GETTING READY: RESULTS OF A RANDOMIZED TRIAL OF A RELATIONSHIP-FOCUSED INTERVENTION ON THE PARENT–INFANT RELATIONSHIP IN RURAL EARLY HEAD START

LISA L. KNOCHE, SUSAN M. SHERIDAN, BRANDY L. CLARKE
University of Nebraska-Lincoln, Nebraska Center for Research on Children, Youth, Families and Schools

CAROLYN POPE EDWARDS
University of Nebraska-Lincoln, Departments of Child, Youth and Family Studies and Psychology

CHRISTINE A. MARVIN
University of Nebraska-Lincoln, Department of Special Education and Communication Disorders

KEELY D. CLINE
East Tennessee State University, Department of Human Development and Learning

KEVIN A. KUPZYK
University of Nebraska Medical Center, College of Nursing

ABSTRACT: The purpose of this study is to investigate the effects of a relational intervention (the Getting Ready intervention) on parenting behaviors supporting the parent–infant relationship for families enrolled in Early Head Start home-based programming. Two-hundred thirty-four parents and their children participated in the randomized study, with 42% of parents reporting education of less than a high-school diploma. Brief, semistructured parent–child interaction tasks were videotaped every 4 months over a 16-month intervention period. Observational codes of parent–infant relationship behaviors included *quality* of three parental behaviors: warmth and sensitivity, support for learning, and encouragement of autonomy; two *appropriateness* indicators: support for learning and guidance/directives; and one *amount* indicator: constructive behaviors. Parents who participated in the Getting Ready intervention demonstrated higher quality interactions with their children that included enhanced quality of warmth and sensitivity, and support for their children's autonomy than did parents in the control group. They also were more likely to use appropriate directives with their children and more likely to demonstrate appropriate supports for their young children's learning. Results indicate an added value of the Getting Ready intervention for Early Head Start home-based programming for families of infants and toddlers.

Abstracts translated in Spanish, French, German, and Japanese can be found on the abstract page of each article on Wiley Online Library at http://wileyonlinelibrary.com/journal/imhj.

* * *

In recent years, a strong consensus has emerged among researchers and policymakers about the important role of early experiences in establishing the foundations of young children's readiness to succeed in the early years of school (e.g., Bowman & Donovan, 2001; National Scientific Council on the Developing Child, 2007; Shonkoff & Phillips, 2000). As sources of that experience, parents are seen as central figures (Bronfenbrenner, 2005; Chazan-Cohen et al., 2009; Henderson & Mapp, 2002; Taylor, Clayton, & Rowley, 2004), and relationships between children and their parents provide a context for these experiences to take hold. Indeed, general characteristics of children's earliest relationships with their parents set the stage for later competence in preschool and school settings, including the development of adaptive characteristics such as frustration tolerance, behavioral control, and social skills (deRuiter & van IJzendoorn, 1993; El Nolkali, Bachman, & Votruba-Drzal, 2010; National Research Council and Institute of

Direct correspondence to: Lisa L. Knoche, Ph.D. Research Associate Professor Nebraska Center for Research on Children, Youth, Families and Schools, 238 Teachers College Hall, University of Nebraska - Lincoln, Lincoln, NE 68588-0345, 402.472.4821; e-mail: lknoche2@unl.edu; http://www.cyfs.unl.edu/

Medicine, 2000; Raver & Knitzer, 2002; R.A. Thompson, 2002). Furthermore, associations recently have been identified that link parental nurturance in early childhood to brain structure during adolescence (Rao et al., 2010). Finally, research has suggested that parenting behaviors mediate the relationship between family risk and child outcomes; when risk is highest, parenting behaviors are diminished and child outcomes decline (Mistry, Benner, Biesanz, Clark, & Howes, 2010).

Given parents' roles in fostering a healthy environment and positive interactions for young children's learning and development, there is a need to identify research-based strategies for promoting the parent–infant relationship, also defined as parent engagement with their children. Strengths-based parent engagement programs advance young children's positive development by supporting parents' confidence and competence across two complementary relational contexts: the *parent–child relationship* and the *parent–professional relationship*.

PARENT–CHILD RELATIONSHIP

Parental behavior has long been associated with specific social and cognitive outcomes in young children (Knitzer, Steinberg, & Fleisch, 1993; NICHD Early Child Care Research Network, 2002; Pan, Rowe, Singer, & Snow, 2005) and has historically been the focus of many home-visitation programs (Olds, Hill, Robinson, Song, & Little, 2000; Pfannenstiel & Seltzer, 1989). For example, a warm and sensitive parent–child relationship that includes encouragement and support lays the foundation for secure behavior and exploration (Hirch-Pasek & Burchinal, 2006; Parker, Boak, Griffin, Ripple, & Peay, 1999; Shonkoff & Phillips, 2000). Parental interactions that include displays of affection, physical proximity, contingent positive reinforcement, and sensitivity are associated with children's positive cognitive growth over time (Bradley, Corwyn, Burchinal, McAdoo, & Coll, 2001; Burchinal, Campbell, Bryant, Wasik, & Ramey, 1997; Landry, Smith, Swank, Assel, & Vellet, 2001; Pungello, Iruka, Dotterer, Mills-Koonce, & Reznick, 2009; Rao et al., 2010). In the context of maternal–child problem solving, parental warmth and sensitivity have been linked to children's later positive social and academic adjustment (Chazan-Cohen et al., 2009; Pianta & Harbers, 1996) whereas intrusive parenting is predictive of later academic, socioemotional, and behavior problems, with some variation by ethnic group (Egeland, Pianta, & O'Brien, 1993; Feldman & Masalha, 2010; Pungello et al., 2009).

Furthermore, parents' guidance and support of their children's autonomy are known to be critical for fostering the skills that are essential for child well-being and future success in school (Clark & Ladd, 2000). By supporting their child's independence and inviting children to participate in decision making, parents foster self-regulatory skills and intrinsic motivation in children, including task persistence (Kelley, Brownell, & Campbell, 2000). Parental support of autonomy has been related to positive cognitive and social outcomes for young children (Clark & Ladd, 2000; Grolnick &

Farkas, 2002; Grolnick & Ryan, 1987, 1989; Ng, Kenney-Benson, & Pomerantz, 2004) as well as improved relationships with peers, social assertiveness, and self-directedness (Denham, Renwick, & Holt, 1991; McNamara, Selig, & Hawley, 2010).

Finally, parents promote their children's positive development by participating actively in activities and interactions to support learning. Parents who frequently engage in responsive language and literacy interactions with their children and who provide a home environment rich in opportunities for learning through shared book reading, constructive play, and exploration have children who display higher language and cognitive skills in toddlerhood, preschool, and the primary years (e.g., Chazan-Cohen et al., 2009; Hood, Conlon, & Andrews, 2008; NICHD Early Child Care Research Network, 2002; Raikes et al, 2006; Tamis-LeMonda & Bornstein, 2002). A parent's ability to embed learning and problem-solving formally and informally in everyday family events and activities and to provide a literacy-rich learning environment has been related to positive academic outcomes for young children (Bradley, Burchinal, & Casey, 2001; Foster, Lambert, Abbott-Shinn, McCarty, & Franze, 2005; Hill, 2001; Weigel, Martin, & Bennett, 2006a, 2006b).

PARENT–PROFESSIONAL RELATIONSHIP

The parent–professional relationship is another important component of intervention programs designed to support positive child and family outcomes. Positive relationships and *collaborative partnerships among parents and professionals* are considered primary protective factors (Christenson & Sheridan, 2001; Weissberg & Greenberg, 1998) for young children. Partnership practices promote an increased focus on families on the part of professionals as well as support the engagement of families with programs and professionals. Furthermore, partnership practices yield a greater provision of services in natural learning settings for children, greater cultural sensitivity, and a community-based system of care and education (Knitzer et al., 1993; Mendoza, Katz, Robertson, & Rothenberg, 2003).

In the family-centered programs typical of early childhood special education and early intervention (Dunst & Deal, 1994; McBride, 1999), children with disabilities or who are at high risk for developmental delay are viewed not in isolation but instead as members of a family system where they are both a source of influence and a recipient of the effects of family interactions. Family-centered service providers strive to promote family "competence and confidence" in advancing children's learning and development (McCollum & Yates, 1994). In some instances, early intervention programs focus on the parent–professional relationship as prerequisite and a mechanism for supporting the parent–child relationship, and programs delineate specific strategies to support the parent–professional relationship and respond to parents' natural yearning for a supportive network around their infant (e.g., Brazelton, 1992; Roggman, Boyce, & Cook, 2009). Such an approach emphasizes that the family system and the needs of parents

and children must be addressed if parents are to have the energy and resources to support the child's developmental and educational goals (Dunst & Deal, 1994; L. Thompson et al., 1997); this philosophy characterizes the approach used by two-generational early intervention programs (e.g., Early Head Start, Comprehensive Child Development Program, Part C of the Individuals with Disabilities Education Act) IDEA (2004). Family-centered services enable family members to eventually establish their own goals and independently meet their own needs and those of their children over time (McBride, 1999; Wilson & Dunst, 2004).

Collaborative partnerships among parents and professionals correlate with positive outcomes for children and families, and bolster the efficacy and efficiency of interventions in advancing young children's development (Caspe & Lopez, 2006; Grolnick & Slowiaczek, 1994; Masten & Coatsworth, 1998; Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2011). Interventions that focus on promoting family strengths and building constructive partnerships produce changes in the family environment, the parent–child relationship, parenting skills, and family involvement in children's learning (Caspe & Lopez, 2006). When families report a positive perception of the relationship with the professional with whom they work, more positive outcomes are reported (Korfmacher, Green, Spellmann, & Thornburg, 2007). A recent meta-analysis of studies on help-giving practices has indicated that family-centered programs and practices, including efforts to support the self-efficacy of families, have indirect effects on both children and parents (Trivette, Dunst, & Hamby, 2010).

RELATIONAL CONTEXT

Powerful and ample evidence exists for the positive influences that quality parent–child and parent–professional relationships can have on children's early learning. For young children growing up in poverty, such infant mental health and early intervention programming must explicitly address the ways in which their families are vulnerable within both of these relational contexts. Relationships between parents and children in poverty are often characterized as strained, perhaps due to increased levels of parenting stress, depression, and/or other risk factors arising from economic hardships and difficult living situations (Curenton, McWey, & Bolen, 2009; Duncan & Brooks-Gunn, 1997; Ryan, Fauth, & Brooks-Gunn, 2006); home-visitation interventions can help support this relationship (Roggman et al., 2009). Relationships between parents and professionals are likewise often challenged due to high staff turnover in community agencies, family mobility, and other sources of discontinuity in relationships, and by communication issues that impede full dialogue and understanding (Korfmacher et al., 2007) and prevent optimal support of child development. Thus, intervention strategies intended to immediately and explicitly strengthen relationships within (parent–child) and between (parent–professional) systems in support of children's early development are necessary. An early childhood intervention designed to strengthen the parent–child–professional triad by including a

protocol of activities and interactions that build on child and parent competence, and on parent and professional desires for change or growth through collaborative decision-making, may provide an important relationship-based platform for ensuring that children are supported from a very young age to be successful upon entry into formal school settings.

