RESEARCH ARTICLE

Early childhood literacy and language programs: Supporting involvement of DLLs and their families

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The purpose of this literature review was to identify effective early childhood literacy and language programs that were developed for Dual Language Learners (DLLs), and their families, or could be adapted for this population. A search of ERIC and PsychInfo databases from the earliest date to the winter of 2008 yielded over 300 abstracts, of which 10 programs met inclusion criteria and three of those programs including six treatment conditions were considered to have met criteria for effectiveness. Overall these programs were found to yield significant positive effects for children's early literacy and language outcomes at post-testing and one year follow-up. Program effectiveness varied by time point and outcome measure. A significant relationship was found between program duration and effectiveness at follow-up. Program components requiring further evaluation are discussed.

DLL and Early Childhood Literacy and Language

A main focus within the area of early childhood education is on enhancing the development of literacy and language skills for children, birth to six years of age (Fischel, Bracken, Fuchs-Eisenberg, Spira, Katz, & Shaller, 2007; Gettinger & Stoiber, 2008; Hansen, 2004; Justice, Mashburn, Hamre, & Pianta, 2008; Whitehurst, Zevenbergen, Crone, Schultz, Velting, & Fischel, 1999). Longitudinal research conducted by Whitehurst and colleagues has shown positive correlations and longitudinal stability between early literacy and language skills and later reading skills (1999). Overall, researchers have concluded that emergent literacy skills are strongly correlated with both later reading skills (Al Otaiba & Torgesen, 2007; Vellutino, Scanlon, & Zhang, 2007) and academic achievement in general (Clements, Reynolds, & Hickey, 2004).

The relationship between early literacy and language skills and later achievement is even more critical for Dual Language Learners (DLLs), children who are acquiring a second language while developing their first, who have demonstrated achievement gaps with non-DLLs (Espinosa, 2005; Garcia and Miller, 2008; Rodriguez-Brown, Li, & Albom, 1999; Samson &

Lesaux, 2009; St. Clair & Jackson, 2006). The Early Childhood Longitudinal Study found that Hispanic students who did not have a basic understanding of oral English at the beginning of kindergarten were more likely to achieve low academic success in both reading and mathematics in fifth grade (ECLS-K, 1999). Additionally, this study found that positive early childhood education experiences could aid in decreasing the achievement gap between DLLs and non-DLLs (1999). The findings of this longitudinal study suggest that early childhood education is important for DLLs not only for early literacy and language development but also for later academic success. Furthermore, the National Center for Education Statistics reports that DLLs, specifically native Spanish speakers, are the fastest growing student population in US schools (NCES, 2004; NCES, 2010). Currently, DLLs represent approximately 30% of Head Start students, with 80% coming from Spanish-speaking homes (Mathematica Policy Research Institute, 2010).

The early childhood literature contains suggestions for components of family involvement programs that may be relevant for a DLL population, yet the majority of these suggestions are based on reports and guided materials (McCollum & Russo, 1993; Peacoraro & Magnuson, 2001; Patsy, 1994; Violand-Sanchez, 1991; Ziegler, 1998) or correlational and descriptive studies (Delgado-Gaitan, 1991; Dever & Burts, 2002; Drake et al., 1996); thereby, lacking empirical evidence of program effectiveness. However, this literature provides illustrative information about potentially promising aspects of family involvement programs for DLLs.

Garcia and Miller report that cultural differences need to be addressed concerning DLLs (2008). For example, it has been reported that literacy and language development for bilingual students progresses more slowly than for monolingual students (Bialystok, 2007) and that these differences should be addressed and incorporated into literacy and language programs for DLLs (Garcia et al., 1974). Although not based on empirical evidence, Espinosa argues that the inclusion of culturally and linguistically relevant material in the classroom builds mutual trust and respect among students, teachers and families. In addition, she purports that when schools develop rapport with families it helps to reduce the discontinuity between DLLs, their families and the schools. Others have asserted that the purpose of including culturally relevant aspects into family involvement programs is to demonstrate to parents that their culture and language is important and relevant to their child's education (Haynes & Gebreyesus, 1992; Quintero & Huerta-Macias, 1993).

Additionally, Espinosa has explored the differences in the socialization and teaching of language and literacy in different cultures and concluded that the way in which children are taught at home is not always compatible with the way children are taught at school (2005). It may be that the discrepancy in the method of teaching between home and school results in a discontinuity for the student, which may result in a student's decreased perception of him or herself as a learner (Espinosa, 2005; Garcia and Miller, 2008; McGhee and Richgels, 1996). For example, young children form expectations and attitudes for when they are supposed to talk, to whom they should talk, and what type of language is appropriate. This suggests that when cultural expectations of the home and school differ, the child may initially feel some discomfort and anxiety in the school setting.

The correspondence between teaching and learning approaches in schools and at home may contribute to DLL students' academic progress. For example, it was demonstrated that when teachers organize grouping patterns and participation rules that are more consistent with a child's home culture, children's level of attention and participation improved (Espinosa, 2005). Espinosa

argues that adapting the school environment to include culturally responsive approaches such as, student's histories, language, and values consistent with student's cultural values, will promote continuity between home and school and subsequent academic achievement.

Family Involvement

For the purpose of this literature review, family involvement refers to several aspects of parenting including, parent interactions with their child, parental beliefs, attitudes, and expectations, parent participation in their child's academic life, and the home literacy environment. The quality of the home literacy environment (i.e., the number of books in the home, library visits, time spent reading with the child, and the child's age) is associated with literacy outcomes for children (Roberts, Jergens & Burchinal, 2005; Rush 1999). Thus, family involvement is a relevant factor in children's development of emergent literacy skills. Consequently, research on early childhood literacy programs has incorporated efforts to maximize parents' involvement in their young children's literacy development (Gelfer, Higgins, & Perkins, 2001; Huebner, 2000).

Throughout the last decade there has been a growing interest from researchers and educators in the relationships between schools and families due to findings that life outside of school also has an impact on children's academic achievement (Christenson & Sheridan, 2001; Epstein, 1995). Some studies portray the relationship between families and schools as strained and in some cases, broken. For example, one study reported that half of teachers believe that most parents fail to motivate their children so that their children will want to learn in school (Christenson & Sheridan, 2001, findings from the Metropolitan Life Survey). The role of family involvement and children's achievement is not only an interest of researchers and educators, but an interest of policy makers as well. The No Child Left Behind Act of 2001 requires schools receiving Title I funds to use part of that money towards improving parent school relationships (Mattingly, Prislin, McKenzie, Rodriguez, & Kayzar, 2002). Thus, the research on family involvement in schooling has educational, policy and financial implications. Empirical evidence supports that family involvement has an impact on young children's academic achievement (Baker, Piotrkowski, & Brooks-Gunn, 1998; Blom-Hoffman, O'Neil-Pirozzi, Volpe, Cutting, & Bissinger, 2006; Whitehurst, Arnold, Epstein, Angell, Smith, & Fischel, 1994). And if family involvement is efficacious it is important to investigate how best to garner this essential resource.

The empirical research on family involvement programs is conflicting. Some studies report that family involvement programs have a positive impact on children's academic achievement and promote family involvement (Baker et al., 1998; Blom-Hoffman et al., 2006; Neuman, 1996; Whitehurst et al., 1994), while other studies report that family involvement programs do not have an impact on children's academic achievement or family involvement (St. Pierre, Ricciuti, & Rimdzius, 2005), and other studies report mixed results in terms of child achievement and family involvement (Clarke, 1993; Crowe, Norris, & Hoffman, 2004).

Several researchers have conducted meta-analyses and reviewed the literature concerning the relationship between family involvement and children's academic achievement (Fan and Chen 2001; Ginsburg-Block, Manz, & McWayne, 2010; Mattingly, Prislin, McKenzie, Rodriguez, & Kayzar, 2002; Nye, Turner, Schwartz, 2006). In a meta-analysis conducted by Mattingly and colleagues, the authors report that there is not much empirical support to claim that family involvement programs are effective in improving student achievement or improving

parent participation (2002). However, the authors do not conclude that these programs are ineffective, but rather, that there are methodological inconsistencies between program evaluations (2002). Mattingly found that several studies used questionnaires, others used measures of academic achievement, others used interviews, and still others used measures of attendance to evaluate family involvement programs (2002). This illustrates that the varied findings of family involvement studies could be attributed to the degree to which the tools utilized were psychometrically sound. In a meta-analysis, Bus and van IJzendoorn provide empirical support that utilizing different literacy measures to determine effect sizes can result in vastly different findings and conclusions (1999). Thus, the differences in the measures (i.e., questionnaires and standardized assessments) used to evaluate parent participation programs may contribute to the varied findings reported in the literature.

Research illustrates the impact that the measures used have on the findings and conclusions of family involvement studies. In a meta-analysis, Fan and Chen concluded that family involvement programs demonstrate effects on academic achievement when studies measure academic achievement with an overall indicator (such as a GPA rater), rather than with a subject-specific indicator, such as literacy. Mattingly and colleagues found that studies defined family involvement differently (2002). For example, one study defined family involvement as increased communication between parents and teachers whereas another study defined family involvement as increased involvement of parent's in their child's homework routine (2002). The initial program found children's achievement scores improved whereas the latter study found no significant improvement in achievement scores (2002). Thus, the varying classifications for family involvement may also help explain the conflicting results among studies investigating these programs.

Epstein suggests that there are six types of family-school involvement, which include parenting, communicating, volunteering, learning at home, decision making, and collaboration with the community (1995).   In this model, parenting relates to schools helping parents understand about their child's development; communicating is a two-way relationship in which both parents and teachers share positive and negative information about the child; volunteering refers to recruiting parents to be involved with school activities; learning at home involves teachers efforts to provide interactive assignments that facilitate parent and child interaction with schoolwork; decision making refers to teachers including parents in classroom practices and policies; finally, collaboration with the community refers to schools building relationships in the community in an effort to extend school services into the community (1995).

