reid, D., Hresko, W., & Hammill, D. (1981). *Test of early reading ability*. Austin, TX: Pro-Ed.

Table 6

Mean Effect Sizes for the Intervention and Study Characteristics Constituting the Focus of Analysis

Characteristics	Linguistic Processing Skills			Print Related Skills			All Outcomes Combined		
	Number of Effect Sizes	Mean Effect Size	95% CI	Number of Effect Sizes	Mean Effect Size	95% CI	Number of Effect Sizes	Mean Effect Size	95% CI
Type of Intervention									
Dialogic reading	25	.34**	.23–.44	2[a]	.59	.37–.81	27	.38**	.29–.48
Interactive shared reading	4	.11	–.35–.57	12	.47**	.27–.68	16	.41**	.23–.60
Shared reading	14	.16	.00–.32	0	–		4	.16	.00–.32
Degree of Child Participation									
Passive	14	.16	.00–.32	6	.78[b]	.47–1.09	20	.29*	.15–.43
Active	29	.33**	.23–.43	8	.45**	.28–.62	37	.36**	.27–.45
Child Age (months)									
42–48	29	.15*	.05–.25	5	.49**	.29–.70	34	.21*	.13–.30
> 48	14	.77**	.58–.96	9	.57**	.35–.79	23	.69**	.54–.83
Length of Reading Sessions (minutes)									
15 or less	23	.18*	.07–.29	3	.34*	.02–.66	26	.20*	.09–.30
> 15	8	.14	–.13–.40	2	.03	–.61–.67	10	.12	–.12–.37
Length of Intervention (days)									
< 30	6	.07	–.22–.36	9	.57**	.35–.79	15	.38**	.21–.56
30–49+	37	.30**	.21–.39	5	.49**	.29–.70	42	.33**	.04–.41

[a]Analyses that included only two effect sizes were not considered as part of the data interpretation and are included here for informational purposes only.

[b]A single study included all six effect sizes and was not used for data interpretation.

*p < .001, **p < .0001.