THE GETTING READY INTERVENTION

The Getting Ready intervention provides an approach to be used within existing community agencies and early childhood intervention programs such as Early Head Start (EHS), with a focus on the dual relational contexts important in a young child's life: the *parent–child* and the *parent–professional* relationships. Through intentional and strategic efforts on the part of early childhood professionals (defined as the service provider to the family, including home visitors, teachers, and childcare providers), parents are encouraged to engage with their child in a warm and sensitive manner, interact in ways that support their child's emerging autonomy, and use actions that represent formal methods to participate actively as partners in their child's learning, all in ways that are culturally comfortable to them (Edwards, Sheridan, & Knoche, 2010).

The Getting Ready intervention (Sheridan, Knoche, Edwards, Bovaird, & Kupzyk, 2010; Sheridan, Knoche, Kupzyk, Edwards, & Marvin, 2011; Sheridan, Marvin, Knoche, & Edwards, 2008) was designed to provide an integrated, ecological, strengths-based approach to school readiness for families with children from birth to 5 years who are participating in early education and intervention programs. The intervention integrates two evidence-based approaches. First, the Getting Ready intervention is grounded in principles of *triadic strategies* (McCollum & Yates, 1994), an early childhood consultation approach that has been validated with young children with disabilities (Girolametto, Verbey, & Tannock, 1994; McCollum & Hemmeter, 1997). Second, the Getting Ready intervention is based in *collaborative* (i.e., *conjoint*) *consultation models* (Sheridan & Kratochwill, 2008; Sheridan, Kratochwill, & Bergan, 1996). Early childhood conjoint consultation (Sheridan & Kratochwill, 2008) uses data-based, shared decision-making strategies in a highly intentional and individualized manner to intensify intervention for young children in a targeted way, utilizing perspectives of both the home visitor and the parent. In the Getting Ready intervention, these triadic and collaborative strategies are integrated in an ecologically and strengths-based intervention that advances the development of young children *and their families* via enhanced relationships (see intervention description in Table 1 and Figure 1).

The Getting Ready intervention promotes a joining of expertise of parents with that of the early childhood professional, bringing together family contributions about culturally relevant experiences and professional contributions about developmentally important activities. The collaborative nature of the process encourages parents and home visitors to share their respective observations and knowledge, to mutually identify relevant targets that

TABLE 1. *Getting Ready Model Intervention Strategies and Objectives*

Establish parent–child and parent–professional relationships.
- Establish a context for positive parent–child interaction by positioning them in close, face-to face proximity with one another; encourage reflective communication; highlight child strengths.
- Use communication strategies to build the parent–ECP relationship (e.g., listen actively to a parent's challenges/concerns, use open-ended questions, request parents' opinions and ideas, and affirm parents' competence); encourage positive parent–child interactions.

Share observations/knowledge of child over time.
- Exchange information about what parents/ECP observes about a child's developmental progress.
- Share screening data including areas of delay; focus parent's attention on a child's strengths/needs; solicit parental perspectives on day-to-day child interests and activities; clarify developmentally relevant observations.
- Share observations continuously to ensure ongoing attention to child strengths and areas of need.
- Affirm parents' insights and competent observations.

Identify mutually agreed upon developmental expectations for child.
- Focus parents' attention on child strengths and developmental needs.
- Engage in open discussions of family and program goals for the child and the child's development; establish agreed-upon set of desired targets toward which the child will progress, as responsive to observations and data.
- Share developmentally appropriate information.
- Assist parent in identifying appropriate targets by focusing attention on the child's current challenges, needs, strengths. and emerging abilities.

Share ideas and brainstorm methods for helping child meet expectations.
- Discuss the contexts that best elicit and support the child's growth and discuss means for monitoring changes in the child's learning and development.
- Assist parents to identify everyday opportunities for children to support developmental tasks.
- Identify current and potential parent behaviors that can support targeted learning.
- Suggest developmentally appropriate activities and model adult behaviors (i.e., nodding, commenting, elaborating, praising, questioning) that maintain a child's interest and scaffold his or her learning.
- Make suggestions when necessary.

Observe parent–child interactions and provide feedback.
- Provide parents an opportunity to practice interactions and skills with their child during home visits.
- Observe the parent–child interaction; adjust the manner in which parents support skill learning (model/s suggest), if necessary; provide parental validations and affirmation to support development of parenting skills.
- Identify current strengths related to developmental expectations.
- Provide developmental information.

Monitor the child's skill development and determine directions for continued growth.
- Engage in ongoing discussions regarding a child's response to learning opportunities, or new parenting behaviors.
- Discuss needed adjustments in interactions and/or learning opportunities.
- Use data to determine progress and areas in need of modification.
- Cycle to new developmental expectations and learning opportunities as needed.
- Co-create specific plans for maintaining child's progress and parents' skills at collaboration.

---

support the child's abilities and emerging skills, and to enhance parent–child interaction. The process is flexible and responsive to cultural and familial differences in styles of using language and expressing emotions (Shonkoff & Phillips, 2000), playing with and disciplining children (DeLoache & Gottlieb, 2000), and promoting learning (Tharp, 1989).

PURPOSE OF THE STUDY

The purpose of the present study was to test the effects of the Getting Ready intervention on the parent–infant relationship for families involved in rural EHS home-based programming. We hypothesized that parents participating in the complementary Getting Ready relationship-based intervention would demonstrate greater levels of warmth and sensitivity, support for autonomy, and engagement in learning interactions with their children than would parents in the control condition who received EHS home-based services only.

METHODS

The current study was part of a larger, longitudinal investigation examining the effects of an intervention to promote parental engagement (including the parent–infant relationship) and school readiness among families and children between the ages of birth to 5 years, living in low socioeconomic conditions and at risk for academic, socioemotional, and behavioral difficulties. In this article, we focus exclusively on the child participants from birth through age 3 years and their families. We present the effects of the Getting Ready intervention as experienced by families throughout their enrollment in a rural EHS program, relative to participants in a control condition whose EHS experience represented standard, "business as usual" practice.
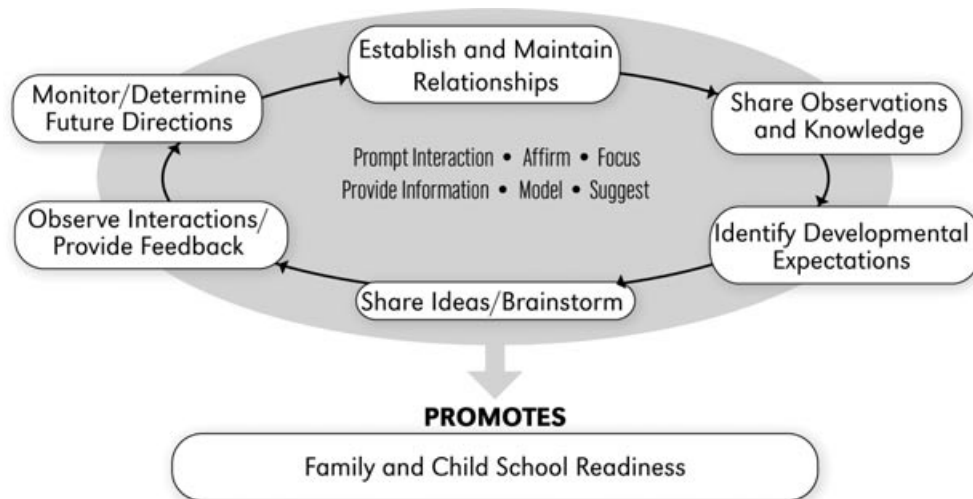
FIGURE 1. The Getting Ready intervention. The outer oval depicts the collaborative consultation structure that supports the parent–professional relationship while the set of triadic strategies (parent–child–professional) indicated in the middle of the model are used by the home visitor to simultaneously support the parent–child relationship during the collaborative parent–professional interactions. It is the tandem use of these triadic and collaborative strategies (further specified in Table 1) that characterize the Getting Ready intervention. From "Getting Ready: Promoting School Readiness through a Relationship-Based Partnership Model," by S.M. Sheridan, C.A. Marvin, L.L. Knoche, & C.P. Edwards, 2008, *Early Childhood Services*, 2(3), pp. 149–172. Copyright 2008 by Plural Publishing, Inc. Reprinted with permission.

Setting and Context

Families involved in this study were enrolled in home-based EHS programming within three rural community-service agencies in a Midwestern state. Agencies housed between 5 and 21 early childhood professionals (ECPs; also referred to as "home visitors"). ECPs in the rural EHS agencies provided services to pregnant women as well as families with children under age 3 years via weekly home visits scheduled to last up to 90 min and monthly family group activities held at the community agency (socializations). The average size of ECPs' caseloads in EHS was 10 families. Home visits were conducted weekly and lasted 60 to 90 min based on EHS performance standards (Administration on Children and Families, 2010). Home-visitation services focused on child development and parenting skills using published developmental curricula (i.e., *Beautiful Beginnings*: Raikes & Whitmer, 2006; *Parents as Teachers*: Parents as Teachers National Center, 2008). This model of EHS service delivery is in line with EHS program guidelines and was characteristic of both treatment and control conditions.

Recruitment and Assignment to Condition

At the start of the Getting Ready intervention activities, agency administrators at participating programs were contacted by research staff and informed of the Getting Ready intervention. Within each agency, ECPs were randomly assigned to treatment or control conditions, resulting in half of the ECPs within each agency assigned to each experimental condition. Each agency operated in multiple sites/locations; thus, professionals in the same site/location were assigned to the same condition. For example, in Agency 1, three home visitors were located in Site A, and two home visitors

were located in Site B. Sites A and B were randomly assigned to condition; Site A (and all home visitors therein) was assigned to treatment, and Site B (and all home visitors therein) was assigned to control. This distribution (two sites) characterized two of the three agencies involved in this study. The third agency had three sites; two were randomly assigned to the treatment condition, and one was randomly assigned to the control condition. Upon their verbal consent, ECPs in the agencies were contacted, informed of the project, and asked to participate. Subsequently, families were recruited. All families who were enrolled in EHS and still eligible for a minimum of 12 months of program services were recruited for participation. Both English- and Spanish-speaking families were recruited. Participation was voluntary for families, and informed consent was obtained from all participants. Parents received information on the project from their respective ECP, and a member of the research team followed up with each interested parent and gathered informed consent following Institutional Review Board procedures of the sponsoring university. The families' assignments to treatment or control conditions reflected a nested design, in that the condition assignment of each family matched that of their agency-assigned ECP, who was randomized based on their site location.

Experimental Design

Random assignment to experimental condition occurred at the site level, making this a cluster randomized trial with repeated measurements. The impact of the Getting Ready intervention on parenting behaviors was analyzed using multilevel modeling (MLM; Raudenbush & Bryk, 2002; Snijders & Bosker, 1999). This was accomplished by using SAS PROC MIXED (Singer, 1998), which

TABLE 2. *Demographic Characteristics of Participants by Group and Overall at Baseline*[a]

	Child			Parent		
	Control	Treatment	All	Control	Treatment	All
Age						
M	9.25	11.02 months	10.30 months	24.95 years	24.62 years	24.75 years
Range	1.8–23.7	2.1–24.5	1.8–24.5	12–40	16–49	12–49
SD	5.63	7.00	6.50	5.59	5.26	5.38
Ethnicity						
White	50.0%	56.5%	53.9%	62.6%	63.0%	62.9%
Black	1.1%	1.4%	1.3%	1.1%	0.7%	0.9%
Latino/Hispanic	46.7%	34.8%	39.5%	36.3%	31.9%	33.6%
Native Hawaiian/Pacific Islander	0.0%	0.7%	0.4%	0.0%	1.4%	0.9%
Other	2.2%	6.5%	4.8%	0.0%	2.9%	1.7%
Language at Home						
English	68.1%	70.4%	69.5%			
Spanish	25.3%	25.2%	25.2%			
English/Spanish	6.6%	3.0%	4.4%			
Other	0.0%	1.4%	0.8%			
Gender						
Male	49.5%	53.2%	51.7%			
Female	50.5%	46.8%	48.3%			
Identified Disability	5.4%	5.9%	5.7%			
Highest Education Level						
Less than high school				37.0%	44.6%	41.5%
High-school diploma				33.7%	29.2%	31.0%
Some college/training				25.0%	22.7%	23.5%
Two-year college degree				3.3%	2.2%	2.6%
Four-year college degree or more				1.1%	1.5%	1.3%
Adults in the Home						
Two or more				23.9%	26.1%	25.2%
One				76.1%	73.8%	74.7%
Receives Public Aid				96.7%	98.5%	97.8%
Work Status						
Employed				45.8%	41.4%	43.2%
Unemployed–In School				19.6%	14.7%	16.5%
Unemployed				34.6%	43.9%	40.3%

[a]Child *n* = 234 and Parent *n* = 230 at Time 1 assessment. Four parents did not provide demographic information at the baseline measurement.

implements a general linear mixed model. A four-level complex-sampling design was used, with repeated observations (Level 1) nested within each child (Level 2), children nested within ECPs (Level 3), and ECPs nested within programs (Level 4).

