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TITLE OF THE REVIEW

Parent-mediated Interventions to Foster Early Language and Literacy Skills in Young Children: A Systematic Review

BACKGROUND

The Influence of Parents and the Home Environment

Interactions with parents at home provide the first opportunity for children to establish the fundamental language and literacy skills needed for later academic success. Indeed, literacy- and language-related variables appear to be among the strongest predictors of later school performance, making their early promotion particularly critical (Duncan et al., 2007; LaParo & Pianta, 2000; National Early Literacy Panel, 2008). These foundational language and literacy skills are even more important for children from economically disadvantaged families because they tend to enter school performing below their peers from middle-income families in early literacy and language skills (Chernoff, Flanagan, McPhee, & Park, 2007; Reardon, 2013).

Many aspects of the home context are potentially important for promoting children’s early literacy development, including general features of a stimulating home environment as well as specific literacy-promoting activities. Caregivers who provide rich language interactions, are actively involved in daily activities, and are warm and responsive can enhance the early literacy skills of their children (Dodici, Draper & Peterson, 2003; Rush, 1999; Tabors, Roach & Snow, 2001). Parents’ who actively engage with their children in literacy activities, including interactive book reading, tend to have children with increased language and early literacy skills (Sénéchal & LeFevre, 2002; Sénéchal, LeFevre, Thomas, & Daley, 1998; Wiegel, Martin & Bennett, 2006). For example, Weigel et al. (2006) found that children showed greater print knowledge and stronger interest in reading when their parents made books available in the home, engaged in shared book-reading, told stories, recited rhymes, and visited the library with their children. A meta-analysis of parent-child joint book reading conducted by Bus, van IJzendoorn, & Pellegrini (1995) found that measures of parent-preschooler book reading were related to language growth, emergent literacy, and reading achievement and that these effects were not dependent on the socioeconomic status of the families.

Parent-Mediated Interventions to Support Language and Literacy

The correlational research described above suggests that the language and literacy-oriented activities and interactions that occur with parents in the home environment offer a promising avenue for early intervention with young children. Indeed, this research has supported the development of a number of parent-mediated interventions for improving young children’s language and literacy growth, many targeted especially for low income or
minority families. It is these parent-mediated interventions for improving language and literacy development in young children that are the focus on this systematic review. In particular, we will focus on three broad categories of interventions: parent-child book reading, parent-child conversations, and parent-child writing (Reese, Sparks, & Leyva, 2010). A number of approaches can be found within each of these broad categories, not all of which will be described here. Here we briefly define the categories and provide a few illustrative examples.

Interventions involving book reading are the most common and may include parents reading to their children, children reading to their parents, and various forms of joint or paired reading, among others. Strategies defined around dialogic reading are the most widely studied (Reese, Sparks, & Leyva, 2010). With dialogic reading, parents use open-ended questions to actively involve children as storytellers rather than passive listeners (Whitehurst & Lonigan, 1998). Other intervention strategies have also been utilized in the book reading context; an intervention to increase parents’ verbal and non-verbal references to print during shared book reading resulted in enhanced early literacy skills (Justice & Ezell, 2000) and other interventions have utilized parents as tutors during paired reading to enhance early reading skills (Cadieux & Boudreauault, 2005; Kraft, Findlay, Major, Gilberts, & Hofmeister, 2001; Leach & Siddall, 1990).

Interventions in the context of parent-child conversations or parent-child writing are less common. A conversation technique called elaborative reminiscing, for example, which encourages parents to talk about past events with their children, has been used to promote vocabulary, story comprehension, and narrative skills in low-income children (Peterson, Jesso, & McCabe, 1999; Reese, Leyva, Sparks, & Grolnick, 2010; Reese & Newcombe, 2007). In another example, Levin & Aram (2012) compared low-SES mothers who received instruction in writing mediation with others who received instruction in interactive storybook reading or visual-motor skill building.

Within (and, indeed, across) any of these three programmatic categories, there are variations in the specific content elements that might be included in an intervention. For example, an intervention might target parent-child conversations, shared book reading, and activities that promote letter recognition and print awareness (e.g., Jordan, Snow, & Porche, 2000). Because we expect the programs to be included in the review to be diverse, the coding protocol will include an especially probing scheme for identifying the elemental program components and processes that make up the program regimen, so the relative influence of these on the targeted outcomes can be assessed. Elemental program components can reflect either program content (i.e., the substance of the intervention) or processes (i.e., active methods or techniques through which content is delivered). Recording the process and content elements of each program will permit an assessment of the types of content and process elements typically found together in interventions in this area and, more importantly, to explore whether different elements alone or in combination are associated
with better (or worse) outcomes for children. The protocol for this systematic review will describe the elements coding scheme in more detail.

