Evaluation of Child Care Subsidy Strategies: Massachusetts Family Child Care Study

OPRE 2011-1

June 2010

Evaluation of Child Care Subsidy Strategies: Massachusetts Family Child Care Study

OPRE 2011-1

June 2010

ACKNOWLEDGEMENTS

Contents

Appendix A: Attrition by Agency

Appendix B: Child Impact Analyses

Appendix C: Observation Coding Forms

CHAPTER 1: DESCRIPTION OF THE STUDY

OVERVIEW

This report presents findings from the Massachusetts Family Child Care study, a two-year evaluation of the impacts of an early childhood education program on providers and children in family child care. The program—*LearningGames*[1]—is designed to train caregivers to stimulate children's cognitive, language, and social-emotional development. The evaluation of *LearningGames* is one of four state experiments conducted as part of the Evaluation of Child Care Subsidy Strategies. The study is being conducted by Abt Associates Inc, with its research partners MDRC and the National Center for Children in Poverty of Columbia University, under a contract with the Administration for Children and Families within the U.S. Department of Health and Human Services. The goal of the evaluation is to provide information that states and local communities can use to inform their decisions about the use of child care subsidy and child care quality improvement funds.

The objective of *LearningGames* is to promote children's cognitive and language development through learning opportunities provided by their caregivers. *LearningGames* focuses on increasing the frequency of rich language interactions between caregivers and children. This emphasis grows out of the evidence of the importance of oral language development in children's understanding of words and concepts, in their ability to become competent readers, and in their long-term academic success and of the role played by rich language stimulation in promoting children's development. This evaluation of *LearningGames* examines the effectiveness of the program in changing the behavior of the family child care providers and the developmental outcomes for the children who are cared for by providers trained on *LearningGames*. The two major research questions for the study are:

- Did *LearningGames* have significant positive impacts on the developmental support provided by providers to the children in care?
- Did *LearningGames* homes have significant positive impacts on developmental outcomes for the children in care?

The Massachusetts Family Child Care Study addresses important policy questions for Massachusetts and for other states about how to enhance the skills of the early education workforce to improve the quality of children's experience in child care settings. Compared with center-based care, for which there is an expanding body of knowledge based on rigorous experimental research, family child care has been relatively neglected, except for descriptive studies and a small number of recent random-assignment studies, including Quality Interventions for Early Care and Education (QUINCE)[2] and

---

[1] *LearningGames* is a series of early learning activities developed for the Abecedarian Project. MindNurture, a subsidiary of Teaching Strategies, Inc. created and currently disseminates the curriculum (http://mindnurture.com).

[2] The QUINCE evaluation is a multi-state study of two assessment-based, individualized on-site consultation models: the Partnerships for Inclusion (PFI) consultation model, implemented in California, Iowa, Minnesota, Nebraska, and North Carolina, and the Rameys' Immersion Training for Excellence (RITE) coaching model, implemented in Mississippi. The models consist of training for providers and teachers in both centers and

Project Great Start.[3] *LearningGames* was chosen to be implemented and tested in family child care because its approach seemed particularly well-suited to family child care providers. First, *LearningGames* is organized around a set of 200 simple games that any adult (teacher, family child care provider, or parent) can learn to play with a child. Second, *LearningGames* focuses on caregiver/child interactions in which there are no more than one or two children involved at a time. *LearningGames* centers on intensive, one-on-one interactions as a platform that allows the adult to engage the child in meaningful conversation, to listen to the child and respond to the child's questions and actions, and to scaffold and build on the child's growing skills at using and understanding language. The one-on-one interactions in *LearningGames* are also important for communicating to the child that he/she has an individual, caring and responsive relationship with the adult. Since home-based providers typically care for a small number of children, family child care appeared to be an environment in which caregivers could enact individualized, responsive relationships with each of the children in care.

Another reason for choosing *LearningGames* is that its precursor was the curriculum used in the landmark Abecedarian study. This study has shown a substantial and lasting impact of the intervention on children's short- and long-term outcomes (Campbell, Ramey, Pungello, Sparling & Miller-Johnson, 2002). While *LearningGames* and its precursor have been studied in center-based care, home visiting programs and parenting programs, it has not been studied previously in family child care homes.

The current study recruited family child care providers from all family child care networks in Massachusetts that met the study eligibility criteria. Eighteen of the 55 networks in the state were eligible. Within each network, individual providers were eligible for the study if they had been in operation for at least two years, were caring for at least one child under the age of 36 months, and were willing to comply with the requirements of random assignment. These criteria were intended to produce a sample of providers who were relatively stable, and therefore more likely to remain in operation over the two-year study period, and who cared for children who were young enough that they might be expected to remain with the provider for at least two years and could have extended exposure to *LearningGames*.

In each of the family child care networks, half of the providers who agreed to participate in the study were randomly assigned to *LearningGames* and half were assigned to the control condition. All of the providers received the standard set of home visits from staff from the child care network which are

---

homes, but has a special emphasis on providers in family child care homes, including license-exempt care. See http://www.fpg.unc.edu/~QUINCE/.

[3] The Project Great Start Professional Development initiative is a research-based professional development program to increase the skills of center-based and home-based early childhood educators. The program offers educational experiences to providers through coursework and on-site coaching. A randomized study was designed to compare the impacts of coursework alone versus coursework with coaching versus neither (Neuman & Cunningham, 2009) A sample of 336 providers from four Michigan cities were randomly assigned to one of three conditions: coursework at a local community college in early literacy development; coursework plus 32 weeks of weekly coaching; and control. Coursework with coaching produced significant changes in provider practice (as measured by the Child/Home Early Language and Literacy Observation (CHELLO) and the Early Language and Literacy Classroom Observation (ELLCO)), while coursework alone did not. Coursework and coaching was very effective with home-based providers but not center-based providers. Finally, children had higher achievement in the settings in which the providers showed the largest gains in practice.

required of family child care networks funded by the state.[4] Network home visiting staff, selected by the family child care networks, were trained as *LearningGames* coaches, and these home visitors worked with the *LearningGames* providers for up to two years, offering training and mentoring during bimonthly home visits. Other home visiting staff worked with the providers in the control group, offering the usual ongoing training and technical assistance. The home visitors who were chosen to support the *LearningGames* providers were trained on *LearningGames* by the developer. This involved an initial three-day training, with quarterly one-day follow-up trainings and additional technical assistance and support.

The study's key research question is about the impact of *LearningGames* on children's cognitive and language development. The study also estimates the impact of *LearningGames* on the behavior of family child care providers. The randomized design ensures a strong basis for answering these questions. Finally, the study addresses important questions about whether it is possible to train family child care providers to deliver such a program with fidelity and the level of support needed to accomplish this.