Participants

Participants in this study were 234 families involved in rural EHS home-based programming and also involved in the Getting Ready project, along with 64 Early Childhood Professionals (ECPs).

Parent participants. Two hundred thirty-four parents (i.e., adult guardian responsible for child participants' primary caretaking) were enrolled in the study and represented the primary participant group. The mean age of parent participants was 24.8 years (*SD* = 5.4 years). Sixty-two percent identified themselves as White/Non-Hispanic, 34% Hispanic/Latino, and 2% other. The majority of

respondents (94%) were mothers, 5% were fathers, and 1% were grandmothers. Forty-one percent did not complete high school, 31% reported earning a high-school diploma or GED, 24% had some training beyond high school, and 4% reported having a college degree. Twenty-four percent of respondents were born outside of the United States. Thirty percent of families reported speaking primarily Spanish in the home; 70% reported speaking primarily English. A majority of respondents indicated being married or with a partner (63%), 24% were single/never married, 12% were divorced or separated, and 1% reported being widowed. One hundred thirty-nine families were enrolled in the treatment group at baseline, and another 95 families were enrolled in the control group. There were no statistically significant differences in demographic composition between treatment and control group participants (for further descriptive information by experimental condition, see Table 2).

Child participants. Two hundred thirty-four children ranging in age from 2 months to 24 months at baseline (*M* age = 10.3 months; *SD* = 6.5 months) were involved with their parents in this study. Fifty-two percent of child participants were boys; 48% were girls. According to parent report, slightly over half of the child participants were White/Non-Hispanic; 39 and 7% were reported to be Hispanic/Latino and of other ethnic/racial backgrounds, respectively. Six percent of the child participants had an identified disability or developmental delay (for further descriptive information by experimental condition, see Table 2).

EHS ECPs. Sixty-four ECPs provided programming to enrolled families (*n* = 33 in control samples; *n* = 31 in treatment samples).[1] Demographic information was available on 53 participants. Ninety-nine percent were female, and 1% were male. The average age of ECPs was 31.9 years (*SD* = 9.4). The average number of years of experience working in early childhood services was 5.2 (*SD* = 4.9), and they had been employed in their current position an average of 2.0 years (*SD* = 3.6). Thirty-nine percent of the ECPs reported being Hispanic/Latino, and 61% were Non-Hispanic/Latino. Educational level of the participants varied; 4% had a high-school diploma, 33% reported some training beyond high school, 8% earned a 1-year vocational training certificate, 37% earned a 2-year college degree, 17% earned a 4-year college degree, and 1% reported receiving graduate training. Demographic characteristics, including age, $t(50) = -0.54$, $p > .05$, years of experience in early childhood settings, $t(48) = -0.82$, $p > .05$, and years of experience conducting home visits, $t(48) = -1.09$, $p > .05$, were not statistically significantly different between treatment and control participants. Analyses also indicated that educational level was statistically equivalent between participants in the treatment and control groups, $\chi^2(5, n = 52) = 5.2$, $p = .40$.

Experimental Conditions

The Getting Ready intervention. In addition to EHS services, ECPs in the treatment group provided early intervention services for parents and children through a prevention lens that guided parents to (a) interact with their children in warm and responsive ways, (b) support their children's autonomy, and (c) participate in children's learning. ECPs also engaged parents in collaborative interactions to support children's learning and development at home. Rather than representing an "add on" to current services, the Getting Ready intervention was integrated with and strengthened the ongoing means for interacting with families in the rural EHS programs, thereby augmenting existing services. Within each agency, careful planning led to development of procedures for integrating the

Getting Ready strategies with whatever other home-visiting curriculum was being employed (e.g., Parents as Teachers, Beautiful Beginnings, Healthy Families). The Getting Ready strategies provided an overall framework for the home visit within which the specific curriculum was implemented. In this way, it served to support and enhance the quality of parent–child interactions in daily routines and to create a shared responsibility between parent and professional to influence children's developmental success. The Getting Ready intervention shifted the emphasis of ECPs from child and parent education to extending meaningful interactions between parents and children.

During each home visit or socialization with families, the trained ECPs used a series of strategies collectively defining the Getting Ready intervention (for a listing of strategies, see Table 1; Sheridan et al., 2008). ECPs established working partnerships with parents and used triadic and collaborative strategies to increase effective parent engagement in planned and routine activities and events. The strategies were aimed at focusing the parent's attention on their child's strengths, sharing and discussing observations about the child with the parent, discussing developmental expectations (goals), making suggestions, and brainstorming collaboratively with parents around problems or issues related to the child's social, motor, cognitive, or communicative development and learning. Furthermore, ECPs affirmed parents' competence in supporting or advancing the child's abilities, asked parents for their reflections and ideas related to the child's recent learning needs and interests, and provided feedback and suggestions when necessary to draw the parents' attention to specific actions that resulted in positive responses by their child. Professionals also promoted parent–child interactions during these visits through modeling, sharing information of interest to the parent and child, and engaging in mutual goal setting and activity/event planning.

Training and coaching. The professional development series for ECPs involved workshop training experiences and group and individual coaching. Prior to initiating the Getting Ready intervention during home visits, ECPs in the treatment group participated in a 2-day interactive, in-service session on triadic (parent–child–professional) interactions and collaborative consultation skills. A 1-day refresher training was provided approximately 1 year following initial training. Following the in-service training, ECPs received ongoing support twice monthly in (a) group sessions (2–5 ECPs and a project coach) lasting 90 min on average and (b) individual sessions lasting 60 min. These coaching sessions were intended to support the initial training and promote the effective and intentional use of triadic and collaborative consultation strategies in home visits with families. ECPs' strengths and needs informed the content of coaching sessions (Brown, Knoche, Edwards, & Sheridan, 2009). A project coach experienced in consultation, parent education, and early childhood intervention and education services provided support, discussed strengths and challenges, asked questions, and helped create professional development goals with each ECP. Video recordings of individual ECPs

---

[1] As previously indicated, each agency employed 5 to 21 ECPs. Over the life of the project, ECPs left their home-visiting jobs within their respective agencies for a variety of reasons, and new home visitors were rehired to fill the vacant positions. The total ECP count reflects this turnover, and is therefore greater than the total number of ECP positions available.

during home-visit interactions with families were used to reinforce desired professional and parent behaviors and to extend self-awareness about the significance of those behaviors, reflective of a "self-as-a-model" cognitive-social learning approach (Dowrick, 1994; Hosford, 1980). In each session, the project coach included reflective questions to guide the discussion with ECPs and highlight professional strengths in the use of the triadic/collaborative strategies and set the stage for ECPs to use information in their work between coaching sessions (for additional details on the professional development model, see Brown et al., 2009).

Control condition. Control home visitors continued to receive supervision on their work with EHS families and children through agency-provided means monthly, on average. Agency professional development was provided through workshops and in-service activities, and included topics such as serving children with disabilities, adhering to Head Start Performance Standards, managing stress, and using positive behavior supports.

Home-visit completion. Home-visit completion rates over the intervention period were averaged at approximately 70% for treatment and control families. Analyses indicate that the number of home visits completed did not vary significantly between treatment ($M = 45.8, SD = 28.45$) and control group ($M = 43.94, SD = 30.58$) families over the 16-month intervention period, $t(209) = 0.452$, $p > .05$.

Data Collection

Direct observation procedures. Individualized family assessments were conducted every 3 to 5 months (targeted every 4 months) for a period of up to 16 months (five assessment occasions) by trained, reliable observers. Baseline or pre-intervention data were collected at the point at which the parent and child were first enrolled in EHS. Bilingual English/Spanish-speaking data collectors administered assessments with Spanish-speaking families. Assessments were conducted at a location convenient for the family, including in the families' homes or at EHS centers. During the session, parents completed a questionnaire (including demographic child and family information) lasting 25 to 40 min, and participated in a video-recorded parent/child observation lasting 8 to 30 min, depending on the age of the child. During this observation, parents were asked to sit on the floor with their child, in view of the camera. Parents received verbal directions and materials for the tasks, which were derived from the procedures of the NICHD Early Child Care Research Network (2002). The number and order of tasks completed by parent–child dyads were based on the child's age at the time of the session. Parents of infants aged 2 to 15 months completed the following tasks with their child: (a) social play (typical of their regular interactions at home), (b) book reading (omitted if child was under 4 months), and (c) free play with toys. Parents of children aged 16 to 24 months completed the following: (a) social play, (b) book reading, (c) a natural teaching

task (e.g., place-setting a set of plastic dishes and cups by color), (d) clean-up from the teaching task, (e) a novel teaching task (e.g., model building with Duplos), (f) free play with toys (e.g., bubbles, Fisher-Price farm and zoo sets), and (g) clean-up of the toys from free play. Children aged 25 months or older and their parents engaged in: (a) book reading, (b) a novel teaching task (e.g., puzzles), (c) a natural teaching task (e.g., dressing a doll, or folding a towel if the child was resistant to the doll task), (d) clean-up from the teaching task, (e) free play with toys, and (f) clean-up from free play. At each assessment occasion, families received a gift card to a local retailer.

Measurement of Study Variables

Demographic information. At the beginning of their participation in the Getting Ready study, the families completed a demographic survey (Sheridan, Edwards, & Knoche, 2003). Items included topics such as gender, ethnicity/race, and other family characteristics. ECPs also completed a demographic questionnaire about themselves upon entry into the program.

Parent–infant relationship. Video recordings of parent behaviors within parent–child interactions were coded with the *Parent/Caregiver Involvement Scale* (P/CIS; Farran, Kasari, Comfort, & Jay, 1986). The P/CIS is designed for use with children aged 3 years and younger to provide an assessment of the amount and quality of involvement between a caregiver and a child. The scale is intended to be independent of the economic aspects of social class and to be easily used with children across the full range of abilities. This scale measures 11 discrete parental behaviors: (a) physical involvement; (b) verbal involvement; (c) responsiveness of caregiver to child; (d) play interaction; (e) teaching behavior; (f) control of activities; (g) directives, demands; (h) relationship among activities; (i) positive statements/regard; (j) negative statements/regard; and (k) goal setting. Each of these 11 behaviors is rated across three distinct dimensions (i.e., quality, appropriateness, and amount) for a total of 33 codes. *Quality* ratings refer to aspects of each of the 11 parent behaviors that promote optimal development of the child, such as intensity, sensitivity, fluidity, flexibility, and consistency. *Appropriateness* is the degree of match between the caregiver's behavior and the child's developmental level and interest during the interaction. *Amount* concerns the frequency of parental involvement in terms of quantity without consideration of quality or appropriateness (Comfort & Farran, 1994).