**Cultural Barriers to Effective Literacy Interventions**

Despite the strong correlational evidence connecting home literacy practices with children’s later language and literacy skills (e.g., Bus, et al., 1995), literacy-focused interventions with families of different cultural or socioeconomic backgrounds may not be as effective as they are when implemented with majority group, middle-class families. In a meta-analysis of dialogic reading interventions, Mol, Bus, de Jong, and Smeets (2008) found a smaller effect size for at-risk children, designated by lower family income or maternal education. Another meta-analysis found a similar diminished effect for family-based literacy programs conducted with low-income parents and children (Manz, Hughes, Barnabas, Bracaliello, & Ginsburg-Block, 2010). These findings, though based on relatively small meta-analyses, suggest that mainstream approaches may not be universally effective with diverse populations.

One explanation for these differences is that many parent-mediated interventions to promote language and literacy are based on the typical practices of middle and upper-class families; parents from diverse cultural backgrounds may be asked to change their current practices to emulate these mainstream approaches (Anderson, Anderson, Lynch, & Shapiro, 2003; Hammer, Nimmo, Cohen, Draheim, & Johnson, 2005). These differences may represent barriers to effective interventions for certain families. Recent work with immigrant families suggests that the practice of shared book reading may not be a natural part of the home environment in some cultures, and that literacy development may be seen as something that begins only when children enter formal schooling (Janes & Kermani, 2001; Reese & Gallimore, 2000).

Socioeconomic or minority gaps in school readiness at school entry, coupled with emerging findings that some family-based approaches to language and literacy development may not be as effective among diverse populations, make identifying effective parent-mediated practices for promoting young children’s development a critical endeavor.

**OBJECTIVES**

The primary objective of the review is to summarize the available evidence on the effects of parent-mediated interventions for improving language and literacy skills in young children. Because the review will include a variety of strategies employed in parent-mediated interventions that target children’s language and literacy development, the primary focus of the analysis will be the comparative effectiveness of different program approaches and different combinations of content and process elements in an effort to identify those that have the largest and most reliable effects on the outcomes. In addition, because existing evidence points to the possibility of differential impacts for children from disadvantaged
backgrounds, an additional objective of this review is to carefully explore results for socioeconomic and racial/ethnic subgroups. Specific research questions guiding the review are:

1. What are the impacts of parent-mediated interventions on children’s language and literacy outcomes? Which programs are most effective in promoting early language and literacy skills in young children?

2. Considering that many interventions include combinations of different program elements, what are the common elements that are shared across the most effective interventions?

3. Do program impacts differ for disadvantaged or ethnic- or language-minority families? Are some types of programs or common elements more effective for these at-risk populations?

**EXISTING REVIEWS**

Several reviews of studies on parent-mediated language and literacy interventions have been conducted that are relevant to the proposed work (e.g., Manz, Hughes, Barnabas, Bracaliello, & Ginsburg-Block, 2010; Miller, Maguire, & Macdonald, 2011; Mol, Bus, de Jong, & Smeets, 2008; Reese, Sparks, & Leyva, 2010; Sénéchal & Young, 2008; van Steensel, McElvany, Kurvers, & Herppich, 2011). These are summarized in Table 1 below. Three important issues have emerged from these reviews that motivated the current review. First, two existing reviews (Manz, et al., 2010; Mol, et al., 2008) have discovered that mainstream parent-mediated literacy programs may be less effective for disadvantaged families, but leave us with little information about the types of interventions that are most effective for such families. The content and process element coding scheme we will employ in our review is designed to more fully explore these issues. Indeed, we may discover, for example, that some content elements are effective across diverse populations if different process elements are employed or that interventions that target parent-child conversations may be more effective for minority families because they are not dependent on cultural perceptions of shared book reading (Reese, et al. 2010).