The Massachusetts Family Child Care Study answers important policy questions for Massachusetts and for other states. Efforts to enhance the skills of the early education workforce are an important part of most states' agendas for improving the quality of children's experience in child care settings. Currently, states expend funds on initiatives to support and improve family child care, but have little guidance on what constitutes an effective intervention. The fact that family child care has been little represented in rigorous studies of programmatic interventions is of particular concern because of the large number of children who are cared for in home-based settings. Including all forms of home-based care, it is estimated that about half of all child care is provided in home-based settings (West, Wright, & Hausken, 1996; Capizzano, Adams & Sonestein, 2000). The majority (60%) of children in the United States less than 6 years of age are in non-parental care; 35% of these children are being cared for in the homes of relatives and 22% in the homes of unrelated providers (National Center for Education Statistics, 2005; Halle et al., 2009). The percentage of children in home-based care settings is higher for infants and toddlers and for low-income and minority families than for preschool-age children and English-language speakers (Capizzano et al., 2000; NICHD ECCRN, 2004; Maher & Joesch, 2005).

In addition, a recent study of early childhood education and care in Massachusetts indicates that the proportion of at-risk children (including children from low-income families and children from homes where Spanish is the primary language) is higher in family child care, compared with all forms of center care in the state (Rulf Fountain & Goodson, 2008). For example, the proportion of Massachusetts children from Hispanic backgrounds was 39% in family child care, compared with 23% in center care, and the proportion in family child care would most likely be higher if license-exempt family child care was included in the sample. The fact that home-based care represents such a large part of the universe of early childhood education, combined with the use of family child care among families whose children may be at increased risk for school readiness outcomes, makes it imperative that we attempt to develop strategies to ensure that these children are in care environments that promote learning and development.

---

[4] Networks in Massachusetts receive state funds to provide technical assistance and training to their member providers, in part through regular visits by home visitors, as described in further detail later in this chapter.

THE *LEARNINGGAMES* APPROACH

LearningGames grew out of an earlier parent-child curriculum that was developed and implemented as part of the Abecederian study. The *LearningGames* approach has five core components:

- Approximately 200 games or activities for providers to use with one or two children at a time, covering the age range from birth to 5 years. The games are organized by the age of the child. Each game has written guidance for providers as well as a handout to guide parents on using these same games at home; the guides are available in Spanish as well as English.
- Suggestions for providers on how to use "enriched caregiving" across all parts of the day, including during routine care and transition activities.
- Suggestions for providers on how to engage in conversational reading with one or two children.
- Training for providers on specific language priority strategies that build on children's increasing cognitive and language sophistication. These include 3S (See, Show, Say) and 3N (Notice, Nudge, Narrate). Conversation Books are provided as a platform for the provider to use to engage in these language priority strategies and in conversational reading with one or two children at a time.
- Organizational plans and records to keep tracking of weekly planning and participation in *LearningGames* for each child in care.

LearningGames. The 200 *LearningGames* are divided into five volumes by age (0–12 months, 12–24 months, etc.). Each of the games is designed to support one or more specific development areas, including social emotional, early literacy, oral language, cognitive, and space and action. Each game is described on the front and back of a page. The front page provides the game's name, a picture, and a brief overview. The reverse side provides more detailed information about what the adult and child should do and why the activity is important. Providers are encouraged to use the games with one or two children, to repeat them many times, and to deepen them as the child masters the game's concepts.

Enriched Caregiving**.** The *LearningGames* approach also asks providers to incorporate activities throughout the day that enrich regular care routines. For example, for meal times, age-specific suggestions are provided such as: singing to a child during bottle feeding; talking about and naming items such as food, cup and spoon; using children's names; pointing to and reading aloud letters on food labels; or writing names of needed items on grocery lists. It also provides other ideas such as naming things nearby, going for a walk, singing a song, and back-and-forth language play.

Conversation Books. Read-aloud books are provided to each of the family child care providers. Each day, the intervention requires providers to read at least one book to each child; this book can be either a *LearningGames* read-aloud book or another children's book. Providers are asked to read to one child alone or to two at a time, holding the child close to them while they read and encouraging children to respond, using the "3S Strategy" described below.

Language Priority**.** The approach focuses on two sets of strategies, 3S (See, Show, Say) and 3N (Notice, Nudge, Nurture). "See, Show, Say," draws out responses from children at three levels of difficulty and is tailored to the child's age and abilities. Basing her choices on the child's developmental stage, the

caregiver engages the child by identifying an object ("See"), having the child identify it through pointing ("Show"), and/or asking a question that will prompt the child to verbally identify the object ("Say").

The 3N strategy can also be woven into the day. The caregiver, observing the child, *notices* what the child is doing or preparing to do and uses words to describe it to the child or ask a question about it. Once the caregiver has noticed what a child is doing, she can then gently *nudge* the child toward a new learning opportunity (usually via a question). Finally, the provider *narrates*, telling the story of what the child is doing to increase the child's awareness of the significance of his or her own actions.

Planning and Record-Keeping Materials are provided so that family child care providers can make weekly plans for each child using the *LearningGames* approach and activities and track their educational progress in mastering each LearningGame.

Implementation of *LearningGames*

The implementation of *LearningGames* in family child care homes for the evaluation involved a complex set of organizational relationships among the state office responsible for the administration of child care subsidies, the child care resource and referral networks, the family child care networks and their providers, and the developer and trainers of *LearningGames*. Exhibit 1.1 summarizes the connections among these groups. The intervention initially was funded by the Massachusetts Office of Child Care Services (which was later integrated into a newly created Department of Early Education and Care). Two half-time study coordinators, who were staff of child care resource and referral agencies (CCR&Rs) provided support and technical assistance to network staff. Dr. Joseph Sparling, the program developer, and his staff provided materials and technical assistance to the project coordinators and the home visiting staff. Network home visiting staff, in turn, provided *LearningGames* support to providers selected for the intervention and ongoing standard technical assistance to those providers in the control group.

Implementation of *LearningGames* in Massachusetts family child care homes relied primarily on a "train the trainer" approach. Selected home visiting staff from the participating family child care networks (networks are described in more detail in the section below) were trained by Dr. Joseph Sparling, the developer of *LearningGames*. The two half-time project coordinators from the CCR&Rs received funding to provide the network home visitors with ongoing support and technical assistance and attempted to maintain monthly contact with them. In the second year of the study, Dr. Sparling and his staff also offered additional direct training on *LearningGames* to participating family child care homes.