A team of 16 research assistants (graduate students in school or developmental psychology and related fields) were trained to mastery on the P/CIS coding scheme. Videos of Spanish-speaking parents and children were coded by bilingual Spanish- and English-speaking research assistants. As part of training, research assistants first watched a training video and completed a coding workbook of written exercises provided by the authors of the P/CIS, and then engaged in practice sessions that involved watching, coding, and discussing a minimum of eight videos of parent–child interactions. Research assistants were required to demonstrate mastery

TABLE 3. *Factor Structure for the Parent/Caregiver Involvement Scale*

Factor	Behavioral Indicators	α
	Quality of:	
Warmth & Sensitivity–Quality	physical involvement, responsiveness of caregiver, play interaction, directives/demands, positive statements, negative statement	.81
Support for Learning–Quality	verbal involvement, teaching behavior, relationship among activities	.71
Encouragement of Autonomy–Quality	goal setting, control of activities	.61
	Appropriateness of:	
Support for Learning–Appropriateness	verbal involvement, responsiveness of caregiver, negative statements, relationship among activities, teaching behavior, play interaction, physical involvement	.86
Guidance/Directives–Appropriateness	directives/demands, goal setting, control of activities, positive statements	.70
	Amount of:	
Constructive Behaviors–Amount	teaching behavior, responsiveness of caregiver, verbal involvement, positive statements	.69

of the P/CIS by coding two common ("master") parent–child interaction videos at 85% or higher interrater agreement. Agreement was defined as an exact match on ratings across two observers, or ratings within 1 point of each other. This method of agreement has been used in other studies using the P/CIS (see Wilfong, Saylor, & Elksnin, 1991)and was recommended in consultation with the first author of the scale (D.C. Farran, personal communication, February 19, 2006).

To ensure ongoing reliability of coding, 34% of all observations were coded by two observers. In situations in which coders' rate of agreement was below 85%, a discussion session was held with both coders and a facilitator to discuss points of disagreement. In this session, the coders watched the interaction and discussed their impressions until the two original coders were able to come to agreement within 1 point. The original coded data were used in reporting reliability, but the reconciled data were used in all analyses. In addition, to protect against observer drift, regular reliability checks occurred at every third videotape for each coder. Coder reliability scores for the P/CIS codes across videos ranged from 91 to 95% agreement (i.e., within 1 point). Intraclass correlations were computed with a two-way mixed-effects model with a criterion agreement definition and ranged from .39 to .57; although this range is rather low, intraclass values are based upon exact agreement, which was not the criteria for our investigation. Percent agreement within 1 point was used to establish and monitor ongoing reliability of the coding team.

P/CIS behaviors were rated on a scale of 1 (*low*) to 5 (*high*), anchored with specific descriptions of the particular behaviors that characterize each rating. For analyses, mean scores on each scale were computed. Mean values, as opposed to sum scores, were used due to systematic missing data resulting from the proper use of the coding scheme. For example, if the amount was coded as "0," then quality and appropriateness codes were not relevant and thus considered missing. Means were therefore used to avoid deflation of scores due to nonapplicable items. To ensure appropriateness of codes for the culturally diverse sample, project personnel with experience working with Latino families engaged in training discus-

sions with coders using video exemplars. These discussions were intended to raise awareness about cultural and stylistic differences in behavior (e.g., touching, eye contact, expression of affection and emotion, modes of verbal instruction) that may differ among diverse individuals and groups, including native Spanish-speaking parents from different backgrounds. While the same general behavioral definitions were used for all families, coders were provided with training on cultural/stylistic differences to help ensure that coding was not culturally biased. In addition, coders were blind to treatment condition and were not intentionally made aware of the data-collection wave. In some instances, coders reviewed interactions from the same families at different waves.

Parent–infant relationship factors. Confirmatory factor analyses (CFI) on the 33 P/CIS codes were performed with the Getting Ready sample at baseline. The factor analyses supported a model with three factors for *quality* items [CFI = .952, root mean square error of approximation (RMSEA) = .069], two factors for *appropriateness* items (CFI = .937, RMSEA = .075), and one factor for *amount* items (CFI = .994, RMSEA = .042). The six factors are specified in Table 3, and Cronbach's αs for internal consistency are provided. All alphas are within an acceptable range.

Fidelity of intervention implementation. Adherence to the Getting Ready intervention strategies and the quality of strategy delivery, as well as participant responsiveness, were coded as part of the research procedures and were considered important indicators that the treatment was in effect (Dane & Schneider, 1998). Furthermore, assessment of the control group ECPs was conducted to define unique program differences (Dane & Schneider, 1998; Durlak & DuPre, 2008). Twice-per-year home visits of a subset of early childhood professionals across treatment and control groups were digitally video-recorded; thus, a sampling of data was collected annually for each ECP. The *Getting Ready Coding Definition Guide* (adapted by the research team from the Home Visit Observation Form; McBride & Peterson 1997) was used by trained coders to reliably record ECPs' fidelity in implementing a triadic and

collaborative approach, and parents' responsiveness to the intervention within home visits. A partial-interval recording for every 1-min segment of the visit (range = 40–90 min) was used to obtain (a) the rate of Getting Ready strategies used by the ECP (adherence) and (b) the rate of interactions between the parent–child dyad (participant responsiveness). In addition, ECPs' effectiveness in promoting parent engagement was rated every 10 min on a Likert type scale of 1 (*low*) to 4 (*high*). A full description of procedures used to assess intervention-implementation fidelity is available in Knoche, Sheridan, Edwards, and Osborn (2010).

Home-visit tapes collected from a subset of ECPs indicated that the treatment group ECPs were observed using Getting Ready strategies over an average of 58.6% of intervals during home visits versus 44.2% for ECPs in the control group, $t(25) = 2.34$, $p < .05$. ECPs' effectiveness at initiating parental interest and engagement was rated as 2.9 (of 4), on average, indicating relatively high levels of quality in initiating parental interest and engagement with their children. ECPs in the control condition were rated significantly lower, with an average effectiveness rating of 1.9, $t(19.6) = 4.87$, $p < .05$. In addition, parents in the treatment condition were observed interacting with their children during 66.3% of intervals (close to 40 min in a 60-min home visit), and significantly more than did parents in the control condition who interacted with their children for approximately 26 min of a 1-hr visit (43.0%), $t(15.8) = 3.01$, $p < .05$ (Knoche et al., 2010). Fidelity data were not used in the parent–infant relationship analyses that were conducted as part of this study because fidelity was not collected at the child/family level but at the level of the ECP. In addition, fidelity data were available for only a subset of ECPs.

Analysis Plan

The analysis models included the respective factor of parent–child relationship as the outcome measure predicted by (a) experimental condition, (b) time, (c) the Experimental Condition × Time interaction, and (d) the child's age at baseline. Parameter estimates for the analysis models were obtained through restricted maximum likelihood estimation and the Kenward–Rogers degrees of freedom method was used for tests of significance. Kenward–Roger degrees of freedom method takes into account not only the sample size and the number of time points to calculate the degrees of freedom for each test of significance but also the covariances between fixed effects specific to each model for improved small- and unbalanced-sample approximations. Tests of significance were two-tailed with $\alpha = .05$. Since the measurement occasions varied between 3 to 5 months (targeted every 4 months), time was centered to reflect the number of months since randomization. Experimental condition was entered as a dummy-coded variable (0 = *control*, 1 = *treatment*).

MLM allows for modeling of individual parent differences in initial levels and change in outcome, or dependent variables of interest. The variability in these estimates are referred to as random effects, or variance components. An unstructured covariance matrix was used for the person-level random effects, so the models included a random intercept variance (variability in dependent variables across individuals at randomization), a random slope variance for time (variability in the individual rate of change in dependent variables), and the covariance between intercept and time (correlation between a parent's initial level and his or her rate of change during the study). The within-persons residual variance is the average error in prediction at a given measurement occasion.

Random effects that account for variability attributable to ECPs and to EHS programs also were tested. All random effects at the program level were not significant. Consequently, the random intercept for program was excluded from all analysis models. Between-participant (ECP) variability was found in intercepts, but not in slopes, so a random intercept for ECP was included.

Handling of missing data. Missing data due to attrition and planned missingness caused by the cohort nature of the study design were accounted for by the use of Full Information Maximum Likelihood (FIML; Enders, 2001). FIML assumes data are at least missing at random. Using SAS PROC MIXED, FIML makes use of all available data and results in all participants with at least one measurement occasion retained in the data analysis.

Effect size computation. The linear mixed-model framework used in this study accounted for clustering; thus, effect size was calculated as the ratio of the group difference in linear change (γ) to the standard deviation of the slope values. This extension is necessary and preferred over traditional procedures that consider mean group differences divided by a within-group or control group standard deviation, due to the clustering present in the data (Raudenbush & Liu, 2001).

RESULTS

The results of the study are presented in two sections. First, given some loss of participants across time, it is important to fully investigate attrition in the sample. Second, analyses are presented on the specific parent–infant relationship behaviors, including quality, amount and appropriateness of warmth and sensitivity, encouragement of autonomy, and support for learning.

Attrition Analyses

Attrition is expected in an 18-month study of high-risk children and families. Sample sizes for each assessment occasion are presented by condition in Table 4. Overall, 56% of participants who began the study completed three assessment occasions (over approximately 8 months); 26% of participants who began the study completed the full 16-month intervention (five assessment occasions). The control group experienced a 41.1% attrition rate, and the treatment group experienced a 39.6% attrition rate. These rates are comparable to other intervention studies with high-risk families (Wagner, Spiker, & Linn, 2002). The difference in attrition rates between treatment and control groups was not statistically significant, $\chi^2(1) = .052$, $p > .05$. Participants who left the program, and thus the study, did not differ significantly from those who

TABLE 4. *Descriptive Statistics for Parent–Infant Relationship Behaviors*[a] *Over Time Across Treatment and Control Conditions*

	Time 1[b] M (SD)	Time 2[c] M (SD)	Time 3[d] M (SD)	Time 4[e] M (SD)	Time 5[f] M (SD)
Warmth & Sensitivity–Quality					
Treatment	4.00 (0.67)	4.04 (0.6)	3.9 (0.68)	4.06 (0.59)	3.92 (0.56)
Control	4.12 (0.62)	4.07 (0.62)	3.72 (0.69)	3.70 (0.78)	3.63 (0.78)
Encouragement of Autonomy–Quality					
Treatment	3.75 (0.82)	3.83 (0.68)	3.70 (0.68)	3.81 (0.79)	3.93 (0.66)
Control	3.87 (0.76)	3.89 (0.57)	3.41 (0.74)	3.61 (0.72)	3.59 (0.88)
Support for Learning–Quality					
Treatment	3.70 (0.63)	3.87 (0.55)	3.82 (0.58)	4.01 (0.5)	3.94 (0.56)
Control	3.71 (0.57)	3.82 (0.54)	3.71 (0.48)	3.69 (0.58)	3.77 (0.71)
Guidance/Directives–Appropriateness					
Treatment	3.75 (0.64)	3.85 (0.56)	3.83 (0.63)	3.99 (0.59)	3.96 (0.53)
Control	3.79 (0.6)	3.85 (0.49)	3.62 (0.65)	3.64 (0.64)	3.70 (0.65)
Support for Learning–Appropriateness					
Treatment	3.89 (0.67)	4.05 (0.56)	4.04 (0.57)	4.12 (0.49)	4.12 (0.51)
Control	4.03 (0.54)	4.08 (0.4)	3.84 (0.62)	3.85 (0.63)	3.83 (0.73)
Constructive Behaviors–Amount					
Treatment	3.20 (0.66)	3.45 (0.62)	3.32 (0.66)	3.57 (0.51)	3.40 (0.59)
Control	3.23 (0.56)	3.42 (0.56)	3.37 (0.59)	3.33 (0.6)	3.34 (0.64)

[a]Behaviors were rated on a 5-point Likert scale (1 low, 5 high). [b]Time 1: Treatment group ($n = 139$), Control group ($n = 95$). [c]Time 2: Treatment group ($n = 109$), Control group ($n = 60$). [d]Time 3: Treatment group ($n = 79$), Control group ($n = 51$). [e]Time 4: Treatment group ($n = 55$), Control group ($n = 39$). [f]Time 5: Treatment group ($n = 37$), Control group ($n = 24$).

remained in the study on key demographic characteristics of gender, $\chi^2(1) = .184$, $p > .05$, ethnicity, $\chi^2(4) = 4.660$, $p > .05$, and home language, $\chi^2(1) = .001$, $p > .05$. In addition to the nonsignificant difference in attrition rates across experimental groups, none of the demographic characteristics across experimental groups varied significantly between those staying in the study and those who left. Therefore, the comparison of experimental groups was not biased due to attrition.