Second, previous reviews have not fully examined different intervention impacts across language versus literacy outcomes. Recent advances in meta-analysis methods provide the opportunity to examine program impacts on constructs within the language and literacy domains in a much more nuanced way than any previous review on this topic. All of the previous meta-analyses averaged effect sizes within studies so that only one effect size per study sample was contributed to a given analysis. The impact of averaging effect sizes within studies, while appropriate given the analytic techniques available at the time, cannot be underestimated. By averaging all of the effect sizes within a study in the language and literacy domains, for example, van Steensel et al., (2011) could not examine whether
program impacts differed on receptive versus expressive vocabulary or on letter knowledge versus phonological awareness. Had there been a large difference within studies between impacts on letter knowledge and phonological awareness, the average of those impacts for the meta-analysis would have masked that difference. The advanced techniques for meta-analysis we will employ in our review (e.g., Konstantopoulos, 2011; Hedges, Tipton, & Johnson, 2010; Tipton, 2013; Van den Noortgate et al., 2013) allow for meta-analyses to include multiple effect sizes per study and examine variations in treatment impacts across different outcome domains in the same analysis with greater statistical power. It will be particularly critical to identify programs and/or content elements that have strong impacts on specific language outcomes like vocabulary or language comprehension because of their key role in the development of reading (Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003).

Finally, we expect to have many more studies in our review than any previous review. The comprehensive search supported by the Parenting Research Centre (PRC) has identified virtually every relevant study (published and unpublished) conducted on this topic since 1980 and will be updated based on feedback received during the Campbell peer review process. The largest review we have located thus far included 30 studies (van Steensel et al., 2011). Our initial search and screening has turned up 60 studies that we believe will be eligible for the review, 22 of which are not included in any of the reviews cited above. We expect any updating of our search to turn up additional studies. Initial examination of the studies in hand suggests that at least 50% of them include at least some participants from disadvantaged backgrounds, a discovery that will allow us to assess the comparative effectiveness of different strategies among diverse populations.

Although the literature on this topic is relatively large and some of it has been reviewed previously, the review described here will include more studies than any previous review and well as a number of studies not included in any of the previous reviews described here. Furthermore, the coding scheme and advanced meta-analysis techniques we will employ will allow for a more nuanced analysis of comparative effectiveness than earlier work.

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ELIGIBLE INTERVENTIONS

The proposed review will include any intervention that is intended to improve the early language or early literacy skills of young children (ages 2-6) through direct intervention with an eligible parent or caregiver. Interventions must meet the criteria described below in order to be eligible.

i. Eligible programs must include direct intervention contact with one or more eligible parent participants. The program may also include direct intervention contact with one or more children (although contact with children is not required for inclusion). Direct intervention contact means that intervention services are provided directly to the parent(s) or caregiver(s) via face-to-face, telephone, or video contact.

ii. An eligible parent is an adult person serving in the role of primary caregiver to a child. This definition may include grandparents, adoptive parents, foster parents, step-parents, and other caregivers.

iii. Eligible interventions must have an explicit goal of improving the language or literacy skills of the target children. The intervention may have other goals (e.g., improving...
other academic skills, reducing problem behaviors), but language or literacy skills must also be an explicit target of the program.

In addition, the following exclusions apply:

i. Programs applied to an entire community in which individual parents/families may or may not receive the intervention (i.e., the community is the target, not the individual household) are not eligible.

ii. Programs that provide information, notices, tip sheets, or briefs to parents that do not involve explicit prescriptions or instructions for change are not eligible. For example, notices sent home with children about their participation in a school-based program or pamphlets about the importance of reading to children.

**ELIGIBLE POPULATIONS**

Studies eligible for the review will include parents of children aged 2-6. An eligible parent is an adult person serving in the role of primary caregiver to a child. This definition may include grandparents, adoptive parents, foster parents, step-parents, and other caregivers. Target children must be children under the care of the parent or caregiver participating in the intervention. Studies that include children outside of the eligible age range are eligible if more than 60% of the children fall in the eligible range or if the results are presented separately for children within the eligible age range. To be as inclusive as possible, no restrictions are placed on the sociodemographic characteristics or living situations of the families. Children with disabilities are eligible for the review, provided the other eligibility criteria are met. Parents and children from any country are eligible.

**ELIGIBLE OUTCOMES**

Outcomes eligible for the review are divided into three broad domains, with further subdivisions for constructs within those domains, as follows. Each construct within a larger domain will be coded and analyzed separately in the review.

*Language domain.* The language domain includes outcomes that assess the ability to understand spoken language, communicate and understand thoughts or ideas through speech, use developmentally-appropriate discourse skills, and display grammatical knowledge or skill. Eligible constructs within the language domain include receptive vocabulary, expressive vocabulary, oral expression, and oral comprehension.