In turn, home visiting staff were asked to provide training and support to providers on *LearningGames* during two visits each month. *LearningGames* providers are asked to do at least one LearningGame with each child under age 5 at least one time per each day but are encouraged to do them multiple times with each child each day. Working with home visitors trained in the approach, they are expected to identify the games that are most appropriate for an individual child, based on his or her age and developmental status, and decide when to move on to the next game in the series. They are to be encouraged by their home visitors to be creative, incorporating and deepening each game as time progresses. In addition, by enriching all caregiving and using the learning strategies, the *LearningGames* approach is to be woven

seamlessly throughout the child care day. A home in which *LearningGames* is fully implemented is a language-rich environment in which a provider spends a substantial proportion of her time focusing on and interacting with one or two children at a time, and opportunities for children's learning and development are provided throughout the day.

Exhibit 1.1: *LearningGames* Professional Development Model
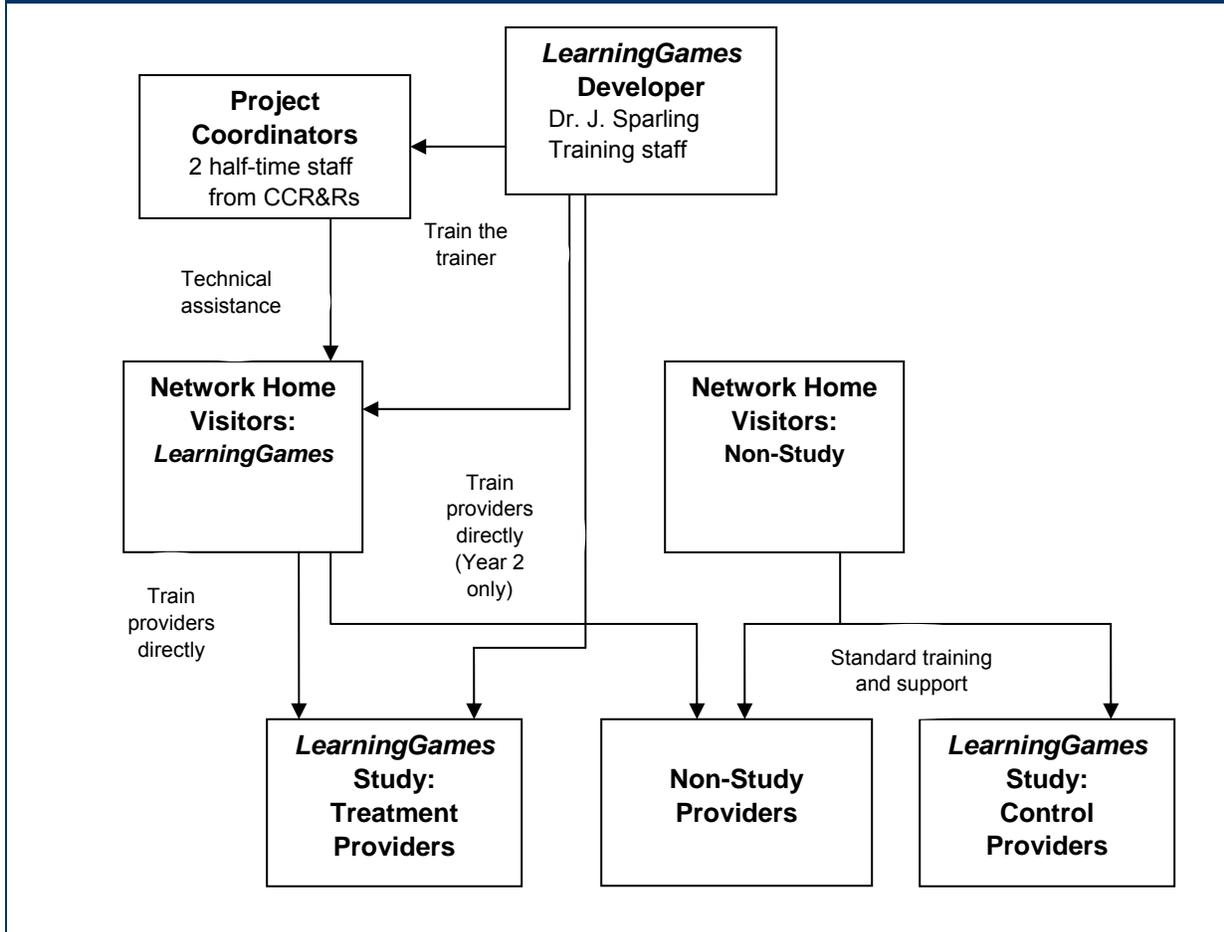
RATIONALE FOR TESTING *LEARNINGGAMES* IN FAMILY CHILD CARE

LearningGames was selected to be implemented with family child care providers for several reasons. First, it seemed more appropriate for home-based providers compared with programs or curricula that were developed for center-based care. *LearningGames* was adapted from a parent curriculum that was first used in the Abecedarian Program, a two-generational intervention in which parents and infants together attended an intensive education program at a center. Intervention children received full-time, high-quality educational intervention in a child care setting from infancy through age 5 in which each child received an individualized plan of educational activities designed as "games" that were incorporated into the child's day. The activities, which were used by trained caregivers and the parents, focused on social, emotional, and cognitive areas of development and gave particular emphasis to language. The Abecedarian Program had substantial short-term impacts on infants (Ramey et. al., 2000;

Ramey & Campbell, 1984; Campbell & Ramey, 1994) and, in 20-year follow-up studies, has continued to show significant impacts on the children and their mothers (Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey, 2001). *LearningGames* is based on the curriculum used in the Abecedarian Program. Since the Abecedarian project, the curriculum has been adapted and used with center-based providers and with parents (reported in unpublished studies).

The game-like content of *LearningGames* was also expected to appeal to family child care providers, as well as the fact that there were materials for children from birth through preschool. This was crucial for providers who cared for mixed ages. Further, the *LearningGames* focus on individualized work with each child was especially well-suited to the family child care environment, where the adult/child ratio is frequently much lower than in center-based settings.

An important advantage of using *LearningGames* as an intervention strategy in Massachusetts is that the training materials for providers and the guides for implementing the game-like activities for children are available in Spanish as well as English. The translated materials were especially important in light of the high proportion of Spanish-speaking providers in the sample and of children in care.