Parent–Infant Relationship Analyses

Descriptive statistics on each of the six P/CIS behavior factors are provided in Table 4. Further analyses indicate that the Getting Ready intervention was effective at supporting positive change in four of the six observed P/CIS parenting behaviors. The slope over the intervention period was significantly greater for the treatment over the control group on two quality factors and two appropriateness factors (Table 5). Specifically, parents in the Getting Ready treatment group interacted with their children using a greater degree of warmth and sensitivity over the intervention period than did their counterparts in the control condition, $\gamma = 0.02$, $t(94) = 2.54$, $p < .05$, $d = 0.83$. They demonstrated high-quality, positive, responsive interactions with their children (Figure 2).

The parameter estimate for the Condition × Time interaction, γ, can be interpreted as the difference in the per-month growth rate between the intervention and control groups since time is centered to reflect the number of months since randomization. Thus, whereas the control group showed some evidence of improvement (as might

be expected given their enrollment in EHS), parents in the Getting Ready intervention group gained, on average, 0.02 points *more* per month than did parents in the control group on the quality of warmth and sensitivity demonstrated with their children. This is equivalent to a relative gain of 0.32 points over the course of the 16-month intervention period. Because the measure is unstandardized, it is somewhat difficult to interpret magnitude. Thus, based on the effect size estimate and the equivalency of an effect size to a "z-score" normal distribution, these findings indicate that the warmth and sensitivity score of a parent who made gains at the mean level of the treatment group will exceed the scores of 79% of parents in the control group who made an average gains.

Compared to parents in the control condition, parents who were involved in the Getting Ready intervention demonstrated greater quality in behaviors that supported their children's autonomy over the course of the intervention period, $\gamma = 0.02$, $t(106) = 2.06$, $p < .05$, $d = 0.67$. That is, parents involved in the intervention were sensitive to the types of goals that they set for their children, and used quality approaches to control children's activities (Figure 3). In addition, parents in the treatment group provided more appropriate supports over time for their children's learning than the supports offered by parents in the control group, $\gamma = 0.02$, $t(65) = 2.22$, $p < .05$, $d = 1.23$. Parents in the treatment group, relative to those in the control group, were observed to demonstrate statistically significant improvements in rates of behaviors that were aligned with children's needs and skills, including appropriate teaching behaviors, verbal interactions, and responsiveness (Figure 4). Finally, parents in the treatment group

TABLE 5. *Comparison of Growth Curve Model Fixed Effects for Control and Treatment Groups*

Effect	Estimate	SE	df	t	p	Effect Size[e]
Warmth & Sensitivity–Quality						
Intercept[a](C)	4.29	0.08	232.12	54.91	0	
Condition[b] (T-C)	−0.09	0.08	207.98	−1.15	.25	
Time[c] (C)	−0.03	0.01	94.03	−4.05	0	
Slope[d] (T-C)	0.02	0.01	93.58	2.54	.01*	0.83
Encouragement of Autonomy–Quality						
Intercept (C)	3.92	0.09	233.26	43.97	0	
Condition (T-C)	−0.08	0.1	196.01	−0.86	.39	
Time (C)	−0.02	0.01	107.52	−2.3	.02	
Slope (T-C)	0.02	0.01	106.24	2.06	.04*	0.67
Support for Learning–Quality						
Intercept (C)	3.72	0.07	247.04	54.57	0	
Condition (T-C)	0	0.07	237.2	−0.02	.98	
Time (C)	0	0.01	333.67	0.25	.81	
Slope (T-C)	0.01	0.01	329.46	1.61	.11	1.15
Support for Learning–Appropriateness						
Intercept (C)	3.83	0.08	226.76	50.03	0	
Condition (T-C)	−0.03	0.08	199.13	−0.36	.72	
Time (C)	−0.01	0.01	66.63	−1.27	.21	
Slope (T-C)	0.02	0.01	64.92	2.22	.03*	1.23
Guidance/Directives–Appropriateness						
Intercept (C)	4.09	0.07	233.85	57.09	0	
Condition (T-C)	−0.11	0.08	193.1	−1.47	.14	
Time (C)	−0.01	0.01	91.28	−2.07	.04	
Slope (T-C)	0.02	0.01	90.29	2.92	<.01*	1.06
Constructive Behaviors–Amount						
Intercept (C)	3.26	0.08	238.37	40.27	0	
Condition (T-C)	−0.04	0.08	214.52	−0.52	.6	
Time (C)	0.01	0.01	121.05	1.38	.17	
Slope (T-C)	0.01	0.01	116.1	1.02	.31	0.70

C = Control group; T = Treatment group.
[a]The intercept is interpreted as the average level of the outcome variable at randomization for the control group (C). [b]The condition effect is the *mean difference* in outcome levels at randomization between the treatment group (T) and control group. [c]The time effect is the average rate of change in the outcome variable per month over the entire 16-month study participation period for the control group. [d]The slope (T-C) (Condition × Time interaction) effect is interpreted as the *mean difference* in outcome rate of change between the treatment and control groups. [e]Effect size inflated due to small variation in slope ($ES = \beta_{11}/\sqrt{\tau_{11}}$; Raudenbush & Liu, 2001).
*$p < .05$.
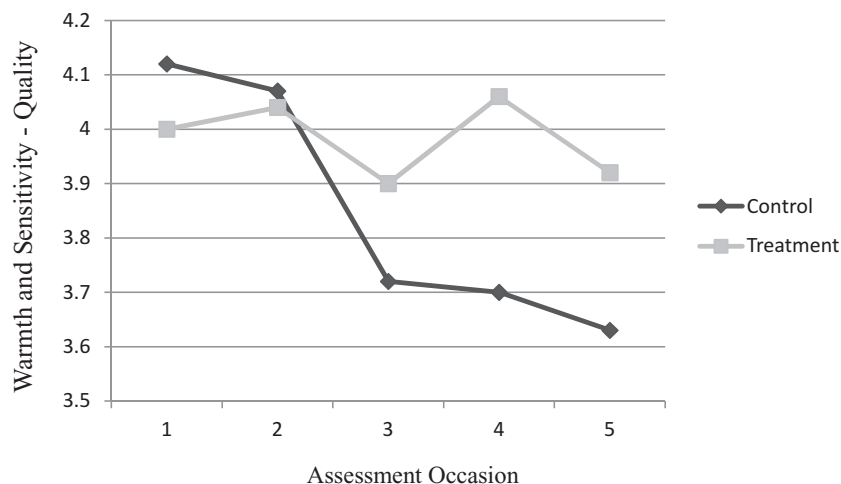
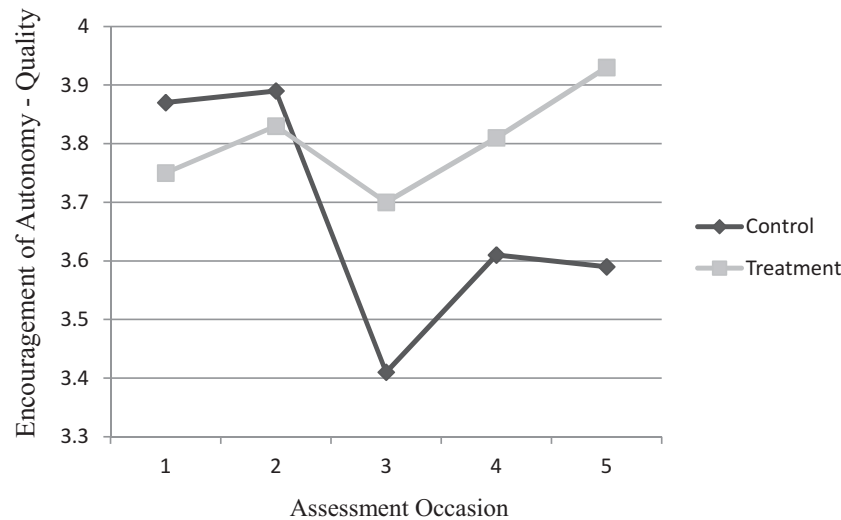FIGURE 2.   Treatment Condition × Time interaction for Warmth and Sensitivity–Quality.

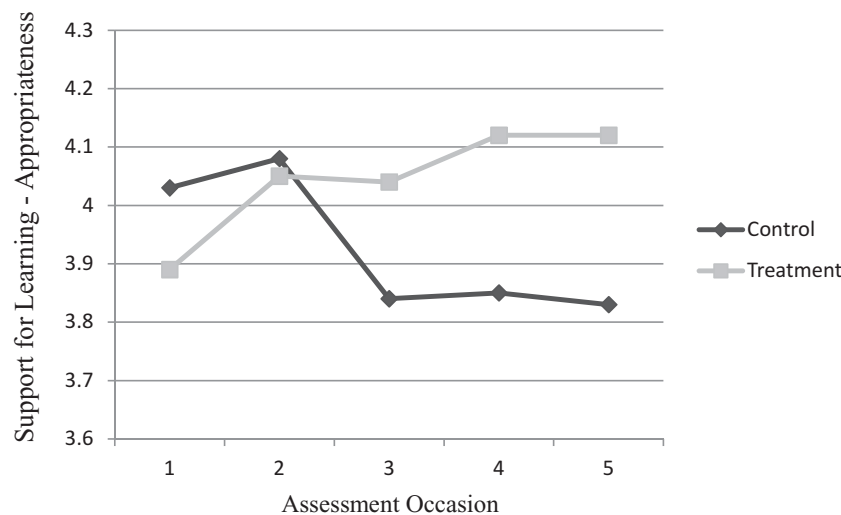FIGURE 3. Treatment Condition × Time interaction for Encouragement of Autonomy– Quality.

FIGURE 4. Treatment Condition × Time interaction for Support for Learning–Appropriateness.

were observed to engage in significantly more behaviors over time that provided appropriate guidance and directives for their children than did parents in the control group, $\gamma = 0.02$, $t(90) = 2.92$, $p < .05$, $d = 1.06$. The behaviors used by treatment-group families to direct their children's behaviors were well-matched to the children's developmental level, interest, and needs (Figure 5).