*Literacy domain.* The literacy domain includes outcomes that assess children’s understanding of the building blocks of written language and reading. Eligible constructs in the literacy domain include letter knowledge, phonological awareness, print awareness, and phonics or decoding skills.
General reading readiness domain. Includes outcomes that combine measures in two or more of the previous domains (e.g., letter knowledge, vocabulary, decoding) or provide a summary score indexing children’s language and/or literacy development. Such measures are often used as assessments of children’s readiness for reading instruction.

ELIGIBLE STUDY DESIGNS

The proposed review will include experimental and quasi-experimental designs. Eligible studies must compare subject groups receiving one or more identifiable treatments that meet the eligibility criteria for interventions described above with one or more comparison conditions not receiving the intervention. To be eligible, these study designs must meet at least one of the following criteria:

i. Subjects or groups of subjects (e.g., classrooms) are randomly assigned to intervention and control conditions or assigned by a procedure plausibly equivalent to randomization.

ii. Subjects in the intervention and control conditions are matched and the matching variables include a pretest on at least one measure reported as an outcome. Matching is defined to include both manual (e.g., groups are created by the researcher to be equivalent on certain matching variables) and statistical matching (e.g., propensity score matching).
   a. Matching studies that do not include at least one pretest measure on an outcome variable as a matching variable are not eligible.

iii. Subjects or groups are not randomly assigned or matched, but pre-intervention measures/pretests on each variable to be coded as an outcome are reported in a form that permits assessment of the initial equivalence of the intervention and control groups on those variables via calculation of an effect size.

iv. Subjects or groups are not randomly assigned or matched, but intervention effects reported by the study authors are adjusted for baseline differences on pretests, e.g., study authors report covariate adjusted means or regression coefficients from models that include pretests as covariates. For studies falling into this category, each variable to be coded as an outcome for the study must meet this requirement.

OTHER ELIGIBILITY CRITERIA

Study Settings. Studies may be conducted in any setting in any country, as long as all other criteria for eligibility are met.

Language of Publication. Studies may be published in any language.
Date and Form of Publication. To be as comprehensive as possible, yet focus on relatively current practice, the date of publication or reporting of the study must be 1980 or later. Any form of publication or reporting is eligible, including journal articles, books and book chapters, as well as theses and dissertations, technical reports, conference papers, and other such informally disseminated work.

GENERAL SYSTEMATIC REVIEW AND STATISTICAL PROCEDURES

All phases of the review will be guided by the Campbell Collaboration guidelines for systematic reviews and will be more fully described in the protocol. Meta-analyses will employ inverse variance weighting using random effects statistical models that incorporate both the sampling variance and between studies variance components into the study-level weights. Because many studies are likely to report multiple outcomes within the same construct category (e.g., two measures of phonological awareness), analyses will use multi-level meta-analysis or robust variance estimation techniques that account for these statistical dependencies (Hedges, Tipton, & Johnson, 2010; Tipton, 2013).
REFERENCES


**REVIEW AUTHORS**

**Lead review author:** The lead author is the person who develops and co-ordinates the review team, discusses and assigns roles for individual members of the review team, liaises with the editorial base and takes responsibility for the on-going updates of the review.

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ROLES AND RESPONSIBILITIES

- Content: Wilson, Norvell, and staff from the Parenting Research Centre, Melbourne, Australia
- Systematic review methods: Wilson, Norvell, Kissinger
- Statistical analysis: Wilson
- Information retrieval: Norvell, Kissinger

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POTENTIAL CONFLICTS OF INTEREST

The authors of this review have no conflicts of interest to declare.

PRELIMINARY TIMEFRAME

- Submission date for draft protocol: July 31, 2015
- Submission date for draft review: March 31, 2016

AUTHOR DECLARATION

Authors’ responsibilities

By completing this form, you accept responsibility for preparing, maintaining, and updating the review in accordance with Campbell Collaboration policy. The Coordinating Group will provide as much support as possible to assist with the preparation of the review.

A draft protocol must be submitted to the Coordinating Group within one year of title acceptance. If drafts are not submitted before the agreed deadlines, or if we are unable to contact you for an extended period, the Coordinating Group has the right to de-register the title or transfer the title to alternative authors. The Coordinating Group also has the right to de-register or transfer the title if it does not meet the standards of the Coordinating Group and/or the Campbell Collaboration.
You accept responsibility for maintaining the review in light of new evidence, comments and criticisms, and other developments, and updating the review every five years, when substantial new evidence becomes available, or, if requested, transferring responsibility for maintaining the review to others as agreed with the Coordinating Group.

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