Several empirical studies support Epstein's theory by demonstrating the existence of multiple domains of family-school involvement (Fantuzzo, McWayne, Perry, Childs, 2004; Manz, Fantuzzo, Power, 2004). Therefore, it is important to specify the operational definition of family involvement when developing, implementing or evaluating a family involvement program. Thus as Mattingly suggested, the lack of empirical evidence supporting one conclusion about family involvement programs in general may not be related to the ineffectiveness of parent participation programs, but to the lack of a common operationalized definition of family involvement in addition to the diversity of methodologies used to evaluate these programs. It should also be noted that since family involvement is difficult to manipulate (Mattingly, 2002) this often precludes the use of experimental designs in family involvement research; thereby contributing to the inconsistent findings of evaluations of parent participation programs.

The DLL Gap

Although, native Spanish speakers are the fastest growing student population in US schools (NCES, 2004; NCES, 2010) there is a lack of research regarding this population. Fan and Chen (2001) and Mattingly and colleagues (2002) meta-analyses investigated a combined total of 66 family-school involvement programs and out of those programs only four programs were specifically designed for DLLs and their families. There are very few studies that have experimentally investigated the impact that family involvement programs in general, let alone those specifically designed for DLLs, have on literacy and language outcomes (St. Clair & Jackson, 2006).

Purpose

In light of the increased need to support DLL students' literacy and language skills and develop ways to promote family involvement a review of the literature to identify programs that serve this population is warranted. The aim of this review is to identify effective early childhood (birth to 6 years of age) literacy and language programs designed for DLLs and their families or with the potential for adaptation. Specifically, this systematic review of the literature will 1) identify the research designs and measures used to evaluate family involvement programs 2) identify the experimentally or quasi-experimentally designed studies and examine how effective the intervention programs are for promoting family involvement and child literacy and language outcomes, specifically for vocabulary and reading skills, and 3) better understand components of effective family involvement programs and specifically those designed for DLLs and their families.

METHOD

A search of ERIC and PsychInfo databases from the earliest date in the databases to the winter of 2008 was conducted. The search terms included reading, literacy, early childhood education, literacy programs, early intervention, family involvement, parent participation, parent involvement, and family programs. Varied combinations of these terms resulted in over 300 abstracts and these studies were narrowed down to 50 relevant articles. Approximately 20 of these studies described a family involvement program in early childhood literacy. Additionally, a hand search of the table of contents of *Early Child Development and Care*, *Early Childhood Research Quarterly*, *NHSA Dialog: The Research-to-Practice Journal for the Early Education Field*, *Schools and families: Creating essential connections for learning*, and *The School Community Journal* was conducted from the spring of 2003 to the winter of 2008, which is recommended best practice to identify potential programs the electronic search of ERIC and PsychInfo databases might have missed (Cooper, Hedges, & Valentine, 2009; Page, 2008). The hand search did not yield any additional programs.

PUBLICATION BIAS

It should be noted that the search strategies used in this literature review were limited to electronic databases and hand searches of published studies, reports, and materials to identify programs that met inclusion criteria. Thus, although meta-analytic strategies were used to summarize the findings, this study is not an exhaustive meta-analysis because it does not include a search for unpublished studies (i.e., conference presentations). The inclusion of unpublished studies may help to ensure that identified studies are free from the publication bias effect (Orwin, 1983). Publication bias is the idea that studies producing significant effects may be published more often than studies yielding insignificant results. A funnel plot displaying mean effect size on the x-axis plotted against the standard error on the y-axis was employed to determine the presence of publication bias. A biased sample would show an asymmetrical plot in which small sample studies disproportionately yielded larger effects (Begg, 1994). This phenomenon was not observed. However, given the small sample size, there may not have been enough data points to draw a conclusion from this figure. In order to quantify and test the significance of the correlation between standard error and treatment effect for this set of studies, Comprehensive Meta-Analysis (CMA) 2.0 was used to conduct the Begg and Mazumdar Rank Correlation test and Egger's Test of the Intercept (Begg & Mazumdar, 1994; Egger, Davey Smith, Schneider, & Minder, 1997). Results of the rank correlation test yielded a Kendall's tau b of 0.53333, $p = 0.13$. Egger's test yielded $t = 2.53$ (df = 4), $p = 0.06$. Neither of these two-tailed t-tests yielded significant results at p<.05; however, Egger's one-tailed t-test would be significant at $p = .03$. Overall, based on these three indicators of publication bias it is difficult to draw definitive conclusions regarding publication bias, which may be attributed to the small sample size.

INCLUSION CRITERIA

Below is a list of the criteria used for including a program in the literature review, the criteria necessary for a program to be labeled an effective program and the operational definition of what it means for a parent to be involved in their child's academic career.

Criteria for Inclusion of Program in Literature Review

1. Family involvement programs that will specifically target DLLs and their families.
2. Programs specifically designed to promote the involvement of DLLs and their families.
    If the first two criteria were not met then all of the following criteria were met:
3. A family involvement and a literacy and/or language program that demonstrate a statistically significant difference in child literacy and /or language outcomes between intervention and control groups, and in which an effect size can be calculated to describe the practical significance of the improved child literacy and/or language outcomes. Thus, the family involvement program improves the literacy and/or language skills of the children whose parent's took part in the program.
4. An early childhood education program (birth to 6 years of age).
5. A program that includes an explanation of the intervention or the evaluation method.

Criteria for Labeling a Program Effective

1. An experimentally or quasi-experimentally designed study, considered the "gold standard" of evaluation (Campbell and Stanley, 1963; William, 1976), with findings supporting that children who took part in the program scored statistically significantly higher on at least one early literacy or language assessment (i.e., research-developed and standardized assessments with validity and reliability measures), based on analysis of variance and/or analysis of covariance (F statistic), than children who were in the control or the comparison group. Additionally, an experimentally or quasi-experimentally designed study for which an effect size could be calculated to describe the practical significance of the program.

<div align="center">AND</div>

2. An experimentally or quasi-experimentally designed study that measured family involvement. The operationalized definition of *involved* is measured by reports of parents beliefs of their role in their child's academic life, parents/teachers perception of child's improvement in reading, parents/teachers perception of the strengths and weaknesses of the program, amount of parents who continue the program (attrition rate), and parents/teachers who report they would continue with the program after it ended (Institute of Education Sciences What Works Clearing House, 2008).

FINDINGS

A total of 50 articles gleaned from 300 abstracts were considered relevant for this literature review. Of those 50 articles, 10 programs from 11 studies met criteria to be included in the literature review (see Table 1). Of those 10 programs, 8 were specifically designed for DLLs and their families. Of those 8 programs specifically designed for DLLs and their families, only one program was evaluated through an experimentally designed study and found to meet criteria for effectiveness in promoting family involvement and increasing child literacy or language outcomes (St. Clair & Jackson, 2006). The other 2 non-DLL programs, which were gleaned from 3 studies, were also evaluated experimentally and reported parent participation and significant improvement in child literacy and language outcomes among participants (Arnold et al., 1994; Baker et al., 1998; Whitehurst et al., 1994). A list of these 10 programs in alphabetical order is included, along with the name of the program, whether or not the program was designed for DLLs, demographic information (see Table 1), a brief description, the findings, the limitations, and the references (see Table 2).

TABLE 1
Family Involvement Programs

Program	Designed for a DLL Population	Effective Program
Dialogic Reading (DR1 and DR2)	NO	YES
Family Initiative for English Literacy (FIEL)	YES	NO
Family Literacy Bags (FLB)	YES	NO
FLAME	YES	NO
Home Instruction for Preschool Youngsters (HIPPY)	NO	YES
Language is Key	YES	NO
Migrant Education Even Start Family Literacy Program (MEES)	YES	YES
Readiness Center (RC) Program	YES	NO
Storybook Reading	YES	NO
The Literacy Connection	YES	NO

TABLE 2
Summary of Parent Involvement and Early Childhood Literacy Programs

#	Program	Description	DLL	Demographics	Findings	Limitations	References
1	Dialogic Reading: (2 studies) In book reading with children the adult typically reads while the child listens. In dialogic reading (DR) the child is the storyteller while the adult listens, asks questions, adds additional information and prompts the child to increase his/her details of the material in the book. As the child becomes more at ease being the storyteller the adults are instructed to ask open-ended questions.	Designed to teach adults effective techniques when reading to preschoolers (i.e., ask child questions, provide child with feedback etc.) Parents were instructed on Dialogic Reading (DR1) via videotape or an in-person trainer.	NO, but does include a Spanish Kit.	Families come from middle-upper SES backgrounds. Children: 64, 24-34-month olds. 31 boys and 33 girls. Parents: 100% mothers. No further information on parent and child demographic breakdown. No information on teacher demographics.	The videotape-training package was just as effective as the in person training and the videotape training was found to be a cost-effective way of implementing the program. Children in the intervention group (direct instruction, and videotape) scored significantly higher on the PPVT, EOWPVT, and the ITPA-VE than the control group. There was no significant difference between group scores on the IPTA-GC. Children in the intervention group (videotape) scored significantly higher on the PPVT and the EOWPVT, than the direct instruction group. There was no significant difference between group scores on the ITPA-VE.	Not specifically designed for DLLs. Does not take into account parents' ideas/suggestions or opinions when designing sessions.	Arnold, D. H., Lonigan, C. J., Whitehurst, G. J., & Epstein, J. N. (1994). Accelerating language development through picture book reading: Replication and extension to a videotape-training format. *Journal of Educational Psychology*, 86(2), 235-243.