Significant differences between treatment- and control-group participants were not found for the quality of parents' behaviors that support children's learning nor in their amount of constructive behaviors during videotaped interactions with their children. Whereas some variation was evident in individual slopes, the average scores for these factors appear to be consistent across time and experimental conditions. Thus, neither treatment- nor control-group participants experienced notable growth over the 16-month intervention period in the quality of behaviors demonstrated to

support child learning or varied significantly in the amount of constructive behaviors observed.

To investigate the possible influence of home-language status on parenting behaviors, we performed an exploratory moderation analysis for home language on each outcome. The Time × Group interactions were unaffected by home language, suggesting that the intervention was equally effective across families speaking English or Spanish in the home.

Furthermore, given the noted trend of a consistent decrease in control-group performance at Assessment Occasion 3 (8-month follow-up; see Figures 2–5), analyses were conducted to ensure sample and program equivalency. Analyses indicated that the sample did not vary in terms of key demographic characteristics at Assessment Occasion 3; there were no statistically significant differences between treatment and control groups in ethnic
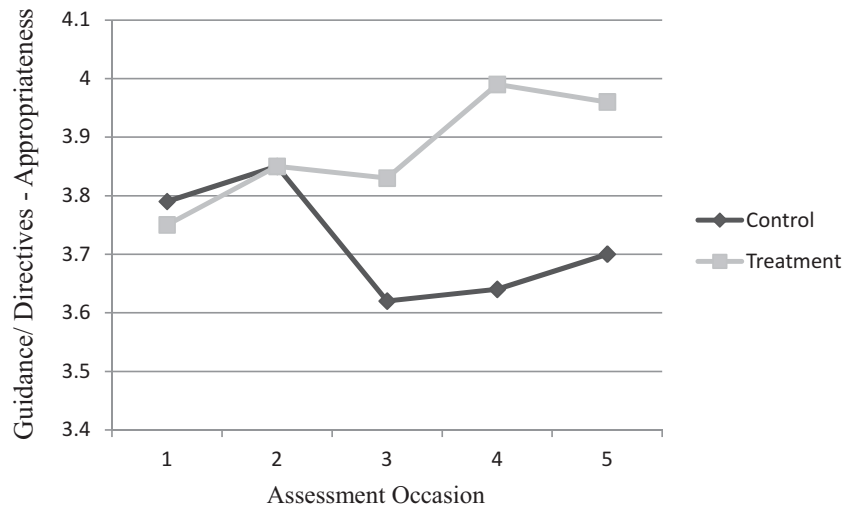
FIGURE 5.   Treatment Condition × Time interaction for Guidance/Directives–Appropriateness.

distribution, parent age, marital status, education, or home-language status. Thus, sample attrition did not result in a threat to randomization. To understand the potential role of programmatic differences in decline in parenting behaviors at Assessment Occasion 3, the number of ECPs (home visitors) a family had been assigned over the time of their involvement in the program also was examined. There were no significant differences between treatment and control groups in the cumulative number of ECPs families had been assigned from baseline through Assessment Occasion 3.

DISCUSSION

The purpose of this investigation was to test the effects of a relational intervention on the parenting behaviors of families involved in rural EHS home-based programming. We hypothesized that parents participating in the Getting Ready intervention would demonstrate greater levels of warmth and sensitivity, support for autonomy, and participation in learning interactions with their children than would parents receiving typical EHS services. Findings indicate that parents in the treatment group experienced maintenance, or slight gains in positive parenting behaviors, over the intervention period in four of six parent–infant relationship factors. Specifically, significant differences in favor of the treatment group were identified for the quality of observed warmth/sensitivity and encouragement of autonomy as well as the appropriateness with which families provided support for learning and offered guidance and directives to the children. As discussed previously, these parenting behaviors demonstrate associations with short- and long-term child outcomes (Chazen-Cohen et al., 2009; National Scientific Council on the Developing Child, 2007; Rao et al., 2010).

In general, the Getting Ready intervention and strategies used by ECPs proved effective at promoting improved parenting practices for parents of infants and toddlers in rural EHS programs, and the proposed mechanism for these changes was interaction with their home visitors. As part of the intervention, ECPs re-

ceived ongoing professional development and coaching support to *intentionally and strategically* implement the triadic and collaborative Getting Ready strategies during home visits with families. Although the strategies themselves are not unique and in fact are reflective of best practice, their intentional use via careful planning and documentation was the focus of the coaching sessions. Fidelity findings mentioned in this study and previously published have demonstrated that the strategies were implemented with fidelity (Knoche et al., 2010), suggesting that the professional development model (including an increased amount of support and supervision tailored to each ECP's caseload and needs) was helpful to ECPs in implementing the strategies. In fact, other published findings from our project provide evidence that the training sessions and reflective supervision were experienced as enlightening and supportive by the ECPs (Brown et al., 2009). Together, the findings suggest that the professional development model allowed ECPs in the treatment condition to implement the Getting Ready strategies with fidelity and resulted in positive changes in parents' behaviors (a marker of improved parent–child interaction) during the parent–child video-observation sessions.

Furthermore, data trends indicate not only gains or maintenance of positive parenting behaviors by participants in the treatment condition but a slight decline in quality and appropriateness of certain behaviors by parents in the control condition. Analyses indicate that this decline in the control group is not attributable to sample differences on key demographic characteristics or measurable program differences such as inconsistencies in ECPs assigned to families. Instead, it appears that the parent-engagement intervention supported treatment-group parents in sustaining the quality of their warmth and sensitivity and encouragement of autonomy in the children as well as the appropriateness of their support for learning and guidance and use of directives, relative to control parents. Studies on stages of parenthood in American families have indicated that as children advance from infancy to toddlerhood, parents state that their tasks shift from a focus on "nurturing" to

"authority issues" (Galinsky, 1981). A decline in maternal nurturance, including touching, carrying, and compliance to a child's dependent bids, accompanied by an increase in task- and hygiene-related commands, reprimands, and guidance/control, has been documented in maternal behavior worldwide as children move out of infancy (Edwards & Liu, 2002; Whiting & Edwards, 1988). Thus, the transition from infancy to toddlerhood presents a normative and universal challenge in parenting, and it may be that the Getting Ready parent-engagement intervention strengthened the capacity of parents living in poverty and/or stress to adapt better to their children's changing developmental needs. The findings may suggest the importance and relevance of dedicating specific attention and focus to support parent–child interaction from birth to age 3 years, even in the context of ongoing intervention for children and families (e.g., EHS). Data from this study suggest that the Getting Ready intervention can help ameliorate declines in parenting behaviors that might otherwise occur across the infant/toddler developmental period.

Whereas the *appropriateness* of behaviors offered by parents in support of their children's learning changed significantly more over time for parents in the treatment group than for parents in the control group, the *quality* of behaviors to support learning did not. We speculated that this finding might have resulted from the individual items making up the quality versus appropriateness scales for supporting learning. The quality scale was comprised of a very narrow and focused set of behaviors whereas the appropriateness scale was comprised of a wider and more diverse array of behaviors. Specifically, items related to physical involvement and play interaction were included on the appropriateness indicator, but not on the quality indicator. Perhaps these items more sensitively tapped changes in the behaviors of parents in the intervention group, relative to those of the control group.

There also were no statistically significant between-group differences in the amount of parents' constructive behaviors toward their children. The focus of the intervention was on helping parents engage meaningfully with their children (an indicator of interaction quality) and learn about their children's strengths and unique learning needs (an indicator of interaction appropriateness). Less attention was given in the Getting Ready intervention to the quantity of specific parenting behaviors (an indicator of interaction amount). In other words, the focus of the Getting Ready intervention was not on the sheer number of behaviors that parents demonstrated to guide children's learning but rather on the quality and appropriateness with which they did so. Furthermore, limited variability was noted on the quantity measures over time; that is, parents in both conditions (treatment and control) did not changed considerably (either positively or negatively) in this area. Rather, the behavior changes over time were identified in the areas of quality and appropriateness.

Other analyses of data from the Getting Ready intervention to date have yielded effects that indicate the intervention is effective at supporting both socioemotional competencies (Sheridan et al., 2009) and language and literacy skills in preschool children (Sheridan et al., 2011). In addition, we have convincing evidence that the Getting Ready intervention is being implemented with fidelity, as indicated through both direct observations of ECPs (Knoche et al., 2010) and in ECPs' documentation of practice (Edwards, Hart, Rasmussen, Haw, & Sheridan, 2009). These corroborating reports on the effects and implementation of the Getting Ready intervention have lent even greater credence to conclusions regarding its effectiveness on parent behaviors during the infant/toddler period.

IMPLICATIONS FOR PRACTICE

The Getting Ready intervention, as an approach to supporting parent–child interaction, aims to advance young children's positive development by supporting parents' confidence and competence across two complementary relational contexts: (a) the *parent–child relationship*, and (b) the *parent–professional relationship*. Findings from the study have implications for professionals who are supporting interactions between infants and their families.

In this study, the Getting Ready intervention was integrated within high-quality EHS services, and home-visit completion data indicate an equivalent amount of contact for the sample of Getting Ready treatment and control families. Improvement in parenting practices for families in the intervention condition was above and beyond what was experienced as part of EHS programming, which is designed to support parent–child interaction, child development, and other family needs (Administration on Children and Families, 2010). Existing research has indicated that EHS programming improves some aspects of parenting behaviors (Love et al., 2005); findings from this investigation suggest that the Getting Ready intervention offers value added in the dimensions of warmth and sensitivity, encouragement of autonomy, support for learning, and the appropriateness of guidance and directives offered by parents. To effectively impact parent behaviors, EHS programs might consider implementing some of the Getting Ready strategies (see Table 1, Figure 1) during home visits to strategically target parent–child–professional relationships, as a means of promoting positive parent behaviors and interactions. This recommendation is consistent with findings on the importance of help-giving practices in indirectly supporting the parent–child relationship (Trivette et al., 2010).

Families at high levels of risk, including those with lower levels of education, often experience obstacles to forming positive parent–child relationships (Curenton et al., 2009; Ryan et al., 2006), and also are often challenged in constructing and sustaining positive relationships with professionals (Korfmacher et al., 2007) and maintaining participation in early intervention programs. Furthermore, risk mediates the relationship between parent behaviors and child outcomes (Mistry et al., 2010). In the current study, 41.5% of parents did not complete high school, indicating a relatively high-risk sample. Despite the low educational levels that might place parents at risk for supporting their children's positive development (Smith, Brooks-Gunn, & Klebanov, 1997) and for forming positive relationships with professionals (Korfmacher et al., 2007), the Getting Ready intervention proved to be effective at improving or sustaining parenting skills in families in the

intervention group as compared to families in the control group. These findings suggest that the Getting Ready intervention could be particularly salient for the most at-risk families in EHS, given the mediating role of parenting behaviors between family risk and child outcomes (Mistry et al., 2010).

Although the changes in parenting behaviors over time were not dramatic, and in fact, baseline levels of parenting behaviors were already what could be considered "positive," the Getting Ready intervention functioned to alter the trajectory of parenting behaviors, in several cases by appearing to prevent a decline of desired interaction patterns. Supporting the maintenance of positive parenting behaviors is obviously important for the quality of life of infants and toddlers and perhaps significant into the future.