THE MASSACHUSETTS CONTEXT

When recruitment for the study began in spring 2005, the position of OCCS commissioner was vacant. In July 2005, early childhood services in Massachusetts were reorganized and the state-funded child care programs became part of a newly created Department of Early Education and Care (EEC). A new commissioner of the EEC also assumed leadership on July 1, 2005.

The study's sample drew from licensed family child care homes affiliated with family child care networks. As is the case with all evaluations that do not rely on a representative sample, it is important to understand contextual information in order to assess the relevance of the study's findings. Important factors to consider when assessing this study's relevance for other family child care homes and for other states and communities include the program and policy environment and any unique features of the sample. In this case, family child care providers come from a state with fairly high regulations and, within that state, drew from a group that receives relatively high levels of support and technical assistance.

Below we provide a brief overview of Massachusetts family child care licensing and regulation, the functions of Massachusetts family child care networks, and information about the quality of care. In Chapter 2, we provide information about what is known about the sample.

Massachusetts Family Child Care Licensing Policies

Massachusetts has a relatively higher degree of regulation of family child care homes than is the case in many other states. The Commonwealth requires family child care to be licensed if one or more unrelated children are in care, and the maximum number of children allowed in a home-based setting is 10. Most states set the minimum threshold at three or four unrelated children and only one other state has the

maximum threshold as low as does Massachusetts. [5] In order to be licensed, family child care providers must, among other requirements, be at least 18 years of age and have three credits in child development and at least 9 months of experience in a child care program. Providers must meet additional requirements related to education and/or years of experience if they care for more than seven children. Providers are required to use a curriculum that is developmentally and linguistically appropriate, supports school readiness and includes goals for knowledge and skills to be acquired by children in a range of topics including language development, math, and science.

Massachusetts Family Child Care Networks

The study recruited family child care homes from among the 55 family child care networks funded by the Massachusetts Office of Child Care Services. There are approximately 8,600 licensed family child care homes in the state and approximately 32% of them (about 2,700) belong to these networks. Most of the children whose family child care is supported by subsidies are placed with family child care homes that are affiliated with the Commonwealth's family child care systems. Approximately 40% of all licensed family child care homes care for children who receive child care subsidies; of these, nearly 80% belong to systems and the remaining 20% are unaffiliated.

One major benefit of system affiliation for family child care homes relates to child care subsidies. Networks coordinate the process of placing children who are eligible for subsidies in the affiliated homes. They also coordinate all of the child care reimbursements so that the family child care home providers do not interact directly with the EEC for payment.

In addition to facilitating the subsidy process for affiliated homes, family child care networks must offer their affiliated providers a range of technical assistance. They are required to have a home visitor assigned to each home who must make at least monthly visits. Home visitors must have at least a high school degree, 9 credits of early childhood education, and between 9 and 36 months of child care experience, depending on educational attainment, or they must have a Child Development Associate (CDA) certificate. The home visitors are required to assess and evaluate the needs of enrolled children and their families, help providers develop individualized and appropriate curricula, provide resources and support for work with children and families, identify providers' professional development needs and associated professional development plans, and generally provide technical assistance.

In turn, family child care providers have a written provider agreement with the network that makes clear the expectations in terms of program hours and days of operation, recruitment of full fee-paying private children, professional development requirements, attendance and training and reimbursement assistance for attending training, and the terms under which the network will manage provider billing and fee collection.

Networks must assess the professional development needs of affiliated providers on an annual basis. They must ensure that the family child care providers are offered mentoring, career counseling, academic advising, course, classes and conferences that offer hours that can go toward annual in-service training requirements or approved continuing education units (CEUs). For all of these efforts, networks

---

[5]   For all information about family child care regulations, please see the Child Care Licensing Study of 2007 (National Child Care Information Center & National Association for Regulatory Administration, 2009.)

receive approximately $10/day per each child in the affiliated providers for whom child care is subsidized.

At the time of the study, there were 55 family child care networks, located throughout the state. The catchment areas of the networks are not contiguous; more than one network can and often does serve the same local area, especially if it is relatively urban, and may actively recruit the same family child care homes.

A priori, it was decided that the sample of networks for the study would be drawn from those systems that met two conditions necessary to participate in the study. These included that they must have at least two full-time home visitors so that the visitor trained to do *LearningGames* would not visit homes in the control group, believing that it was highly likely that the *LearningGames* training would influence home visitors' technical assistance to all providers, resulting in promoting *LearningGames* practices with providers in the control group. In addition, systems needed to have in place, as a standard practice, the expectation that each provider would receive two home visits per month. These eligibility criteria were intended to ensure that systems had the capacity to implement the intervention with providers at the planned level and would also rule out the possibility that an effect of the *LearningGames* intervention was the result of additional home visits instituted for *LearningGames* providers only. Eighteen of the 55 networks met these criteria, representing approximately one third of affiliated family child care homes in the state.

In the winter prior to the beginning of the study, the Massachusetts Office of Child Care Services surveyed the networks to determine, among other things, the number of home visiting staff, the number of homes assigned to each visitor, and the standard number of home visits. Exhibit 1.2 provides information on characteristics of the networks that responded to the survey as well as the networks that met participation conditions. Forty-five (80%) of the 55 networks returned the survey, including 16 of the 18 networks that met the selection criteria. The networks that met the study selection criteria were larger, on average, with 47 affiliated homes versus 38 for the broader state sample. A larger proportion of the networks that were eligible to participate served more than 50 homes (38% versus 26% of the statewide sample) and, not surprising, the eligible networks employed more home visitors on average (2.5 for the eligible agencies; 1.9 for all agencies).

Slightly more than half of all agencies (51%) said it was their standard practice to do two visits per month to each provider in their network. Since this was an eligibility criterion for the study, all of the eligible networks reported that they conducted two home visits per month. The number of homes assigned to home visitors in the entire group and the subset of eligible agencies was similar (19 versus 20 homes per visitor). However, 44% of the subset of agencies reported caseloads that were less than 15 homes per home visitor, compared with 56% of the entire group of networks. (It should also be noted that caseload information is difficult to interpret in that home visitors may have other duties as well.)

A number of network staff, including home visitors and family service specialists, food and nutrition coordinators, and others, were reported to make regular visits to the providers. Networks reported a broad range of educational attainment among their home visiting staff. They reported that 16% of named home visiting staff had a high school degree and 31% had a bachelor's degree (Exhibit 1.3). Educational attainment of home visiting staff from the networks eligible for the study is similar to that

among providers from all networks combined, with the exception that a higher percentage of staff in the eligible networks had college degree (31% for all versus 34% for qualified networks).