		The goal of this 6-week DR2 intervention is to develop a practical interactive book reading intervention for day-care's, preschool programs and Head Start centers. Reading sessions occur daily for 10 minutes per group. Training occurs at the center via videotape.	NO, but does include a Spanish Kit.	Families from low SES backgrounds. Children: 3-year old children, 55% boys, 22% White, 55% Black, 23% Hispanic, 100% fluent in English. Parents: 100% mothers, 55% Black, 22% White, and 23% Hispanic, 90% native English speakers. No information on teacher demographics.	Children in the school plus home reading condition performed better on the One word at posttest and the 6 month follow up than children in the school reading condition. No significant differences between school reading and school plus home reading conditions for the ITPA or PPVT at posttest or follow up.	Not specifically designed for DLLs. Does not take into account parents' ideas/suggestions or opinions when designing sessions.	Whitehurst, G. J., Arnold, D. S., Epstein, J. N., Angell, A. L., Smith, M., & Fischel, J. E. (1994). A picture book reading intervention in day care and home for children from low-income families. *Developmental Psychology*, 30(5), 679-689.

| 2 | Family Initiative for English Literacy (FIEL) | Parents attend information sessions once a week for an hour after school. Then parents work with their children on those lessons. Teachers gave information lessons. The goal is to empower parents to connect the literacy activities to their own social and cultural backgrounds. Code-switching, which is alternating between languages, was used. The theoretical approach for literacy development was based on a whole language approach. | YES | Children: Preschool, kindergarten, and 1st grade. Parents: Spanish-speaking and English-speaking No further information on parent and child demographic breakdown. No information on teacher demographics. | Parents reported that the program met their needs and interests. Parents reported an increase in self-confidence with reading and writing. Teachers reported that children responded enthusiastically to their parents as teachers. Non-participatory staff reported that they observed parents being actively involved. Teachers and non-participatory staff reported that they observed that children discussed topics of readings in terms of culture, social issues, and cognitive development. No direct measure of child literacy outcomes reported. | A whole language approach was used, which can be seen as a limitation. Parents are required to come into the centers, which limits the accessibility to parents who are unable to make it to centers. This program requires a great deal of time that may be hard for working parents to do. This was not an experimentally designed study. | Quintero, E., & Huerta-Macias, A. (1993). Whole language: Critical curriculum for family literacy. *The School Community Journal*, 3(2), 45-61. |

3	Family Literacy Bags (FLB)	Designed to get families and children reading at home. Reading materials were in Spanish and English and sent home with children in bags. Each bag contained 3 children's books that varied in developmental levels and genres, extension activities that focused around a theme (materials for the activities were included) and a guidebook with information and guidelines for reading and discussing books with children.	YES	2,340 families, primarily white and middle class. Children: Kindergarten aged. Parents: Spanish-speaking and English-speaking. Teachers: 65 Kindergarten teachers No further information on teacher, parent, and child demographic breakdown.	Parents reported learning new ways to read and discuss books, new information about availability of books, and information about their child's language skills. Some DLL parents reported their appreciation for materials in Spanish. Other DLL parents did not appreciate the inclusion of books in Spanish because they reported that they were more concerned about their child learning English. Some non-DLL parents did not like that some of the books were in Spanish. Teachers reported that children were excited about taking the FLB home. No direct measure of child literacy outcomes reported.	Parents reported concern about reading materials in Spanish. Some parents tired of the FLB as the year went on. This was not an experimentally designed study. There is no direct relationship building between parents and teachers because children are sent home with the bags and teachers and parents are not required to interact directly, although teachers and parents reported more communication as a result of the program.	Dever, M.T., & Burts, D.C. (2002). An evaluation of family literacy bags as a vehicle for parent involvement. *Early Child Development and Care*, 172(4), 359-370.

4	FLAME	A family literacy program with strategies for parents to help children's literacy development at home. This was a 2-year study. Children were exposed to books and other literacy related materials. Program used a literacy-modeling framework, which encouraged parents to read in order to encourage their children to read. Parents were encouraged to increase their own English literacy.	YES	A total of 60 families were involved. Children: Pre-kindergarten to third grade. Parents: Average mean age was 33, 100% mothers, 100% native language was Spanish. No information on teacher demographics.	At the end of the second year of the study – Parents reported an increase in literacy materials in the home. Parents reported an increase in literacy practices (i.e., writing) and frequency of reading. Parents reported having a better understanding of their role as their child's "first teacher."	There is no direct relationship building between parents and teachers because a facilitator who is not a teacher does the instruction. Does not address/promote incorporating Spanish language or Hispanic culture. This was not an experimentally designed study.	Rodriguez-Brown, F.V., Li, R.F., & Albom, J.B. (1999). Hispanic parents' awareness and use of literacy-rich environments at home and in the community. *Education and Urban Society, 32(1)*, 41-58.

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| 5 | Home Instruction Program for Preschool Youngsters (HIPPY) | A home-based early childhood education and parent involvement program for parents with limited formal education. Parents are trained by paraprofessionals during home visits. Parents and paraprofessionals role-played the lessons. Parents read to their children and worked on the activity packets. There were a total of 60 packets. The activity packets were designed to reinforce cognitive skills in language, sensory and perception discrimination, and problem solving. | NO | Low-income families from New York City.

Cohort I –

Children: 69, 4 and 5-year-olds. In HIPPY group 16% African American, 38% Hispanic, 27% White, and 19% Other, 49% girls. In Control group 47% African American, 28% Hispanic, 13% White, and 22% Other, 59% girls.

Cohort II –

Children: 113, 4 and 5-year olds. In HIPPY group 33% African American, 32% Hispanic, 21% White, and 14% Other, 36% girls. In Control group 20% African American, 29% Hispanic, 30% White, and 21% Other, 46% girls.

Parents: 63 parents did not speak English as their primary language.

No information on teacher demographics. | A 2-year, quasi-experimental design. In Cohort I children in the HIPPY group scored significantly higher on the Cooperative Preschool Inventory (CPI) than children in the Control group p < .034. This effect was educationally meaningful d = .75. In Cohort I, teachers rated children using the Child Classroom Adaptation Index (CCAI). In HIPPY groups, children were rated as better adapted to the class than children in the control group p < .03. This effect was educationally meaningful d = .68. There was no significance on the above measures for Cohort II. | There was no replication effect, because there was no significance on the CPI and CCAI for Cohort II. Not specifically designed for DLLs. Does not offer reading materials in other languages. Does not take into account parents' ideas/suggestions or opinions when designing sessions. | Baker, A. J. L., Piotrkowski, C. S., & Brooks-Gunn, J. (1998). The effects of the Home Instruction Program for Preschool Youngsters (HIPPY) on children's school performance at the end of the program and one year later. *Early Childhood Research Quarterly*, 13(4), 571-588. |

| 6 | Language is Key | Designed to prepare parents and others working with children to promote language development. The program has special value for children who are bilingual or have learning disabilities. Uses a repeat again strategy when child mixes native language and English. | YES | Designed for children between 2 and 4 years of age. Specifically helpful for children with language disabilities or children from linguistic minority backgrounds.

Training materials are in Spanish, Korean, Tagalog, Vietnamese, Mandarin, Cantonese subtitles, and English. | No findings because this was a Resources guide that described a family involvement program. The efficacy of the model has been supported by research with children with disabilities and with DLLs. | This is a resource guide. This was not an experimentally designed study. | Cole, K., Maddox, M., Lim, Y. S., & Notari-Syverson, A. (2002). Language is the key: A program for building language and literacy. "Talking and Books" [and] "Talking and Play" Resource Guide [with videotapes]. *Washington Research Institute* 1-32. |

| 7 | Migrant Education Even Start Family Literacy Program (MEES) | Parents were offered 25 1-hour training sessions, with most parents participating in about half. The MEES staff worked with teachers to design the weekly sessions. The content of the parent sessions matched the child's curriculum. MEES staff modeled ways to support children learning the different content areas and provided parents with resource materials to help learning at home. | YES | Children: 14 DLL kindergarteners were in the intervention group and 15 DLL kindergarteners were in the control group. 59% female. Parents: 97% Hispanic and one family was Vietnamese. 64% female. No information on teacher demographics. | A 2-year, quasi-experimental design. At the end of the first year kindergarteners in the intervention group scored higher on standardized assessments than kindergarteners in the control group but this difference was not significant. In first grade (the second year of the program), children in the intervention group had significantly higher gains from kindergarten on Verbal reasoning, Letter-Word Identification, Writing, and the general score of the WMLS compared to children in the control group. Both groups had similar gains in Picture Vocabulary. | Does not offer materials in Spanish. Does not take into account parents' ideas/suggestions or opinions when designing sessions. Does not report parents' perception of the program. Small sample size. There is no direct relationship building between parents and teachers because MEES staff, not teachers conducts the information sessions. | St. Clair, L., & Jackson, B. (2006). Effect of family involvement training on the language skills of young elementary children from migrant families. *The School Community Journal*, 16(1), 31-41. |

8	Readiness Center (RC) Program	School-based readiness program for preschool children. 12 weeks long. Parents attended programs for half the day, 2 days a week and also participated in a drop-in program once a week. Teachers modeled for parents "how to teach", explaining concepts to be taught, the reason the methodology is appropriate for this age group and how to use these concepts at home. Parents were sent the message that they are their child's "first teacher".	YES	Children: 313 4-year-olds; 186 5-year-olds at follow-up; 50% are DLLs. Parents: 313. 89% mothers, 7% fathers, 4% grandparents/caregivers; 186 parents at follow-up. Languages spoke other than English: Hindi, Punjabi, Gujarati, Urdu, Tamil, Chinese, Vietnamese, Eastern European, Arabic, and Western European Teachers: 100% Female	English-speaking parents reported more social goals while DLL parents reported more academic goals for being involved in the RC program. All parents reported an improved relationship with their child's teacher. Teachers reported their goals changed from covering material in the curriculum to collaborating with parents. In year 2, children 5-years-old, literacy outcomes were assessed. Children in the program had higher means on standardized assessments (Vocabulary subtest of the Stanford-Binet Intelligence Test, Test of Early Reading Ability, Printing Performance, and Early Number Sense) than children who did not attend the RC. DLLs had lower means than non-DLLs.	All questions/ surveys were in English, which is a limitation when giving surveys to DLL parents. Parents are required to come into the centers, which limits the accessibility to parents who are unable to make it to centers. This program requires a great deal of time that may be hard for working parents to do. This was not an experimentally designed study.	Pelletier, J., & Corter, C. (2005). Design, implementation, and outcomes of a school readiness program for diverse families. The *School Community Journal, 15(1)*, 89-116.