Finally, attention was devoted to core implementation drivers that are recognized as essential at all stages of research, and particularly important as programs are implemented at scale (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). The Getting Ready intervention has clear objectives and measurable strategies that were monitored and evaluated via observation. In addition, the intervention included in-service training and professional development in the form of coaching. Although the investigation did not include all core implementation components, this lens toward implementation was foundational to the intervention and ensured the validity of the outcomes produced. Other research and practice interventions are encouraged to investigate and attend to core implementation components to support program outcomes (see Fixsen et al., 2005).

LIMITATIONS

There are several limitations that must be taken into consideration when interpreting the findings from this study. First, given the context within which this study was conducted, findings are generalizable only to select EHS home-based programs and not all home-visiting programs for infants and toddlers. Furthermore, the sample of EHS families involved in this study were enrolled in rural programs; therefore, results are generalizable only to similar programs in comparable communities. Second, the parenting behaviors were assessed in a semistructured assessment setting. We suspect, but cannot guarantee, that these behaviors are reflective of parent's typical interaction patterns. Third, the measure of parenting behaviors was not standardized, and therefore it is difficult to assess magnitude of gain. The scale differences on observed behaviors between treatment and control groups are not great; however, the effect size estimate is considerable. Fourth, the group of families with whom we were working reported relatively low levels of education. Our findings would be particularly salient for families with similar educational backgrounds. Finally, although there was not differential attrition across treatment and control groups, the average loss of 40% of participants was notable and could affect the findings. The rate of attrition, however, is comparable to that of other intervention studies with high-risk families (Wagner et al., 2002).

FUTURE RESEARCH DIRECTIONS

There are several directions for future research that would further develop this line of inquiry. First, future studies should investigate the contribution of the quality and appropriateness of specific parenting behaviors to young children's cognitive and socioemotional outcomes. Mediation analyses are needed to further investigate the manner in which these targeted parenting practices influence children's development. Second, the home language of families should be further explored as it relates to parenting behaviors for families involved in the Getting Ready intervention. Home language (English, Spanish) was explored as a potential moderator of effects, but was not found to be statistically significant. It is possible that the intervention is equally effective across ethnic groups; however; this study is not appropriately powered to unequivocally draw this conclusion. Future studies with larger samples of families should be designed to understand parent behaviors across various ethnic groups. Finally, additional moderators of the Getting Ready intervention need to be investigated to help answer the question "What works best for whom under what conditions?" In addition to home language, factors such as parental education, parental mental health (e.g., stress and depression), child age, child ability (e.g., cognitive status, language ability), geographic locale (i.e., rural communities), and the quality of the ECP–parent relationship are some factors that would be worthy of investigation.

These future research directions will expand findings from the current study indicating that parents of infants and toddlers enrolled in rural EHS programs in the Getting Ready treatment group experienced maintenance or slight gains in positive parenting behaviors in four of six parent–infant relationship factors. As previously described, these findings are an additive benefit to already high-quality EHS services. The findings from this investigation reinforce the relevance of targeted, individualized, collaborative supports for families of infants and toddlers to promote positive parent behavior change.

REFERENCES

Administration on Children and Families. (2010). Head Start Program Performance Standards and Other Regulations (45 CFR Parts 1301–1311). Available from http://www.acf.hhs.gov/programs/ohs/legislation/index.html

Committee on Early Childhood Pedagogy, National Research Council, Bowman, B.T., & Donovan, M.S. (Eds.). (2001). Eager to learn: Educating our preschoolers. Washington, DC: National Academy Press.

Bradley, R.H., Burchinal, M.R., & Casey, P.H. (2001). Early intervention: The moderating role of the home environment. Applied Developmental Science, 5, 2–8.

Bradley, R.H., Corwyn, R.F., Burchinal, M., McAdoo, H.P., & Coll, C.G. (2001). The home environments of children in the United States: Part II. Relations with behavioral development through age thirteen. Child Development, 72, 1868–1886.

Brazelton, T.B. (1992). Touchpoints: Your child's emotional and behavioral development. Reading, MA: Addison-Wesley.

Bronfenbrenner, U. (2005). Making human beings human: Bioecological perspectives on human development. Thousand Oaks, CA: Sage.

Brown, J.R., Knoche, L.L., Edwards, C.P., & Sheridan, S.M. (2009). Professional development: A case study of early childhood professionals in the Getting Ready Project. Early Education and Development, 20, 482–506.

Burchinal, M.R., Campbell, F.A., Bryant, D.M., Wasik, B.H., & Ramey, C.T. (1997). Early intervention and mediating processes in cognitive performance of children of low-income African American families. Child Development, 68, 935–954.

Caspe, M., & Lopez, E.M. (2006). Lessons from family-strengthening interventions: Learning from evidence-based practice. Cambridge, MA: Harvard Family Research Project.

Chazan-Cohen, R., Raikes, H., Brooks-Gunn, J., Ayoub, C., Pan, B.A., Kisker, E.E. et al. (2009). Low-income children's school readiness: Parent contributions over the first five years. Early Education and Development, 20, 958–977.

Christenson, S.L., & Sheridan, S.M. (2001). Schools and families: Creating essential connections for learning. New York: Guilford Press.

Clark, K.E., & Ladd, G.W. (2000). Connectedness and autonomy support in parent–child relationships: Links to children's socioemotional orientation and peer relationships. Developmental Psychology, 36, 485–498.

Coe, R. (2002, September). It's the effect size, stupid: What effect size is and why it is important. Paper presented at the annual conference of the British Educational Research Association, University of Exeter, England. Available at: http://www.leeds.ac.uk/educol/documents/00002182.htm

Comfort, M., & Farran, D.C. (1994). Parent–child interaction assessment in family-centered intervention. Infants and Young Children, 6, 33–45.

Curenton, S.M., McWey, L.M., & Bolen, M.G. (2009). Distinguishing maltreating versus normal treating at-risk families: Implications for foster care and early childhood education interventions. Families in Society, 90, 176–182.

Dane, A.V., & Schneider, B.H. (1998). Program integrity in primary and early secondary prevention: Are implementation effects out of control? Clinical Psychology Review, 18, 23–45.

DeLoache, J., & Gottlieb, A. (Eds.). (2000). A world of babies: Imagined childcare guides for seven societies. Cambridge, United Kingdom: Cambridge University Press.

Denham, S.A., Renwick, S.M., & Holt, R.W. (1991). Working and playing together: Prediction of preschool social-emotional competence from mother–child interaction. Child Development, 62, 242–249.

deRuiter, C., & van IJzendoorn, M.H. (Eds.). (1993). Attachment and cognition. International Journal of Educational Research, 19, 521–600.

Dowrick, P.W. (1994). A review of self modeling and related interventions. Applied and Preventive Psychology, 8, 22–39.

Duncan, G., & Brooks-Gunn, J. (1997). Consequences of growing up poor. New York: Russell Sage Foundation.

Dunst, C., & Deal, A. (1994). A family-centered approach to developing individualized family support plans. In C. Dunst, C. Trivette, & A. Deal (Eds.), Supporting and strengthening families: Vol. 1: Methods, strategies and practices (pp. 73–89). Cambridge, MA: Brookline Books.

Durlak, J.A., & DuPre, E.P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. American Journal of Community Psychology, 41, 327–350.

Edwards, C.P., Hart, T., Rasmussen, K., Haw, Y.M., & Sheridan, S.M. (2009). Promoting parent partnership in Head Start: A qualitative case study of teacher documents from a school readiness intervention project. Early Childhood Services: An Interdisciplinary Journal of Effectiveness, 3, 301–322.

Edwards, C.P., & Liu, W. (2002). Parenting toddlers. In M.L. Bornstein (Ed.), Handbook of parenting (2nd ed.): Vol. I. Children and parenting (pp. 45–72). Hillsdale, NJ: Erlbaum.

Edwards, C.P., Sheridan, S.M., & Knoche, L. (2010). Parent–child relationships in early learning. In E. Baker, P. Peterson, & B. McGaw (Eds.), International encyclopedia of education, Vol. 5 (pp. 438–443). Oxford, England: Elsevier.

Egeland, B., Pianta, R., & O'Brien, M. (1993). Maternal intrusiveness in infancy and child maladaptation in early school years. Development and Psychopathology, 5, 359–370.

El Nokali, N., Bachman, H.J., & Votruba-Drzal, E. (2010). Parent involvement and children's academic achievement and social development in elementary school. Child Development, 81, 988–1005.

Enders, C.K. (2001). The performance of the full information maximum likelihood estimator in multiple regression models with missing data. Educational and Psychological Measurement, 61, 713–740.

Farran, D.C., Kasari, C., Comfort, M., & Jay, S. (1986). Parent/Caregiver Involvement Scale. Greensboro: University of North Carolina at Greensboro, Child Development-Family Relations, School of Human Environmental Sciences.

Feldman, R., & Masalha, S. (2010). Parent–child and triadic antecedents of children's social competence: Cultural specificity, shared process. Developmental Psychology, 46, 455–467.

Fixsen, D.L., Naoom, S.F., Blase, K.A., Friedman, R.M., & Wallace, F. (2005). Implementation research: A synthesis of the literature (FMHI Publication No. 231). Tampa: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network.

Foster, M.A., Lambert, R., Abbott-Shinn, M., McCarty, F., & Franze, S. (2005). A model of home learning environment and social risk factors in relation to children's emergent literacy and social outcomes. Early Childhood Research Quarterly, 20, 13–36.

Galinsky, E. (1981). Between generations: The six stages of parenthood. New York: Berkeley.

Girolametto, L., Verbey, M., & Tannock, R. (1994). Improving joint engagement in parent–child interaction: An intervention study. Journal of Early Intervention, 18, 155–167.

Grolnick, W.S., & Farkas, M. (2002). Parenting and the development of children's self-regulation. In M.H. Bornstein (Ed.), Handbook of

parenting, Vol. 5: Practical issues in parenting (pp. 89–110). Mahwah, NJ: Erlbaum.

Grolnick, W.S., & Ryan, R.M. (1987). Autonomy in children's learning: An experimental and individual difference investigation. Journal of Personality and Social Psychology, 52, 890–898.

Grolnick, W.S., & Ryan, R.M. (1989). Parent styles associated with children's self-regulation and competence in school. Journal of Educational Psychology, 81, 143–154.

Grolnick, W.S., & Slowiaczek, M.L. (1994). Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model. Child Development, 65, 237–252.

Henderson, A., & Mapp, K. (2002). A new wave of evidence: The impact of school, family and community connections on student achievement. Austin, TX: Southwest Educational Development Laboratory.

Hill, N.E. (2001). Parenting and academic socialization as they relate to school readiness: The roles of ethnicity and family income. Journal of Educational Psychology, 93, 686–697.

Hirsh-Pasek, K., & Burchinal, M. (2006). Putting language learning in context: How change at home and in school affects language growth across time. Merrill–Palmer Quarterly, 52, 449–485.

Hood, M., Conlon, E., & Andrews, G. (2008). Preschool home literacy practices and children's literacy development: A longitudinal analysis. Journal of Educational Psychology, 100, 252–271.

Hosford, R.E. (1980). Self-as-a-model: A cognitive, social-learning technique. Counseling Psychology, 9, 45–62.

Individuals with Disabilities Education Act (IDEA) of 2004. 20 U.S.C. §1400 et seq. (2004).

Kelley, S.A., Brownell, C.A., & Campbell, S.B. (2000). Child development: Mastery motivation and self-evaluative affect in toddlers: Longitudinal relations with maternal behavior. Child Development, 71, 1061–1071. doi:10.1111/1467-8624.00209

Knitzer, J., Steinberg, Z., & Fleisch, B. (1993). At the schoolhouse door: An examination of programs and policies for children with behavioral and emotional problems. New York: Bank Street College of Education.