Exhibit 1.2: Characteristics of Massachusetts Family Child Care Networks [a]		
	All Family Child Care Networks in Massachusetts (n=43)	**Family Child Care Networks Eligible for Study (n=16)**
Average number of affiliated homes	38	47
Percent serving less than 25 homes	42%	25%
Percent serving more than 50 homes	26%	38%
Average number of home visitors	1.9	2.5
Percent in which home visitors conduct 2 visits per month	51%	100%
Average number of homes assigned to each visitor	20	19
Percent of networks in which home visiting caseload is < 15	56%	44%

Source: Survey of family child care networks conducted by the Massachusetts Office of Child Care Services, 2005.

[a] 12 of the 55 networks in the state did not respond to the survey; of these, 2 of the 18 eligible networks did not respond to the state survey.

Exhibit 1.3: Highest Level of Educational Attainment of Home Visiting Staff [a]		
	Home Visiting Staff From All Family Child Care Networks in Massachusetts (n=112) [b]	**Home Visiting Staff From Networks Qualified for the Study (n=65) [c]**
High school	16%	12%
High school and some college	20%	22%
Associates degree and/or CDA	25%	28%
Bachelor's degree	31%	34%
Advanced degree	8%	3%

Source: Survey of family child care networks conducted by the Massachusetts Office of Child Care Services, 2005.

[a] 12 of the 55 networks in the state did not respond to the survey; 2 of the 18 eligible networks did not respond to the state survey.

[b] 7 missing responses.

[c] 5 missing responses.

The Quality of Family Child Care in Massachusetts

There have been several studies that have assessed family child care quality in Massachusetts, although none occurred during the period when the evaluation took place. One of them used the Family Day Care Rating Scale (FDCRS), which was also used to evaluate a subset of homes that participated in Massachusetts Family Child Care Study.

The most recent is the Study of Universal Pre-Kindergarten in Massachusetts (Rulf Fountain & Goodson, 2008). The study assessed the quality of a sample of programs for which the majority of children were paid for by subsidies, using a sample selected proportionately to their representation among programs in the state serving a majority of subsidized children. The study assessed quality using the Classroom Assessment Scoring System (CLASS) (Pianta, La Paro, & Hamre, 2008). The CLASS produces ratings across three broad domains of provider/child interaction considered critical for learning and development: Emotional Support, Classroom Organization, and Instructional Support. The study found that family child care homes in Massachusetts that serve at least 50% subsidized children are rated highly on the quality of Emotional Support for children, where their average rating is 5.6 out of 7. They also are rated highly on Classroom Organization (4.9 out of 7). However, the homes received much lower ratings on Instructional Support (1.8 out of 7).

The second major study is the Massachusetts Cost and Quality Study, conducted in 2001–2002 (Marshall et al., 2003). For that effort, data were collected for a representative sample of Massachusetts family child care homes. The study relied on the Family Day Care Rating Scale (FDCRS) and the Global Caregiving Rating Scale to measure environmental quality and the sensitivity and quality of the provider's relationship with children. Two subscales most relevant to the current evaluation are the Language and Reasoning Scale, which is a measure of the use of language in the setting and the opportunities for learning about language that are provided for children; and the Learning Activities Scale, which measures the types and variety of activities available for children and how the daily activities are scheduled and supervised. Among the family child care providers in the Massachusetts Cost Quality Study, the average subscore for Language and Reasoning was 4.57 and the average score for Learning Activities was 4.41, in both cases falling between the rating categories of "adequate" and "good." The study found that the average FDCRS rating was 4.39, also falling within that category. Other studies have used the FDCRS to assess the quality of family child care homes in other states and communities with global FDCRS scores that fall between 4 and 5 (see, for instance, Bromer, Van Haitsma, Daley, & Modigliani, 2009; Raikes, Raikes & Wilcox, 2005.)

CONCEPTUAL MODEL AND RESEARCH QUESTIONS

The evaluation centers on the impact of *LearningGames* on children's developmental outcomes. The study begins with the hypothesis that *LearningGames* will affect children through changes in the behavior of their family child care provider. Changes in provider behavior are hypothesized to occur under specific conditions: if the level of training and support offered to the family child care providers is sufficient, their behavior and interactions with children will change; ultimately, these changes will result in positive impacts on children's socio-emotional, cognitive and language development. This pathway from curriculum to child outcomes will depend on providers reaching a sufficiently intensive level of implementation of the curriculum (sometimes called fidelity of implementation) to effect changes in

children, as well as on children being in care a sufficient length of time to receive the benefit of their provider's enhanced instructional and caregiving strategies.

Exhibit 1.4 (page 16) lays out a conceptual model for the effects of *LearningGames*. The model shows that, at heart, *LearningGames* is a provider training model. That is, the *LearningGames* program of structured activities and behavior guidelines (2nd column in model) is hypothesized to lead to improved child outcomes by changing and enhancing the ways that providers interact with the children in their care (3rd column in model). As this column indicates, the *LearningGames* objectives for provider behavior focus on the quality of provider/child verbal interactions. Providers are trained to engage in more language interactions overall as well as language interactions that build children's language skills and their grasp of new concepts and new vocabulary. Providers are trained that the most effective language interactions with children are extended, involve rich language structures and vocabulary, and are with individual or pairs of children rather than larger groups. The overall quality of the provider/child relationship is also a focus of *LearningGames*. Having a responsive, caring adult is assumed to be a factor in children's learning and development and learning. Finally, *LearningGames* focuses on the importance for providers to weave the rich, responsive interactions with children throughout the day, during routines and transitions as well as during structured learning activities.

The left-hand column in the model depicts the professional development model that was designed and implemented in the Massachusetts study. *LearningGames* itself does not specify a particular design for professional development. The model in Massachusetts was designed to be an effective approach given (a) the level of resources available for professional development, (b) the organization of the family child care system in the state, and (c) the geographic spread of the sample of family child care homes. That is, the "train-the-trainer" approach allowed the study to make use of existing staff at the family child care networks, which, in turn, saved resources and enabled the study to provide in-person coaching to homes that were spread across the state.

The 4th column in the model shows the child outcomes that are expected to be affected by *LearningGames*. For children from birth through 5 years of age, *LearningGames* specifies age-related cognitive developmental goals, such as concept development (from the earliest concepts such as object permanence to expanded concepts such as numbers, colors, and time) and acquisition of vocabulary (from simple words and phrases up to sophisticated language structures). For children from 3 to 5 years of age, the goals include additional early literacy skills and use of language to express their own ideas and needs. Further, across the age span, there are age-appropriate goals in the area of socio-emotional development, starting with secure attachment as a base for exploration and learning, and leading to the developmental of understanding of emotions in self and others, emotion control, and social skills with adults and peers.