| 9 | Storybook Reading | A 12-week program, Parents attend a training session once a week to learn ways to interact with their child while reading to their child. Parents and the facilitator discuss the goals and expectations for that week's reading. Parents visit their child's class and read the new book with their child for 15 minutes. Reading materials are available in Spanish and English. | YES | Two Head Start Centers, serving families of low SES. Children: 3-year-olds. 2 of the children spoke only Spanish. Parents: Total of 41; 26 African-American, 14 Hispanic, and 1 Caucasian. 37 mothers and 4 fathers. No information on teacher demographics. | From tape-recorded reading session found that different types of text (highly predictable text v. narrative text) resulted in different patterns of interactions between parents' and children. Observed from tape recordings that parents took on more collaborative reading with highly predictable text and more of a teaching role with narrative text. Parents who reported having reading difficulties used more attention vocative, chiming, and repeating strategies whereas parents who reported proficiency in reading used more bridging and recalling strategies (all p's were significant). No direct measure of child literacy outcomes reported. | There is no direct relationship building between parents and teachers because a facilitator who is not a teacher does the instruction. Parents are required to come into the centers, which limits the accessibility to parents who are unable to make it to centers. This was not an experimentally designed study. | Neuman, S. B. (1996). Children engaging in storybook reading: The influence of access to print resourced, opportunity, and parental interaction. *Early Childhood Research Quarterly*, 11(4), 495-513. |

| 10 | The Literacy Connection | A 12-week program. Tutors, graduate students, demonstrate how parents should interact with their children when reading. Provides one-to-one tutoring for parents with low literacy and/or low English language skills. Tutoring sessions were held in the morning, afternoon, and evening and childcare was provided free of charge. A variety of approaches were used to recruit parents to participate in the program. | YES | Children: 0 to 8 years of age. Parents: 17 original parents signed up and 12 completed the program. 9 parents' first language was Spanish. The other parents' first language was English. 11 mothers and 4 fathers. No information on teacher demographics. | Found all 15 parents were "satisfied" or "very satisfied" with the program. 86% (~13) of parents signed up for a second literacy connection program. | There is no direct relationship building between parents and teachers because a graduate student does the tutoring. Small recruitment size. This was not an experimentally designed study. | Garrett, S.D., Rechis, R., Garcia, R., Rivera, L., & Landreth, L. (2002). The literacy connection. A report in *Early Childhood Literacy: Programs & Strategies To Develop Cultural, Linguistic, Scientific and Healthcare Literacy for Very Young Children & their Families, 2001 Yearbook* |

PROGRAM EVALUATION METHODS (RESEARCH QUESTION 1)

Inter rater reliability was calculated to assess the agreement between raters who categorized abstracts in this literature review. Three student researchers categorized over 300 abstracts into three groups, non-relevant articles, relevant articles, and of those relevant articles, studies that discussed a family involvement program in early childhood language or literacy. Inter rater reliability coefficients showed high (.95) agreement among the three undergraduate students. When agreement was not reached the first author made the final decision.

RESEARCH DESIGN

The 40 relevant research articles not included in this study consisted of a variety of research designs including guided materials, case studies, reports and descriptive studies. However, these studies did not utilize a comparison design in order to evaluate the effectiveness of the program, therefore, these studies did not meet criteria to be included in this literature review. All four experimentally designed studies, which evaluated a total of 6 treatment conditions, utilized a comparison group in order to evaluate the effectiveness of the family involvement intervention. Two of the experimentally designed studies, which both implemented the Dialogic Reading (DR) program (DR1 and DR2), compared two different intervention groups to a control group.

Participants in the DR1, DR2, and Home Instruction Program for Preschool Youngsters (HIPPY) studies were randomly assigned to either an experimental or control group (Arnold et al., 1994; Baker et al., 1998; Whitehurst et al., 1994). In the Migrant Education Even Start Family Literacy Program (MEES) program, parents self-selected whether to be involved in the experimental group and the control group was matched for DLL status from the same location (St. Clair & Jackson, 2006).

PARENT EVALUATION MEASURES

The 10 programs included in this literature review implemented a variety of data collection methods to evaluate program effectiveness. Outcome measures included parent knowledge, behaviors, and satisfaction. Some programs asked parents to complete questionnaires/surveys, other programs interviewed parents, and some programs used a combination of both methods. In addition to the variety of instruments used to evaluate family involvement, there were a variety of questions different programs attempted to answer through their program evaluations. For instance, the Readiness Center (RC) program interviewed parents to discover the aspects of the program they enjoyed, strategies they learned from their child's teacher, and their feelings about being their child's "first teacher" (Pelletier & Corter, 2005). Other studies gathered information about parents' perceptions of the usefulness, strengths, and weaknesses of the program and materials (Dever & Burts, 2002; Quintero & Huerta-Macias, 1993; Rodriguez-Brown et al., 1999) or parents willingness to be involved in the program again (Garrett, Rechis, Garcia, Rivera, & Landreth, 2002). Whereas other studies inquired about parents reading habits with their children (Arnold et al., 1994; Dever & Burts, 2002; Rodriguez-Brown et al., 1999; Whitehurst et al., 1994). Two of the programs that implemented an experimental design, MEES

and HIPPY, did not include data on parent perceptions or beliefs. Instead these programs used attrition rates to evaluate the degree of family involvement.

In addition to varying measurement instruments used, studies also implemented varying data collection strategies. Several studies conducted focus groups with parents, others conducted in-depth individual interviews, while other studies observed the literacy activities parents engaged in with their children (Whitehurst et al., 1994; Ziegler, M. F., 1998). Two studies inquired about parents reading habits with their children after their participation in the program (Dever & Burts, 2002; Rodriguez-Brown et al., 1999), while others inquired about parents reading habits with their children before their participation in the program (Arnold et al., 1994; Whitehurst et al., 1994). Of the 10 programs included in the literature review, one program, the Family Literacy Bags (FLB) program, documented parent perceptions before and after their participation (Dever & Burts, 2002).

TEACHER EVALUATION MEASURES

In addition to parent evaluations, several studies included teacher social validity. Two, of the 11 studies asked teachers to complete a questionnaire in order to gather data on teachers' perceptions of the strengths and weaknesses of the program (Dever & Burts, 2002; Quintero & Huerta-Macias, 1993).

CHILD LITERACY AND LANGUAGE OUTCOME MEASURES.

The four experimentally or quasi-experimentally designed studies, MEES, HIPPY, and DR1 and DR2, implemented various measures to directly assess students' literacy and/or language outcomes as a result of the family involvement program. Studies used standardized assessments including the Vocabulary subtest of the Stanford-Binet Intelligence Test- Revised (SB-R; Refer to Thorndike, Hagen, & Sattler, 1986) which assesses cognitive ability, Printing Performance (Refer to Simmer, 1989) which assesses concepts of print, Test of Early Reading Ability (TERA-2; Refer to Reid, Hresko, & Hammill, 1989) which assesses a composite of reading skills, and Early Number Sense (Refer to Case, 2000) (Pelletier & Corter, 2005) which assesses numerical concepts; the Peabody Picture Vocabulary Test – Revised (PPVT-R; Refer to Dunn & Dunn, 1981) (Arnold et al., 1994; Neuman, 1996; Whitehurst et al., 1994) which assesses receptive vocabulary; the Concepts of Print Test (COPT; Refer to Clay, 1979) (Neuman, 1996) which assesses concepts of print; the Woodcock-Muñoz Language Survey (WMLS; Refer to Woodcock & Muñoz-Sandoval, 2001) (St. Clair & Jackson, 2006) which assesses a variety of skills including vocabulary and reading skills; the Cooperative Preschool Inventory (CPI; Refer to Educational Testing Service, 1974) which assesses personal-social behavior, vocabulary, numerical concepts, and sensory skills; the Metropolitan Readiness Test in kindergarten (MRT, 1976 ed) which assess school readiness skills; the Metropolitan Achievement Test in first grade (MAT, 5th ed) (Baker et al., 1998) which assess language, math and reading skills; and the Expressive One-Word Picture Vocabulary Test (EOWPVT; Refer to Gardner, 1981) which assesses expressive vocabulary, the Illinois Test of Psycholinguistic Abilities (ITPA-VE; Refer to Kirk, McCarthy, & Kirk, 1968) which assesses verbal fluency, and the Illinois Test of Psycholinguistic Abilities-Grammatical Closure (IPTA-GC), which assesses grammar (Arnold et

al., 1994; Whitehurst et al., 1994). There was also a research-developed assessment, The Our Word, which was used by Whitehurst and colleagues to assess expressive vocabulary skills (Whitehurst et al., 1994).

POPULATION DEMOGRAPHICS

Participants varied in socio-economic status (SES), ethnicity, age group, and primary language spoken in the home. Participants in the DR1 study were all mothers who came from middle-upper SES backgrounds (see Table 2). There were 31 boys and 33 girls (64 total), aged 24 to 34-months old who participated in the study (Arnold et al., 1994). Participants in the DR2 study were all mothers who came from low SES backgrounds (see Table 2). There were seventy-three 3-year old children who participated in the study (Whitehurst et al., 1994).

In the HIPPY program, participants came from low-income SES backgrounds from New York City, of which sixty-three parents did not speak English as their primary language (Baker et al., 1998). There were two cohorts in the study (see Table 2). There were sixty-nine 4 and 5-year-olds in the first cohort and one hundred-thirteen children in the second cohort (Baker et al., 1998).

In the MEES program, 29 kindergarten aged children (14 DLL kindergarteners were in the intervention group and 15 DLL kindergarteners were in the control group) participated (see Table 2) (St. Clair & Jackson, 2006).

EFFECT SIZES (RESEARCH QUESTION 2)

Effect sizes for each child outcome measure for the 6 treatment conditions identified across the four experimentally or quasi-experimentally designed studies (MEES, HIPPY, DR1, and DR2), were calculated. A statistically significant treatment effect was signified as a reliable difference in language or literacy skill gains for children in the experimental group. The effect sizes (ES) for each of the dependent variables (the assessments used) were estimated by computing Hedges's g, which uses a correction factor to utilize with small samples and provides an unbiased estimate of the population standardized deviation for the experimental versus control and comparison groups (Cooper & Hedges, 1994; Turner & Bernard, 2006). The difference between the experimental and control group means were divided by the pooled standard deviation, which is computed from both groups, $g = \dfrac{M1 - M2}{S}$ (Cooper & Hedges, 1994). When non-significant results were reported without data such as group means, SD or results of a significance test, which are needed to calculate a precise ES, the ES was set at zero, which is a standard practice (Ginsburg-Block, Rohrbeck, & Fantuzzo, 2006). Including non-significant effects prevents inflation of the overall ES calculation.