Knoche, L.L., Sheridan, S.M., Edwards, C.P., & Osborn, A.Q. (2010). Implementation of a relationship-based school readiness intervention: A multidimensional approach to fidelity measurement for early childhood. Early Childhood Research Quarterly, 25, 299–313.

Korfmacher, J., Green, B., Spellmann, M., & Thornburg, K.R. (2007). The helping relationship and program participation in early childhood home visiting. Infant Mental Health Journal, 28, 459–480.

Landry, S.H., Smith, K.E., Swank, P.R., Assel, M.A., & Vellet, N.S. (2001). Does early responsive parenting have a special importance for children's development or is consistency across early childhood necessary? Developmental Psychology, 37, 387–403.

Love, J.M., Kisker, E.E., Ross, C.M., Raikes, H., Constantine, J., Boller, K. et al. (2005). The effectiveness of Early Head Start for 3-year-old children and their parents: Lessons for policy and programs. Developmental Psychology, 42, 885–901.

Masten, A., & Coatsworth, J. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. American Psychologist, 53, 205–220.

McBride, S. (1999). Family-centered practices. Young Children, 54, 62–68.

McBride, S.L., & Peterson, C.A. (1997). Home-based early intervention with families of children with disabilities: Who is doing what? Topics in Early Childhood Special Education, 17, 209–233.

McCollum, J.A., & Hemmeter, M.L. (1997). Parent–child interaction intervention when children have disabilities. In M.J. Guralnick (Ed.), The effectiveness of early intervention (pp. 549–576). Baltimore: Brookes.

McCollum, J.A., & Yates, T.J. (1994). Dyad as focus, triad as means: A family-centered approach to supporting parent–child interactions. Infants and Young Children, 6, 54–63.

McNamara, K.A., Selig, J.P., & Hawley, P.H. (2010). A typological approach to the study of parenting: Associations between maternal parenting patterns and child behaviour and social reception. Early Child Development and Care, 180, 1185–1202.

Mendoza, J., Katz, L., Robertson, A., & Rothenberg, D. (2003). Connecting with parents in the early years. Champaign: Early Childhood Parenting Collaborative, University of Illinois at Urbana-Champaign.

Mistry, R.S., Benner, A.D., Biesanz, J.C., Clark, S.L., & Howes, C. (2010). Family and social risk and parental investments during the early childhood years as predictors of low-income children's school readiness outcomes. Early Childhood Research Quarterly, 25, 432–449. doi:10.1016/j.ecresq.2010.01.002

National Research Council and Institute of Medicine. (2000). From neurons to neighborhoods: The science of early childhood development. Committee on Integrating the Science of Early Childhood Development, J.P. Shonkoff & D.A. Phillips (Eds.), Board on Children, Youth, and Families, National Research Council and the Institute of Medicine. Washington, DC: National Academy Press.

National Scientific Council on the Developing Child. (2007). The science of early childhood development [On-line]. Available at: http://developingchild.harvard.edu/index.php/resources/reports_and_working_papers/science_of_early_childhood_development/

Ng, F.F.-Y., Kenney-Benson, G.A., & Pomerantz, E.M. (2004). Children's achievement moderates the effects of mothers' use of control and autonomy support. Child Development, 75, 764–780.

NICHD Early Child Care Research Network. (2002). Early child care and children's development prior to school entry. Results from the NICHD Study of Early Child Care. American Educational Research Journal, 39, 133–164.

Olds, D., Hill, J., Robinson, J., Song, N., & Little, C. (2000). Update on home visiting for pregnant women and parents of young children. Current Problems in Pediatrics, 30, 109–141.

Pan, B., Rowe, M., Singer, J., & Snow, C. (2005). Maternal correlates of growth in toddler vocabulary production in low-income families. Child Development, 76, 763–782.

Parents as Teachers National Center. (2008). Parents as teachers birth to three: Program planning and implementation guide (Rev. ed.). St. Louis, MO: Author.

Parker, F.L., Boak, A.Y., Griffin, K.W., Ripple, C., & Peay, L. (1999). Parent–child relationship, home learning environment, and school readiness. School Psychology Review, 28, 413–25.

Pfannenstiel, J., & Seltzer, D. (1989). New parents as teachers: Evaluation of an early parent education program. Early Childhood Research Quarterly, 4, 1–18.

Pianta, R.C., & Harbers, K.L. (1996). Observing mother and child behavior in a problem-solving situation at school entry: Relations with academic achievement. Journal of School Psychology, 34, 307–322.

Pungello, L., Iruka, I., Dotterer, A.M., Mills-Koonce, R., & Reznick, S. (2009). The effects of income, race, and sensitive and harsh parenting on receptive and expressive language development in early childhood. Developmental Psychology, 45, 544–557.

Raikes, H., Alexander Pan, B., Luze, G., Tamis-LeMonda, C.S., Brooks-Gunn, J., & Constantine, J. (2006). Mother–child bookreading in low-income families: Correlates and outcomes during the first three years of life. Child Development, 77, 924–953.

Raikes, H., & Whitmer, J.M. (2006). Beautiful beginnings: A developmental curriculum for infants and toddlers. Baltimore: Brookes.

Rao, H., Betancourt, L.M., Giannetta, J.M., Brodsky, N.L., Korczykowski, M., Avants, B.B. et al. (2010). Early parental care is important for hippocampal maturation: Evidence from brain morphology in humans. Neuroimage, 49, 1144–1150.

Raudenbush, S.W., & Bryk, A.S. (2002). Hierarchical linear models: Applications and data analysis methods (2nd ed.). Thousand Oaks, CA: Sage.

Raudenbush, S.W., & Liu, X. (2001). Effects of study duration, frequency of observation, and sample size on power in studies of group differences in polynomial change. Psychological Methods, 6, 387–401.

Raver, C.C., & Knitzer, J. (2002). Ready to enter: What research tells policymakers about strategies to promote social and emotional school readiness among three- and four-year-old children. New York: National Center for Children in Poverty.

Roggman, L.A., Boyce, L.K., & Cook, G.A. (2009). Keeping kids on track: Impacts of a parenting-focused Early Head Start program on attachment security and cognitive development. Early Education and Development, 20, 920–941.

Ryan, R.M., Fauth, R.C., & Brooks-Gunn, J. (2006). Childhood poverty: Implications for school readiness and early childhood education. In B. Spodek & O.N. Saracho (Eds.), Handbook of research on the education of young children (2nd ed., pp. 323–346). Mahwah, NJ: Erlbaum.

Sheridan, S.M., Edwards, C.P., & Knoche, L. (2003). Parent engagement and child learning birth to five. University of Nebraska–Lincoln: National Institute of Child Health and Human Development, Administration for Children and Families and Office of the Assistant Secretary for Planning and Evaluation; and the Department of Education, Office of Special Education and Rehabilitative Services.

Sheridan, S.M., Knoche, L.L., Edwards, C.P., Bovaird, J.A., & Kupzyk, K.A. (2010). Parent engagement and school readiness: Effects of the Getting Ready intervention on preschool children's social-emotional competencies. Early Education and Development, 21, 125–156.

Sheridan, S.M., Knoche, L.L., Kupzyk, K.A., Edwards, C.P., & Marvin, C. (2011). A randomized trial examining the effects of parent engagement on early language and literacy: The Getting Ready Intervention. Journal of School Psychology, 49, 361–383.

Sheridan, S.M., & Kratochwill, T. (2008). Conjoint behavioral consultation: Promoting family–school connections and interventions. New York: Springer.

Sheridan, S.M., Kratochwill, T.R., & Bergan, J.R. (1996). Conjoint behavioral consultation: A procedural manual. New York: Plenum Press.

Sheridan, S., Marvin, C., Knoche, L., & Edwards, C. (2008). Getting ready: Promoting school readiness through a relationship-based partnership model. Early Childhood Intervention Services, 2, 149–172.

Shonkoff, J.P., & Phillips, D. (2000). From neurons to neighborhoods. Washington, DC: National Academy Press.

Singer, J.D. (1998). Using SAS PROC MIXED to fit multilevel models, hierarchical models, and individual growth models. Journal of Educational and Behavioral Statistics, 24, 323–355.

Smith, J.R., Brooks-Gunn, J., & Klebanov, P.K. (1997). Consequences of living in poverty for young children's cognitive and verbal ability and early school achievement. In G.J. Duncan & J. Brooks-Gunn (Eds.), Consequences of growing up poor (pp. 132–189). New York: Russell Sage Foundation.

Snijders, T., & Bosker, R. (1999). Multilevel analysis: An introduction to basic and advanced multilevel modeling. London, England: Sage.

Tamis-LeMonda, C.S., & Bornstein, M.H. (2002). Maternal responsiveness and early language acquisition. In R.V. Kail & H.W. Reese (Eds.), Advances in child development and behavior (pp. 89–127). San Diego, CA: Academic Press.

Taylor, L.C., Clayton, J.D., & Rowley, S.J. (2004). Academic socialization: Understanding parental influences on children's school-related development in the early years. Review of General Psychology, 8, 163–178.

Tharp, R.G. (1989). Psychocultural variables and constants: Effects on teaching and learning in schools. American Psychologist, 44, 349–359.

Thompson, L., Lobb, C., Elling, R., Herman, S., Jurkidwewicz, T., & Helluza, C. (1997). Pathways to family empowerment: Effects of family-centered delivery on early intervention services. Exceptional Children, 64, 99–113.

Thompson, R.A. (2002). The roots of school readiness in social and emotional development. Kauffman Early Education Exchange, 1, 8–29.

Trivette, C.M., Dunst, C.J., & Hamby, D.W. (2010). Influences of family-systems intervention practices on parent–child interactions and child development. Topics in Early Childhood Special Education, 30, 3–19.

Turnbull, A., Turnbull, R., Erwin, E., Soodak, L., & Shogren, K. (2011). Families, professionals and exceptionality: Positive outcomes through partnership and trust. Boston, MA: Pearson.

Wagner, M., Spiker, D., & Linn, M.I. (2002). The effectiveness of the Parents as Teachers Program with low-income parents and children. Topics in Early Childhood Special Education, 22, 67–81.

Weigel, D.J., Martin, S.S., & Bennett, K.K. (2006a). Contributions of the home literacy environment to preschool-aged children's emerging literacy and language skills. Early Child Development and Care, 176, 357–378.

Weigel, D.J., Martin, S.S., & Bennett, K.K. (2006b). Mothers' literacy beliefs: Connections with the home literacy environment and

pre-school children's literacy development. Journal of Early Childhood Literacy, 6, 191–211.

Weissberg, R.P., & Greenberg, M.T. (1998). School and community competence-enhancement and prevention programs. In I. Siegel & A. Renninger (Eds.), Handbook of child psychology (5th ed., pp. 877–954). New York: Wiley.

Whiting, B.B., & Edwards, C.P. (1988). Children of different worlds: The formation of social behavior. Cambridge, MA: Harvard University Press.

Wilfong, E.W., Saylor, C., & Elksnin, N. (1991). Influences on responsiveness: Interactions between mothers and their premature infants. Infant Mental Health Journal, 12, 31–40.

Wilson, L., & Dunst, C. (2004). Checking out family-centered practices. In E. Horn, M. Ostrosky, & H. Jones (Eds.), Young Exceptional Children Monograph Series No. 5: Family-Centered Practices (pp. 13–26). Missoula, MT: Council for Exceptional Children, Division for Early Childhood.