The study's three major research questions flow from this model:

- Were the elements of the provider training model implemented as planned?
    - Did providers receive the level of training and support that was assumed to be required for high-quality implementation of *LearningGames* by the family child care providers?
    - Was there evidence of high-fidelity implementation of *LearningGames* by the providers?

- Did the *LearningGames* training result in meaningful differences between *LearningGames* providers and control providers in their interactions with the children in care?
- Did children in the *LearningGames* homes have better developmental outcomes, compared with children in control homes?

For the questions about impacts on providers and children, the study focused on a subset of the outcomes shown in the full logic model. For providers, the study focused on three major outcomes: amount of rich language interactions between the provider and the children in care, level of provider support for children's comprehension of concepts and vocabulary, and level of responsiveness of the provider to the children in care. For child outcomes, the study looked at language development for children across the age range. For the 3- to 5-year-olds, the study also assessed acquisition of basic concepts that are part of school readiness. The study did not assess children's socio-emotional development. The rationale for why particular outcomes were studied and why other outcomes were not includes limitations in available measures and statistical concerns about multiple comparisons. These are discussed in more detail in Chapters 2 and 4.

The remaining chapters of the report are as follows:

- Chapter 2 presents the study methodology, including the timeline, recruitment process, random assignment, baseline sample size, sample attrition, and data collection measures and schedule.
- Chapter 3 describes the implementation of *LearningGames* in the family child care homes in Massachusetts, including the planned professional development model, how it was actually implemented, and barriers to full implementation of the planned model. It then provides information about provider fidelity in implementing the approach.
- Chapter 4 presents the findings on the impacts of *LearningGames* on family child care providers.
- Chapter 5 provides a discussion of the findings and conclusions.

Exhibit 1.4: Logic Model for Impacts of *LearningGames* on Providers and Children

Professional Development Model

- Training and TA by *LearningGames* developer for project coordinators and for home visitors
- Training and TA by home visitors for *LearningGames* homes
- Direct training (Year 2) by developer for *LearningGames* homes

LearningGames Program Model

- Weekly planning for *LearningGames* activities for each child in care
- *LearningGames* activity every day with every child
- Interactive book reading every day with every child
- Consistent use of enriched caregiving
- Use of 3S and 3N strategies every day with every child in context of *LearningGames* activities, interactive reading, and enriched caregiving
- Parent *LearningGames* materials and conversations books sent home weekly

Provider Outcomes

- Individualized oral language interactions with each child
- Language interactions with children that involve content rich in terms of concepts, vocabulary
- Verbal and non-verbal interactions with children that are extended and meaningful
- Consistent support across activity contexts for children's comprehension of new concepts, vocabulary, early literacy skills
- Development of warm, responsive relationships with each child

- Enriched caregiving *throughout day*, even during routines, transitions
- Frequent interactions with individual/pairs of children

Child Outcomes

Children < 3 years
- Understanding basic concepts (spatial concepts, simple descriptive concepts, body parts)
- Understanding of specific words, phrases
- Sense of security and attachment through relationship with caring adult

Children 3 – 5 years
- Receptive and expressive vocabulary knowledge
- Early literacy skills—print knowledge, print motivation, phonological awareness, alphabet
- Understanding of concepts such as color, shapes, quantity, numbers, time
- Use and understanding of expanded linguistic structures
- Socio-emotional development (understanding of emotions, emotional control, social skills)

Context
Overall level of quality of homes at baseline

CHAPTER 2: STUDY METHODOLOGY

OVERVIEW

The study followed the implementation and outcomes of *LearningGames* over approximately two years. This chapter describes the overall design of the study, including the study timeline; the processes for recruitment and randomization of providers; the sampling design and sample attrition; and the methodology for assessing the implementation process and the outcomes for both family child care providers and the children in their care.

STUDY DESIGN

The study was a randomized cluster design, with family child care providers assigned to treatment (*LearningGames*) or control (business as usual). Children were clustered within provider, so that all children in treatment homes had an opportunity to receive *LearningGames* and all children in control homes received their provider's regular program. The study is intended to be an effectiveness study, in that the impact of *LearningGames* was studied under typical or real-world conditions. That is, *LearningGames* was implemented in the family child care homes the same way it would have been in the absence of the study: staff from the family child care networks provided most of the training on *LearningGames* and providers were expected to integrate *LearningGames* into their regular program. Further, although the study tried its best to achieve high fidelity of implementation across all treatment providers through training and ongoing support, variation in implementation was expected. Since the study was being conducted under real-world conditions, providers had control over whether and how well they implemented the components of the intervention.

STUDY TIMELINE

Exhibit 2.1 summarizes the schedule of major activities in the *LearningGames* study, which will be described in more detail in following sections. Implementation was funded by the state in spring 2005 and the costs for materials and initial training had to be incurred during the state fiscal year that ended that June; therefore the schedule of recruitment, random assignment, and initial training was accelerated.

Those providers who agreed to be part of the study were randomly assigned to either *LearningGames* or a control group. Initial training of home visiting staff (described in more detail in Chapter 3) occurred in midsummer 2005. Also during summer 2005, baseline data on the participating providers were collected. Starting in fall/winter 2005, professional development support was given to *LearningGames* providers, which lasted for two years (also described in Chapter 3). In fall 2006, Abt conducted one-year provider observations and determined, with ACF's approval, that *LearningGames* was not being implemented strongly enough to merit child assessments at that time. In December 2007, the two-year provider observations were conducted, and children in the homes were assessed over an 8-week period, December 2007–January 2008.

Exhibit 2.1: Study Timeline													
	Spring 2005	Summer 2005	Fall 2005	Winter 2005	Spring 2006	Summer 2006	Fall 2006	Winter 2006	Spring 2007	Summer 2007	Fall 2007	Winter 2007	
Recruitment of family child care networks and homes	■												
Random assignment of providers		■											
Baseline data collection		■	■										
LearningGames intervention and support			■	■	■	■	■	■	■	■	■	■	
First year provider observations					■								
Second year provider observations											■		
Child assessments												■	

SAMPLING PLAN

Sample Recruitment

Recruitment of providers was a two-stage process: first, family child care networks were recruited and second, providers within the participating networks were recruited. Each is described in more detail below.