Using the CMA 2.0 program, a random-effects model was produced to pool the mean effect size estimates and determine confidence intervals across the six experimental treatments, accounting for the non-independence of the two treatment conditions in DR1 and DR2. A random-effects model estimates the effect size with the assumption that there is not one but several underlying true effects (Borenstein, M., Hedges, L. V., Higgins, L. P. T. & Rothstein, 2009; Schappin, Wijnroks, Uniekn Venema, & Jongmans, 2013). The Q and I^2 statistics were

computed to assess the amount of heterogeneity within each set of pooled effect sizes. A non-significant Q value indicates that the effect sizes are relatively homogeneous. I^2 reports the percentage of variation within a group of studies due to heterogeneity rather than chance. This statistic may be a better indicator of heterogeneity in small N meta-analyses (Higgins & Thompson, 2002; Wilson, 2011). When overall effects are determined to be homogeneous, they may be summarized together using an overall mean effect size estimate, while analysis of potential effect size moderators is not necessary (Ginsburg-Block, Rohrbeck, & Fantuzzo, 2006; Turner & Bernard, 2006). In addition to an overall mean effect using all of the treatment outcomes reported by time point, overall mean effects were calculated for vocabulary (i.e., receptive and expressive measures) and reading outcomes by time point exclusively.

EFFECT SIZES BY PROGRAM

The MEES program used the Woodcock-Muñoz Language Survey, which measures a child's knowledge of English language skills. In addition, there were five assessments measuring language, reading and writing skills: a picture vocabulary test (PV), a verbal reasoning test (VR), a letter-word identification test (LWI), a writing test (W), and a broad score (BS), which was the composite score of the PV, VR, LW, and W tests. When comparing the experimental group with the control group at time one (i.e., immediate post-testing), the ESs ranged from .21 for PV to 1.25 for VR and the overall ES for the MEES program was .94 (see Table 3).

The HIPPY program used several measures including, a standardized reading measure at the end of the program and after a one year follow up to assess students' academic outcomes from the intervention, assessing cognitive achievement and knowledge of colors, shapes, letters, and numbers. When comparing the experimental group with the control group, the ES for the standardized reading assessment directly after the program and a year later was *g* = .28 and *g* = .74, respectively (see Table 3).

Two studies were included in this literature review evaluating the DR program, DR1 and DR2 and the ESs was calculated for both studies (see Table 3). In the DR1 study, there were three groups including two experimental groups and one control group. The two experimental groups included a condition in which parents were trained to use DR via videotape training sessions (DR1 Home Video) and a condition in which parents were trained to use DR directly from an in-person trainer (DR1 Home Direct). There were four assessments measuring language and literacy skills at pre-test and post-test, in which all four of the assessments were standardized. The assessments included the Expressive One-Word Picture Vocabulary Test-Revised (One Word); the Peabody Picture Vocabulary Test-Revised (PPVT-R); the Illinois Test of Psycholinguistic Abilities-Verbal Expression (ITPA-VE); and the Illinois Test of Psycholinguistic Abilities-Grammatical Closure (ITPA-GC). When comparing the DR1 Home Video group with the control group, the ES ranged from .00 for ITPA-GC to .91 for E One Word (see Table 3). When comparing the DR1 Home Direct group with the control group, the ES ranged from .00 for Vocab-E, Vocab-R and Grammar to .69 for ITPA-VE (see Table 3). When comparing the DR1 Home Video group and the DR1 Home Direct group, a trend does emerge for the overall effect on language and literacy outcomes. The DR1 Home Video group, ES =.58, showed a relatively stronger effect than the DR1 Home Direct group, ES = .17 (see Table 3).

There were also three groups including two experimental groups and one control group in the DR2 study. The two experimental groups included a condition in which DR was conducted

at school through the students' teacher (DR2 School) and a condition in which DR was conducted at school and home through the students' teacher and parent (DR2 School plus Home). There were four assessments measuring language and literacy skills at pre-test and post-test, in which three of the assessments were standardized and the fourth assessment was a research developed assessment. The three standardized assessments included the Expressive One-Word Picture Vocabulary Test-Revised (One Word); the Peabody Picture Vocabulary Test-Revised (PPVT-R); and the Illinois Test of Psycholinguistic Abilities – Verbal Expression (ITPA-VE). The research-developed assessment was called, the Our Word. Students were also assessed a year after their completion of the program using the three standardized assessments, E One Word, PPVT-R, and ITPA-VE. When comparing the DR2 School group with the control group directly following the completion of the program, the ES ranged from -.03 for ITPA and .21 for E One Word and the overall ES for the DR2 School group was .10 (see Table 3). When comparing the DR2 School group with the control group a year following the completion of the program, the ES ranged from -.23 for PPVT-R and .23 for E One Word and the overall ES for the DR2 School group was -0.03 (see Table 3). When comparing the DR2 School plus Home group with the control group directly following the completion of the program, the ES ranged from .03 for ITPA-VE to .42 for E One Word (see Table 3). When comparing the DR2 School plus Home group with the control group a year following the completion of the program, the ES ranged from .01 for PPVT-R to .23 for ITPA-VE (see Table 3). Overall, there does not appear to be a clear trend between language and literacy outcomes collected immediately after post-test or a year after. However, a trend does emerge for the overall effect on language and literacy outcomes when comparing the DR2 School group and the DR2 School plus Home group. The DR2 School plus Home group showed a relatively stronger effect than the DR2 School group immediately after the intervention (DR2 School plus Home ES =.26, SE = .31; DR2 School ES = .10, SE = .29) and one year after (DR2 School plus Home ES =.14, SE = .36; DR2 School ES = -.03, SE = .33).

TABLE 3

Effect Sizes of HIPPY, MEES, and DR Programs on Children's Literacy and Language by Program, Treatment Condition, Outcome Measure and Time point

Study	Treatment Condition	Outcome Type (Time point)	Program or Measure	$n_{Intervention}$	$n_{Control}$	Hedges g	SE_g	95% CI
Baker et al. (1998)	HIPPY	Reading (T1)	Metro Ready Reading$_k$ (Std)	37	32	0.28	0.24	[-0.20, 0.75]
		Reading (T2)	Metro Ach Reading$_1$ (Std)	37	32	0.74**	0.25	[0.25, 1.23]
St. Clair & Jackson (2006)	MEES	Overall (T1)	MEES	12	14	0.94*	0.43	[0.09, 1.78]
		Vocab (T1)	WMLS Picture Vocab (Std)	12	14	0.21	0.38	[-0.57, 0.98]
		Verb Reasoning (T1)	WMLS VR (Std)	6	11	1.25	0.53	[0.15, 2.33]
		Letter-Word ID (T1)	WMLS LWI (Std)	12	14	1.12	0.41	[0.36, 2.04]
		Writing (T1)	WMLS W (Std)	12	14	0.90	0.40	[0.08, 1.71]
		Reading (T1)	WMLS Broad Score (Std)	12	14	1.21	0.42	[0.28, 1.94]
Arnold et al. (1994)	DR1 Home Video	Overall (T1)	DR1 Home Video	14	24	0.58[1]	0.34	[-0.08, 1.25]
		Vocab-E (T1)	E One Word (Std)	14	24	0.91	0.12	[0.22, 1.60]
		Vocab-R (T1)	PPVT-R (Std)	14	24	0.59	0.12	[-0.09, 1.26]
		Verb Fluency (T1)	ITPA-VE (Std)	14	24	0.88	0.12	[0.19, 1.57]
		Grammar (T1)	ITPA-GC (Std)	14	24	0.00[1]	0.11	[-0.66, 0.66]
	DR1 Home Direct	Overall (T1)	DR1 Home Direct	22	24	0.17[1]	0.29	[-0.40, 0.74]
		Vocab-E (T1)	E One Word (Std)	22	24	0.00[1]	0.09	[-0.58, 0.58]
		Vocab-R (T1)	PPVT-R (Std)	22	24	0.00[1]	0.09	[-0.58, 0.58]
		Verb Fluency (T1)	ITPA-VE (Std)	22	24	0.69	0.09	[0.09, 1.28]
		Grammar (T1)	ITPA-GC (Std)	22	24	0.00[1]	0.09	[-0.58, 0.58]

Note. All studies included a Control group. HIPPY = Home Instruction Program for Preschool Youngsters; MEES = Migrant Education Even Start program; DR1 Home Video = Dialogic Reading Home, Parent's trained on intervention with a video; DR1 Home Direct = Dialogic Reading Home, Parent's trained on intervention directly in person; DR2 School = Dialogic Reading School/Teacher only intervention; DR2 School & Home = Dialogic Reading School/Teacher and Home/Parent intervention; Overall = Overall mean ES computed from all outcomes reported for a treatment condition; ID = Identification; Vocab-E = Expressive Vocabulary; Vocab-R = Receptive Vocabulary; T1 = Time point 1; T2 = Time point 2; Metro Ready Reading$_k$ = Metropolitan Readiness Test in kindergarten, Reading subtest; Metro Ach Reading$_1$ = Metropolitan Achievement Test in first grade, Reading subtest; WMLS Picture Vocab = Woodcock-Muñoz Language Survey – Picture Vocabulary; WMLS VR = Woodcock-Muñoz Language Survey – Verbal Reasoning; WMLS LWI = Woodcock-Muñoz Language Survey – Letter-Word Identification; WMLS W = Woodcock-Muñoz Language Survey – Writing; WMLS Broad Score = Woodcock-Muñoz Language Survey – Broad Score; E One Word = Expressive One-Word Picture Vocabulary Test – Revised; PPVT-R = Peabody Picture Vocabulary Test – Revised; ITPA-VE = Illinois Test of Psycholinguistic Abilities – Verbal Expression; ITPA-GC = Illinois Test of Psycholinguistic Abilities – Grammatical Closure; Std = standardized measure; RD = research developed measure.