Family Child Care Networks
As described in Chapter 1, 18 of the 55 family child care networks with contracts with the state met the initial selection criteria and were recruited for the study. Recruitment of networks was a joint responsibility of the state and the study team. The Massachusetts Office of Child Care Services sent a letter to these family child care networks, asking them to participate in the study and inviting them to a meeting at which Abt staff could explain the evaluation and answer any questions. Abt then followed up with telephone calls and meetings with interested networks. Of the 18 networks invited to participate, 16 initially agreed to do so.

Networks that joined the study agreed to a number of conditions, including that they would:

- Help recruit their providers for the study and commit to attempting to get at least 10 family child care homes to participate;
- Allow the providers who consented to participate to be randomly assigned to either receive *LearningGames* or to continue to receive standard technical assistance;
- Contribute the time of home visiting staff to be trained in *LearningGames*;
- Agree that home visitors would train family child care homes using the *Learning Games* professional development protocols, including conducting two home visits per month;

- Ensure that home visitors trained in *LearningGames* would not visit providers in the control group (which meant that systems would likely need to change home visitor assignments); and

- Help negotiate data collection requirements with providers (e.g., family child care observations and child assessments).

In return, all of the *LearningGames* materials and training were provided at no change to networks or providers.

The 16 networks signed and returned partnership agreements that outlined the above conditions and specified the roles and responsibilities of Abt and of the network. Prior to random assignment of providers, one of the agencies that had agreed to participate withdrew because it was going through a reorganization, reducing the number from 16 to 15.

A total of approximately 1300 homes were affiliated with the participating agencies, representing almost half of all affiliated family child care homes and a little more than one-third of the state's family child care providers who care for children supported by subsidies. Exhibit 2.2 compares 13 of these 15 participating networks that responded to the Massachusetts Office of Child Care Services survey with 16 of the 18 qualifying networks that responded to the survey. On average, the participating networks served slightly a larger number of providers (51 versus 47 homes), and fewer networks served 25 or fewer homes (19% versus 25% of the sample). While the average reported home visitor caseloads were similar; 31% of the participating networks reported caseloads that were lower than 15 homes per visitor; compared to 44% for all qualifying networks.

Exhibit 2.2: Characteristics of Family Child Care Networks in the Eligible Networks and in the Study		
	Family Child Care Networks Eligible for Study (n=16)[a]	Participating Family Child Care Networks (n=13)[b]
Average number of affiliated homes	47	51
Percent serving fewer than 25 homes	25%	19%
Percent serving more than 50 homes	38%	38%
Average number of home visitors	2.5	2.5
Percent that do 2 home visits per month	100%	100%
Average number of homes assigned to each visitor	19	20
Percent for which home visiting caseload is fewer than 15 homes	44%	31%
[a] 18 networks were eligible for the study, but two networks did not respond to the state survey.		
[b] 15 networks agreed to participate in the study, but two of these did not respond to the state survey.		

.

The largest network in the study included seven regional offices in different parts of the state, each with separate administrative and home visiting staff. For the purposes of the study, the separate regional offices were treated as networks for the purposes of implementation and random assignment. The result is that the sample included 22 networks and/or regional offices.

Exhibit 2.3 provides information about the educational attainment of the home visiting staff of networks eligible for the study and participating networks and indicates that the staff in both groups had similar levels of educational attainment.

Exhibit 2.3: Highest Level of Educational Attainment of Home Visiting Staff in the Eligible Networks and in the Study [a]		
	Home Visiting Staff From Family Child Care Networks Eligible for the Study (n=65) [a]	Home Visiting Staff From Family Child Care Networks Participating in the Study (n=57) [a]
High school	12%	16%
High school and some college	22%	22%
Associates degree and/or CDA	28%	31%
Bachelor's degree	34%	27%
Advanced degree	3%	3%
[a] 5 missing responses for staff listed by networks that responded to the survey.		

The networks selected the home visitors to be trained in *LearningGames* from their current home visiting staff. Networks were not required to select these home visitors at random. *LearningGames* home visiting staff were similar to other home visitors in terms of educational attainment and years of experience. However, it is possible that any provider impacts found by the evaluation are due to differences between the *LearningGames* and other home visitors in areas such as interpersonal skills, knowledge of child development, motivation or other factors that could affect the quality of the home visits.

Family Child Care Homes
After networks agreed to participate, family child care homes in each network were recruited for the study, a process that occurred over a two-month time period. To be eligible, a provider had to have been in operation for at least two years and had to have at least two children in care who were less than 36 months of age.

Recruiting these homes was a joint activity between the networks and the Abt team. The recruitment approaches were as follows. Typically, Abt attended a network's scheduled meeting of family child care providers, where staff described the study, answered questions, and distributed English and Spanish brochures providing details about the study and what participation entailed. At these meetings, Abt staff distributed a sign-up sheet for providers who were interested in participating. In some cases, Abt staff attended more than one meeting at a particular network. If there was only one meeting with a group of providers, Abt staff then followed up with network staff, who checked again with interested providers

and collected signed provider consent forms. Again, these forms provided details about the study and what would be required of those participating in the evaluation. If there were two meetings, Abt collected consent forms at the second meeting. Many of the networks had a substantial number of Spanish-speaking family child care providers. Whenever possible, Abt bilingual staff attended the meetings and did translation but sometimes network staff did the translation. In some cases, a network preferred that its own staff recruit providers for the study. In these cases, Abt met with network staff and provided them with information and materials about the study and answered any questions. In turn, network staff recruited the providers and collected the provider consent forms.

At the outset, some networks decided how many homes could feasibly participate in the study. Some networks that served multiple communities limited recruitment to specific neighborhoods or communities because it was logistically possible to have at least two home visitors provide services in that area (one for the *LearningGames* providers and one for providers in the control group). Others had to exclude Spanish-speaking providers from the intervention because only one of their home visitors spoke Spanish and therefore by necessity would have had to visit both the treatment and control providers. Appendix A shows the final sample of 353 homes by their network or regional office affiliation.

One of the questions of interest before the intervention began was whether the family child care homes were operating at a level of quality that could support the kinds of individualized, high-quality verbal interactions that are the cornerstone of *LearningGames*. Although a quality criterion was not used as part of the eligibility criteria, data were collected at the end of the study to describe the quality of the providers that were part of the impact analyses at the end of two years of intervention. Quality of the settings was measured using the Family Child Care Environmental Rating System—Revised (FCCERS-R) (Harms, Cryer & Clifford, 2007), a well-known measure of the quality of family child care settings. The measure provides an assessment of the overall quality of the family child care setting. The FCCERS-R includes 38 items that form seven subscales: Space, Listening and Talking, Activities, Interactions, Program Structure, Personal Care Routines and Parents and Provider. Each subscale receives a rating from 1 to 7. Scores of 2 and lower are considered below minimal quality; scores between 3 and 4 are considered minimal quality; and scores between 6 and 7 are considered good to excellent quality.