[1] = A value of zero was used as a placeholder to calculate the overall effect size because statistics to compute effect sizes were not reported. P values for the overall mean less than .05 or ,01 are indicated *p<.05; **p<.01

TABLE 3 CONTINUED
Effect Sizes of HIPPY, MEES, and DR Programs on Children's Literacy and Language by Treatment Condition, Outcome Measure and Time point

Study	Treatment Condition	Outcome Type (Time Point)	Condition or Measure	$n_{Intervention}$	$n_{Control}$	Hedges g	SE_g	95% CI
Whitehurst et al. (1994)	DR2 School	Overall (T1)	DR2 School	26	22	0.10	0.29	[-0.46, 0.66]
		Vocab-E (T1)	E One Word (Std)	26	22	0.21	0.29	[-0.36, 0.78]
		Vocab-R (T1)	PPVT-R (Std)	26	22	0.15	0.29	[-0.42, 0.72]
		Verb Fluency (T1)	ITPA-VE (Std)	26	22	-0.03	0.28	[-0.60, 0.54]
		Vocab-R (T1)	Our Word (RD)	26	22	0.07	0.29	[-0.50, 0.64]
		Overall (T2)	DR2 School	23	14	-0.03	0.33	[-0.69, 0.62]
		Vocab-E (T2)	E One Word (Std)	23	14	0.23	0.33	[-0.44, 0.89]
		Vocab-R (T2)	PPVT-R (Std)	23	14	-0.23	0.33	[-0.89, 0.44]
		Verb Fluency (T2)	ITPA-VE (Std)	23	13	-0.10	0.34	[-0.78, 0.58]
	DR2 School & Home	Overall (T1)	DR2 School & Home	19	22	0.26	0.31	[-0.35, 0.87]
		Vocab-E (T1)	E One Word (Std)	19	22	0.42	0.31	[-0.20, 1.04]
		Vocab-R (T1)	PPVT-R (Std)	19	22	0.23	0.31	[-0.38, 0.85]
		Verb Fluency (T1)	ITPA-VE (Std)	19	22	0.03	0.31	[-0.58, 0.64]
		Vocab-E (T1)	Our Word (RD)	19	22	0.36	0.31	[-0.26, 0.98]
		Overall (T2)	DR2 School & Home	16	14	0.14	0.36	[-0.56, 0.85]
		Vocab-E (T2)	E One Word (Std)	15	14	0.19	0.36	[-0.54, 0.92]
		Vocab-R (T2)	PPVT-R (Std)	16	14	0.01	0.36	[-0.71, 0.72]
		Verb Fluency (T2)	ITPA-VE (Std)	16	13	0.23	0.36	[-0.50, 0.96]

Note. All studies included a Control group. HIPPY = Home Instruction Program for Preschool Youngsters; MEES = Migrant Education Even Start program; DR1 Home Video = Dialogic Reading Home, Parent's trained on intervention with a video; DR1 Home Direct = Dialogic Reading Home, Parent's trained on intervention directly in person; DR2 School = Dialogic Reading School/Teacher only intervention; DR2 School & Home = Dialogic Reading School/Teacher and Home/Parent intervention; Overall = Overall mean ES computed from all outcomes reported for a treatment condition; ID = Identification; Vocab-E = Expressive Vocabulary; Vocab-R = Receptive Vocabulary; T1 = Time point 1; T2 = Time point 2; Metro Ready Reading$_k$ = Metropolitan Readiness Test in kindergarten, Reading subtest; Metro Ach Reading$_l$ = Metropolitan Achievement Test in first grade, Reading subtest; WMLS Picture Vocab = Woodcock-Muñoz Language Survey – Picture Vocabulary; WMLS VR = Woodcock-Muñoz Language Survey – Verbal Reasoning; WMLS LWI = Woodcock-Muñoz Language Survey – Letter-Word Identification; WMLS W = Woodcock-Muñoz Language Survey – Writing; WMLS Broad Score = Woodcock-Muñoz Language Survey – Broad Score; E One Word = Expressive One-Word Picture Vocabulary Test – Revised; PPVT-R = Peabody Picture Vocabulary Test – Revised; ITPA-VE = Illinois Test of Psycholinguistic Abilities – Verbal Expression; ITPA-GC = Illinois Test of Psycholinguistic Abilities – Grammatical Closure; Std = standardized measure; RD = research developed measure. [1] = A value of zero was used as a placeholder to calculate the overall effect size because statistics to compute effect sizes were not reported. P values for the overall mean less than .05 or ,01 are indicated *p<.05; **p<.01

EFFECT SIZES BY SKILLS

The overall effect for the 6 treatment conditions from the four experimental studies was calculated using a random-effects model to determine the combined effect of these family involvement programs on all children's language and literacy skills assessed (e.g., vocabulary, reading, early literacy). The overall effect size for the combined child outcomes was analyzed at two time points. Time point one included immediate post-test language and literacy assessment outcomes and time point two included one-year follow-up post-test language and literacy assessments. The overall effect size for all language and literacy outcomes evaluated for time points one and two were .32 and .33, respectively (see Table 4).

Although these four experimental and quasi-experimental studies used different child outcome measures there were two common skills assessed by at least two of the studies. Both the MEES and both experimental conditions of DR1 and DR2 programs assessed receptive and expressive vocabulary (MEES: PV; DR1: E One Word and PPVT-R; DR2: E One Word, PPVT-R, and Our Word) skills. These analyses were also calculated separately by time point one and time point two. The overall effect sizes for both receptive and expressive vocabulary combined across MEES, DR1 Home Video, DR1 Home Direct, DR2 School and DR2 School plus Home were .26 and .05, for time points one and two, respectively (see Table 4). Additionally, the MEES and HIPPY programs reported a global reading score (BS and Standardized Reading Assessment, respectively); however an overall mean effect could only be computed for time point one. At time point two only the HIPPY program collected this data. The overall effect size for global reading for MEES and HIPPY for time point one was .68 (SE= .46; see Table 4).

TABLE 4
Overall Mean Effect Sizes Across Programs by Outcome Variable Using Random Effects Model

Outcome	Time Point	$n_{Studies}$	Hedges g_w	SE	95% CI	P-value
Combined	TI Only	6	0.32	0.12	[0.08, 0.56]	.01**
Combined	T2 Only	4	0.33	0.26	[-0.17, 0.84]	.019**
Vocab	T1 Only	5	0.26	0.14	[-0.02, 0.54]	.066
Vocab	T2 Only	3	0.05	0.24	[-0.43, 0.52]	.853
Global Reading	T1 Only	2	0.68	0.46	[-0.22, 1.58]	.140

Note. Combined = All literacy assessments [writing, receptive and expressive vocabulary, verbal fluency, letter word identification, and global reading skills]; Vocab = Receptive and Expressive Vocabulary; T1 = Time point 1; T2 = Time point 2; Hedges g_w = weighted Hedges **$p \leq .01$.

REPORTED EFFECTIVE PROGRAM COMPONENTS
(RESEARCH QUESTION 3)

Moderator Analysis.   Both the Q and I^2 indicators of heterogeneity were used to determine the suitability of moderator analysis for each set of study outcomes (see Table 5). Time one mean effects combined across all outcomes and for vocabulary only were homogeneous, as was the mean effect calculated for time two vocabulary, thus moderator analyses were not warranted. In contrast, a significant Q and moderate I^2 of 73% indicated that the effect sizes used to estimate Global Reading at time one were heterogeneous. Due to the small sample of studies (i.e., N=2)

comprising the Global Reading mean ES score, moderators could not be explored for this outcome variable using ANOVA.

While a significant Q was not obtained for the overall combined effect size at time two, the I^2 indicated that 51% of the variance within this group of study effects was due to study heterogeneity. Given this moderate level of heterogeneity, random effects ANOVA analyses were attempted to test for the potential effects of intervention setting (i.e., school or home only versus school and home) and the use of video training techniques (i.e., video training versus person-mediated training) on outcomes at time two (see Table 6). No significant differences were found between the two studies using one setting (HIPPY and DR2 School only) versus the one study employing two settings (DR2 School plus Home); however the Q_{within} was approaching significance at $p = .06$ and the I^2 of 71% reported for the studies in the one setting group indicates that these two studies are heterogeneous and it is not valid to combine their means. Significant differences were found between the overall mean ES derived from the HIPPY study versus the two DR2 conditions, potentially demonstrating the advantage of person-mediated training versus video. However, given that this was a comparison of two different treatments, moderator effects may be attributed to other program features as well.

While random effects ANOVA analyses were inconclusive about the impact of moderators per se, regression analyses with a continuous moderator variable were also conducted. All four of the experimentally and quasi-experimentally designed studies provided information about the duration of the intervention (number of weeks) and the number of sessions or session activities participants were given the opportunity to complete. Mixed-effects meta-regression analyses were computed for outcomes at time one and time two to determine the degree to which either of these two variables had an effect on children's literacy and language outcomes. Results revealed that the duration of the intervention, but not the number of sessions or activities was significantly related to program effectiveness in these family involvement programs at time point two (see Table 7). Neither the duration of the intervention in weeks nor the number of sessions/session activities was significantly related to program effectiveness at time one.

TABLE 5
Homogeneity Analyses and Mean Effect Sizes for HIPPY, MEES, and DR Programs by Outcome

Outcome	Time point	$n_{Studies}$	Q_w	df	P-value	I^2
Combined	TI Only	6	3.59	5	.610	0.00
Combined	T2 Only	4	4.09	2	.129	51.09
Vocab	T1 Only	5	2.98	4	.561	0.00
Vocab	T2 Only	3	0.13	1	.722	0.00
Global Reading	T1 Only	2	3.75	1	.052*	73.37

Note: Combined = All literacy assessments [writing, receptive and expressive vocabulary, verbal fluency, letter-word identification, and global reading skills]; Vocab = Receptive and Expressive Vocabulary; T1 = Time point 1; T2 = Time point 2; Q_w = Q within
*$p \leq .05$.

TABLE 6
Random Effects ANOVA Homogeneity Analyses and Mean Effect Sizes for Moderator Variables

Variable	$n_{Studies}$	Q_b	P-value	Q_w	P-value	I^2	Mean ES	95% CI	P-value
Setting	3	.628	.428	--	--	--	--	--	--
School or Home	2	--	--	3.46	.063	71.11	.388	[-.368, 1.143]	.315
School and Home	1	--	--	0	1	0.00	.143	[-1.01, 1.291]	.808
Training	3	3.96	.047*	--	--	--	--	--	--
Video	2	--	--	.127	.722	0.00	.049	[-.433, .530]	.843
Person-mediated	1	--	--	0	1	0.00	.742	[.258, 1.225]	.003**

Note: Q_b = Q between; Q_w = Q within; ES = effect size
*$p \leq .05$ **$p \leq .01$.

TABLE 7
Mixed-effect model Regression for Dosage of Intervention at Time point 2

Dosage Moderator	Hedges g_w	SE	95% CI	Z-value	Q	df	*p*-value
Sessions/Packets-Y Intercept	-0.565	0.933	[-2.393, 1.264]	-0.606	--	--	0.545
Slope	0.018	0.018	[-0.017, 0.053]	1.002	1.004	1	0.316
Residual (Q_{resid})	--	--	--	--	1.000	1	0.317
Total (Q)	--	--	--	--	2.004	2	0.367
Duration- Y Intercept	0.006	0.261	[-0.505, 0.518]	0.023	--	--	0.981
Slope	0.007	0.004	[0.000, 0.014]	1.991	3.963	1	0.047*
Residual (Q_{resid})	--	--	--	--	0.127	1	0.722
Total (Q)	--	--	--	--	4.089	2	0.129

Note: Sessions/Packets = The number of sessions and/or activity packets offered; Duration = the length of the intervention in weeks; Q_{resid} = Q residual,*$p \leq .05$.

Descriptive Analysis.   Of the 10 programs included in this literature review, only the DR1 and DR2 studies experimentally evaluated program components. The DR1 study examined parent video training compared to direct in-person training of the experimental components (i.e., dialogic reading) and its impact on children's literacy and language outcomes. Children in the DR1 Home Video condition performed relatively better than children in the DR1 Home Direct group on receptive and expressive vocabulary tasks. The DR2 study examined the teacher administration compared to the combined administration (parent and teacher) of the experimental components (i.e., dialogic reading) and impact on children's literacy and language outcomes. Children in the DR2 School plus Home condition performed relatively better than children in the DR2 School only group on receptive and expressive vocabulary tasks given immediately after the intervention.

The eight programs designed for a DLL population described information parents and researchers reported as effective aspects of the program. Two components that were present across multiple programs were incorporating family's native languages and culture into the program, as well as co-constructing the program with families. Regarding language, one aspect that was reported as helpful for promoting positive relationships with families was the inclusion of children's books, questionnaires/surveys, child literacy and/or language outcome assessments and other materials in different languages. Seven of the eight programs designed for a DLL population (excluding the MEES program) addressed language concerns by including reading materials, instructions, and assessments in different languages, mainly Spanish. One of the reported limitations for the study that conducted research on the RC program was that all of the questionnaires/surveys that parents were asked to fill out were in English (Pelletier & Corter, 2005). Although psychometric properties for the measures were not reported, parents indicated that some items were difficult to understand (Pelletier & Corter, 2005).

Of the eight DLL-targeted programs, there were two programs that integrated cultural aspects. The FIEL program incorporated Mexican culture into the themes for the literacy activities. For instance, puppetry, which is a popular art in Mexico, was included as a theme for one weeks lesson and other weeks other Mexican cultural aspects were integrated into the lessons (Quintero & Huerta-Macias, 1993). Project FLAME also incorporated culturally relevant aspects into the program. For instance, the program emphasized the importance of the family or "familias" role in their child's emergent literacy development (Rodriguez-Brown et al., 1999). Parents from the FIEL and project FLAME programs reported anecdotally that the incorporation of culturally relevant and meaningful components into the program was a beneficial aspect of the program (Quintero & Huerta-Macias, 1993; Rodriguez-Brown et al., 1999).

Furthermore, parents reported they benefited from being included in the program development and felt more empowered to be their child's teachers at home (Pelletier & Corter, 2005; Rodriguez-Brown et al., 1999). Parents also reported the relationship with their child's teacher was enhanced as a result of the collaborative nature of the program, which they accounted for by their continued involvement in the program (Dever & Burts, 2002; Pelletier & Corter, 2005; Quintero & Huerta-Macias, 1993; Rodriguez-Brown et al., 1999).

Overall, there were three program components identified by participants and researchers as effective aspects of the programs; however, empirical evaluation was not used to assess these components. These components included integrating family and children's language and culture into the programs and collaborating with families to construct the family involvement programs.

Although these components were identified in the literature as effective, empirical testing is necessary to evaluate the effectiveness of these program components.

DISCUSSION

The present literature review supports a causal relationship between family involvement programming and young children's literacy and language development. Through electronic and hand searches of the published research literature, four experimental or quasi-experimental group comparison studies evaluating six treatment conditions were identified. Overall the results of these studies demonstrate positive and significant program effects at immediate post-testing and at one year follow-up. Past studies have demonstrated a positive correlation between family involvement and children's literacy and language development (Farver, Xu, Eppe, & Lonigan, 2006; Raz & Bryant, 1990; Sénéchal & LeFevre, 2002; Sonnenschein & Munsterman, 2002; Stevenson & Fredman, 1990). However, these previous studies did not provide support for a causal relationship between family involvement and children's literacy development.

Moreover, the overall effect of these family involvement programs showed a meaningful improvement of more than one-third of a standard deviation for the average treatment group child versus the average control group child in literacy or language skills immediately after the intervention and one year following the intervention. These benefits were found for children from middle and low-income backgrounds and although only one program was specifically designed for DLLs there were DLLs whose literacy and language skills improved as a result of their parent's participation. Given the benefits that these programs have on children's literacy and language outcomes it is imperative that more programs are developed for DLLs, who perform worse on language and literacy measures than their non-DLL peers (Reardon & Galindo, 2009).

For instance, Head Start FACES (1997-2009) showed that DLL preschoolers' knew less vocabulary than their monolingual peers. Unfortunately, this disparity continues throughout children's academic careers, with DLLs performing below non-DLLs in reading in fourth and eighth grade (NCES, 2010). Providing DLL children and their families with effective family involvement programs might help to improve children's language and literacy skills.

CRITIQUE OF RESEARCH DESIGNS AND MEASUREMENT METHODS

The group comparison designs identified varied in level of experimental control. The two Dialogic Reading studies (DR1 and DR2) implemented an experimental design that allowed for comparisons to be made between two intervention groups and a control group. This design is more compelling than an experimental versus control group, which can only claim an intervention was better than no intervention. As a result, Arnold et al. (1994) and Whitehurst and colleagues (1994) demonstrated that family involvement in the form of Dialogic Reading is beneficial in schooling for children's literacy and language development.

Program evaluations also varied in terms of the outcomes they measured. The MEES program produced relatively strong effects for children's literacy, oral comprehension and overall reading skills. Whereas the DR1 and DR2 programs seemed to produce relatively strong effects for children's expressive vocabulary skills. Because programs investigated different

components of literacy and language development, it is difficult to determine whether a particular program was more or less successful than others in producing increased results for a specific outcome.

Furthermore, the differences in effect sizes may also be related to the family literacy curricula children were being exposed to. Although all studies did not measure the same outcomes the results demonstrate that there were relatively stronger outcomes for children's reading skills compared to their vocabulary skills immediately after children's parents participated in the program. To that end, Bus and van IJzendoorn demonstrated that teaching students different reading skills could result in dissimilar reading outcomes (1999). Thus, the variation in the types of skills children were exposed to across programs might have contributed to the diverse effect sizes reported for similar literacy and language measures.

The MEES program appeared to produce the strongest results overall at post-testing. This finding may be related to the amount of knowledge parents had about their child's reading curriculum. For instance, the MEES program collaborated with parents when creating the literacy curriculum, which may provide some explanation for the strong effect sizes reported. Another explanation could be due to the design of the MEES program. Unlike the design of the HIPPY, DR1, and DR2 studies, the MEES study did not employ a randomized sampling procedure. Therefore, parents self-selected to participate in the program, which skews the treatment group sample to potentially represent parents who were already strongly involved in their children's educational development. In fact, the MEES program also had the smallest sample size and greatest error terms.

Another concern within the family involvement literature is the inconsistent method in which parent participation is measured. As previously mentioned, the HIPPY and MEES programs used attrition rates to evaluate family involvement. These studies did not directly measure family involvement. Parent "buy-in" or parents' perceptions of the effectiveness of these programs are descriptive in nature but may provide valuable information. Attrition rates provide information on an individual's continued involvement in a program. Utilizing attrition rates allows one to conclude that a variety of factors may have contributed to an individual's premature removal from a program. However, this method provides little information about the specific factors that influenced an individual's decision to leave a program (McCurdy & Daro, 2001). Therefore, attrition rates should be used in conjunction with other socially validated indicators of participant satisfaction, such as interviews and questionnaires.

Of the ten programs included in this literature review, there were two studies that included teacher perspectives or included a direct component between schools and home (i.e., parents went to their child's school) when evaluating the program. In light of reports such as the Metropolitan Life Survey, which finds that half of teachers believe that most parents fail to motivate their children so that their children will want to learn in school (Christenson & Sheridan, 2001) it seems important for studies evaluating family involvement programs to report data on teacher perspectives as well as parent perspectives. Additionally, it has been shown that building a trusting relationship between families and teachers promotes home and school relationships (Adams & Christenson, 2000, Nastasi, 1998, 2005; Nastasi, Varjas, Bernstein, Jayasena, 2000; Nastasi, Varjas, Schensul, Tudor Silva, Schensul, Ratnayake, 2000). Furthermore, trusting relationships between home and school have been positively correlated with children's academic performance (Adams & Christenson, 2000). Fantuzzo, McWayne, and Bulotsky argue that a critical element of successful prevention and intervention programs stem from partnership based research in which parents are considered partners (2003).

PROGRAM MODERATORS AND COMPONENTS

In the current study potentially effective program moderators were empirically explored and additional program components were further explored descriptively. Moderators included the number of settings in which the program was employed (one or two), the type of training parents received (video versus person), and the program dosage including duration of the program in weeks and number of sessions or activities offered. While ecological theory and research have suggested that prevention programs engaging children in multiple settings, such as home and school, lead to greater generalizability of effects beyond a single setting (Flaspohler, Meehan, Maras, & Keller, 2012; Okamoto, Kulis, Marsiglia, Holleran Steiker, & Dustman, 2013), we were unable to support this point empirically given our small sample of group comparison studies.

Our comparison of findings across studies suggested that children's literacy and language outcomes were better supported when their parents were trained by a person compared to video training at one year following the program. However, at the study level, effect sizes were larger for child outcomes in the DR1 program immediately after the intervention when parents were trained via videotape than when trained in person by a trainer. Again, given the small number of studies in the current literature synthesis and other program differences beyond training facilitation, further investigation of video-training as a moderator is warranted. Particularly because using a video to train parents is likely more cost-effective, more feasible, and could be more widely dispersed to reach more parents, thereby potentially improving the literacy and language outcomes of more children (Arnold, et al., 1994).

The HIPPY program spanned two academic years as compared to the MEES, DR1, and DR2 programs which lasted no more than several months, thereby providing parents with the longest amount of time to learn and participate in parent involvement activities. The HIPPY program study found an impact on children's literacy skills one year later, but not immediately following the program, a phenomenon Ziegler referred to as the "sleeper effect" (Zigler & Muenchow, 1992). The results of our meta-regression analysis, which took into account the dosage and effects of all six treatment conditions, revealed that the duration of family involvement programs indeed significantly contributed to children's literacy and language outcomes measured one year after the family involvement program was implemented, but not at immediate post-testing. The number of program sessions or activities aside from program duration was unrelated to program effectiveness at post-testing or one year follow-up. These findings demonstrate the benefits of early literacy programs that include an ongoing parent component, because these programs have the potential to alter children's literacy outcomes over time. In addition, longitudinal research designs, which follow children's progress over time are warranted because they may provide a more balanced picture of the costs and benefits of investing in early childhood programming for families.

In addition to examining moderators, we noted several ways in which program components differed among all of the family involvement programs included in this literature review. In some programs the family component was delivered in the school setting, while for others the family component took place entirely at home. In the FLB program, children were sent home with bags that contained reading materials, instructions for parents, and activities for parents and children to work on. This method enabled many parents to participate in the program without needing to come into the schools. However, parents and teachers reported that there was also increased communication because parents called teachers to ask questions

regarding the FLB program (Dever & Burts, 2002). This finding is consistent with another study, which experimentally manipulated home and school communication; thereby demonstrating the benefits of increasing positive teacher reports of student behavior (Fantuzzo, Davis, & Ginsburg, 1995).

Although seven of the eight family literacy and language programs designed for a DLL population included materials in different languages, only two of the programs incorporated methods that acknowledged cultural diversity into the program. Cultural diversity includes differences between cultures that may speak the same language, such as Spanish, but engage in different cultural activities, which include differences in food and celebrations (Quintero & Huerta-Macias, 1993). Quintero and Huerta-Macias assert that the purpose of including culturally relevant aspects in the FIEL program was in an effort to demonstrate to parents that their culture and language is important and relevant to their child's education (1993). Other researchers support this assertion and argue that tailoring lessons to incorporate cultures represented in the community facilitates a positive relationship between parents and educators as well as empowering culturally and linguistically diverse students (Espinosa, 2005; Garcia and Miller, 2008; McGhee and Richgels, 1996).

ADAPTING NON-DLL PROGRAMS FOR DLL POPULATIONS

Although the majority of the family involvement programs designed to specifically address the needs of a DLL population lack empirical evidence of effectiveness according to the criteria in this literature review, these programs provide descriptive information about ways in which family involvement programs may be adapted for a DLL population. For example, some parents who participated in the FLB program reported reluctance to read to their children in Spanish because they wanted their children to learn English (Dever & Burts, 2002). Yet other descriptive data from scholars (Espinosa, 2005; Garcia and Miller, 2008; McGhee and Richgels, 1996) and parents (Dever & Burts, 2002; Pelletier & Corter, 2005; Quintero & Huerta-Macias, 1993; Rodriguez-Brown et al., 1999) indicate that considering language differences is important in order to promote positive relationships with families. While empirical testing is needed, it may be beneficial to offer information sessions or send materials home to parents explaining the importance and the benefits of maintaining children's native language because bilingualism has been associated with a variety of cognitive, social, and economic advantages (Bialystok, 2007).

Furthermore, a key aspect for improving the relationships between families and schools is to include parents in the process of developing a family involvement program. Collaborating with parents about important culturally relevant themes to incorporate into programs has the potential to build and strengthen the family-school relationship. It has been argued that establishing collaborative relationships with families provides educators with information to support their student's individual language and literacy development (Parlakian & Sanchez, 2006). Moreover, the infusion of cultural components into family involvement programs can be empowering not only for the students (Espinosa, 2005; Garcia and Miller, 2008; McGhee and Richgels, 1996) but also for parents to continue to support their children's academic development (McWayne, Hampton, Fantuzzo, Cohen, & Sekino, 2004; Pelletier & Corter, 2005; Rodriguez-Brown et al., 1999).

Finally, the four experimentally and quasi-experimentally designed studies utilized potentially positive components that may be employed when designing family involvement

programs for DLLs. One promising component of the MEES, HIPPY, DR1, and DR2 programs included the use of an in-depth training procedure for parents and teachers. Research supports that the use of training programs increases parents' sense of self-efficacy (Gross, Fogg, & Tucker, 1995; Tucker, Gross, Fogg, Delaney, & Lapporte, 1998; Warschburger, von Schwerin, Buchholz, & Petermann, 2002;), which leads to improved outcomes for children (Sofronoff & Farbotko, 2002; Tucker et al., 1998).

Other components that should be tested empirically, but appeared promising for parents in the MEES, HIPPY, DR1, and DR2 programs were the use of resource materials and research based literacy curriculums that emphasized the importance of exposing children to vocabulary through the use of story book reading (Arnold, et al., 1994; Baker, et al., 1998; St. Clair & Jackson, 2006; Whitehurst et al., 1994). These findings are significant for practice because it suggests that early childhood programs could enhance the efficacy of their programs by including families in their programming in order to help reinforce young children's literacy and language skills.

LIMITATIONS

There are several limitations with this literature review. The first limitation involves the search methods. The key words and phrases could have limited the scope of the search and the potential to find other resources that did not necessarily include terms such as, family involvement, parent participation, or parent involvement. However, an attempt to find as many family involvement programs was made. A hand search was conducted in order to reduce the likelihood of excluding relevant family involvement programs. Another limitation was related to the lack of information that studies provided. Unfortunately, many of the studies did not provide detailed information about the demographic make-up of the individuals in the studies. This made it difficult to examine any of the potential cultural differences that might have existed across the populations. However, additional information was sought by contacting authors of several of the family involvement programs to request further information about the programs and the participants (Page, 2008).

A further limitation was due to the criteria used to include the programs in the study as well as the criteria for labeling a program as effective. Since the criterion for an effective program were limited to an experimentally or quasi-experimentally designed study, there were non-DLL programs that were omitted based on their design. However, studies that were designed with a DLL population in mind were included regardless of design in order to provide a description of the components that programs for DLLs employ to address DLLs needs. For example, several programs designed for DLLs incorporated multiple languages and cultural aspects into the design. Thus, programs that targeted DLL populations and provided explanations about the program design in order to address the needs of DLL populations were included. Although these programs might improve child outcomes the studies did not employ a quasi- or experimental design in which to evaluate the effect of the program on children's outcomes. Therefore, future studies should investigate these programs using a more rigorous and experimental design.

Another limitation relates to the operationalized definition of involvement because, as Epstein discusses, there are numerous ways of defining family involvement. For the purposes of this literature review the definition of involved was operationalized based on the measures that

researchers used to measure involvement. These definitions of involvement include parent interactions with their child, parental beliefs, attitudes, and expectations, parent participation in their child's academic life, and the home literacy environment. The varying definitions of involvement and the diversity of outcome measures employed made it difficult to make comparisons across programs or draw conclusions about the best family involvement program for child literacy and language outcomes.

Finally, it should be noted that the majority of programs included in this literature review that investigated or discussed the needs of DLLs, with the exception of the Readiness Center program (Pelletier & Corter, 2005), focused on parents whose native language was Spanish. In the United States there is a large Hispanic population and this population continues to increase (Rodriguez-Brown et al., 1999; Rusakoff, 2011; Thomas & Collier, 2002); thus, it can be expected that this population would be the focus of research within this area. However, this limits the majority of the findings in this literature review of the DLL population to families sharing Spanish language.

CONCLUSION

Although the issue of family involvement, early childhood education, literacy and language, and DLL populations appears to be of major concern for researchers, educators, and policy makers there is a staggering lack of experimentally designed studies investigating the relationship between family involvement and young DLLs literacy and language skills. However, four studies evaluated through experimental or quasi-experimental designs demonstrated statistically and practically significant effects on early childhood literacy and language skills; therefore, there are several family involvement programs in early childhood literacy that utilize group comparison designs. Additionally, studies that were experimentally evaluated were found to have strong effects on children's literacy and language skills, not only immediately after the program (Arnold et al., 1994; St. Clair & Jackson, 2006; Whitehurst, et al., 1994) but these results were maintained over a period of time (Baker, et al., 1998; St. Clair & Jackson, 2006; Whitehurst, et al., 1994). Unfortunately due to the current low-funding climate many early childhood programs are being defunded and/or losing funds. This literature review demonstrates the importance of providing even more intensive programming that lasts in order to improve and maintain children's positive literacy and language development. Furthermore, results of the DR2 program demonstrated that parent and school collaboration benefitted children's literacy and language development (Whitehurst, et al., 1994).

Consistent with Mattingly and others, this literature review suggests that family involvement studies have inherent methodological flaws including inconsistent definitions of family involvement and diverse methods of measuring this component (Christenson & Sheridan, 2001; 2002). These aforementioned issues might help explain the seemingly lack of empirical evidence (2002). Therefore, further investigation of these family involvement programs need to be conducted with special consideration for the measures used and the operationalized definition of family involvement.

In addition, the gap in the literature on early childhood education literacy and language programs that adapt for linguistic and cultural differences should be addressed in future studies. These studies should employ experimental designs to gather empirical research on these programs. Additionally, rigorous evaluations should be conducted in order to support whether or

not these programs promote family involvement for linguistically and culturally diverse populations as well as for non-DLLs. Furthermore, theoretically promising programs for DLLs without an evaluative component such as the FIEL program (Quintero & Huerta-Macias, 1993) should be systematically and methodologically analyzed. Finally, programs designed for DLL populations might benefit from the suggestions and strategies discussed in this review paper, such as providing materials and books in different languages and encouraging collaboration between families and schools, while these studies must continue to undergo experimental evaluations.

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