The FCCERS-R was administered in a randomly selected subset of 60 of the family child care homes (30 *LearningGames* homes and 30 control group homes) when data were collected in winter 2007. The five FCCERS-R subscales that focused on provider-child interactions were completed (Space, Listening and Talking, Activities, Interactions and Program Structure). Two subscales, Personal Care Routines and Parents and Provider, were not administered. The average scores for the control group homes on four of the five subscales were in the minimal range (Exhibit 2.4). Only the score for "Interactions" was in the good-to-excellent range. At the same time, more than 40% of homes were rated in the good-to-excellent range on Listening and Talking and Program Structure. Based on the results of the FCCERS-R ratings of the *LearningGames* control homes, we concluded that the quality of the homes was high enough to afford a platform for implementing the *LearningGames* approach.

Exhibit 2.4: Rating of Quality of *LearningGames* Homes on Selected Subscales of the Family Child Care Environment Rating System—Revised Edition (FCCERS-R)

FCCERS-R Subscales	% Homes Below Minimal (≤ 2)	% Homes Minimal (3–4)	% Homes Good–Excellent (5–7)	Average Rating (out of 7)
Space	15.5%	55.2%	29.3%	4.1 (1.2)
Listening and Talking	15.5	43.1	41.4	4.3 (1.7)
Activities	41.4	53.4	5.2	3.3 (1.0)
Interactions	15.5	17.2	67.2	5.2 (1.9)
Program Structure	25.9	29.3	44.8	4.2 (1.8)
All Subscales	15.5	67.2	17.2	4.2 (1.2)

Sample includes 25 bilingual and 25 English-speaking control providers from the control group sample.

To help evaluate the meaning of the quality ratings of homes in the *LearningGames* study, these ratings were compared to quality ratings of a sample of Massachusetts family child care homes from the Massachusetts Study of Child Care Cost and Quality (Marshall et al., 2003) described briefly in Chapter 1. In the 2003 study, the Family Day Care Rating Scale (Harms & Clifford, 1989), the precursor to the FCCERS-R, was administered in a sample of 203 homes randomly selected from all licensed family child care in the state.[6] Four of the subscales on the FCCERS-R had comparable subscales on the earlier version of the measure. Quality ratings on two of these four subscales—Space and Listening and Talking—-were similar across the two samples, in terms of the percentage of homes with good-to-excellent quality (Exhibit 2.5). The percentage of homes with good-to-excellent quality for Activities was lower among the homes in the study sample, while the percentage for Interactions was higher for homes in the study sample.

Random Assignment

The random assignment of family child care homes was conducted within the 22 family child care networks, meaning that approximately half the homes affiliated with each were assigned either to the *LearningGames* group or the control condition. This within-network random assignment ensured that the samples of *LearningGames* and control providers were equivalent in terms of network characteristics that might be related to the study outcomes and also did not result in overly burdening some networks, which may have been assigned more *LearningGames* homes than they could feasibly support.

---

[6] The sample of homes was drawn from across Massachusetts, proportional to the region's share of the state-licensed homes.

Exhibit 2.5: Quality Ratings[a] for Two Samples of Family Child Care Homes in Massachusetts

Subscales	% Homes Below Minimal (≤ 2)		% Homes Minimal (3-4)		% Homes Good–Excellent (5–7)		Average Score	
	Learning Games FCCERS-R[b]	MA Cost/Quality FDCRS[c]	*Learning Games* FCCERS-R[b]	MA Cost/Quality FDCRS[c]	*Learning Games* FCCERS-R[b]	MA Cost/Quality FDCRS[c]	*Learning Games* FCCERS-R[b]	MA Cost/Quality FDCRS[c]
Space	15%	23%	55%	46%	29%	31%	4.1	4.1
Listening and Talking	15	13	43	47	41	40	4.3	4.6
Activities	41	14	54	50	5	36	3.3	4.4
Interactions	15	14	17	39	67	47	5.2	4.6

[a] Quality ratings on four comparable subscales from two versions of the family child care quality rating scale (FCCERS-R and FDDCRS).

[b] Sample includes 60 bilingual and 25 English-speaking providers from the Massachusetts *LearningGames* study.

[c] Sample includes 203 randomly selected family child care homes in Massachusetts.

Random assignment was conducted by Abt Associates in spring 2005. The agencies provided Abt with the names of participating providers, and providers were assigned to treatment or control using a computerized assignment program. The process resulted in 173 homes being assigned to *LearningGames* and 180 assigned to the business-as-usual control group. Letters that notified each family child care home were prepared and sent to the family child care agencies. Agency staff then distributed the letters personally to the providers. At the same time of random assignment, approximately 1250 children were enrolled in the 353 study homes.

SAMPLE ATTRITION

Provider Sample

The sample suffered from substantial attrition between baseline and the posttest, two years after the intervention began. Attrition in the provider sample derived from two sources: individual providers who dropped out of the study (provider-level attrition) and entire agencies that dropped out (agency-level attrition). Since random assignment was conducted within agencies, agency attrition resulted in the loss of approximately equal numbers of treatment and control providers. Consequently, loss of an agency does not bias the sample, but it does reduce the power of the analyses to detect impacts. Provider-level attrition, on the other hand, both reduces power and potentially introduces bias into the sample.

The implementation of the *LearningGames* training started more slowly than anticipated, as described in further detail in Chapter 3. Implementation is considered to have started in fall 2005, 4–6 months after random assignment. After one year of implementation (fall 2006) when the first round of family child care observations occurred, the overall attrition rate was 43% (Exhibit 2.6). The rate of attrition was similar for treatment and control providers. About half of the attrition was the result of two agencies dropping out of the study (82 providers). These agencies dropped from the study because the level of burden to provide the *LearningGames* intervention was more than anticipated and because home visitors were meeting with resistance among their homes assigned to the treatment group to using the *LearningGames* approach. Several other networks in the study served family child care homes in the same communities that were served by the two agencies that dropped out. (Chapter 4 provides additional information about the characteristics of the provider sample at baseline and the samples remaining at each data collection point.) In addition, during that year, 68 individual providers dropped out of the study. While Abt tried to collect information about reasons for dropping out, it was not consistently reported. In general, reasons given by individual providers for dropping out included leaving the family child care network or moving, no longer caring for children, and not wanting to participate in the fall 2006 observation.

At the end of the two years of implementation of the *LearningGames* provider training (fall/winter 2007), the overall attrition rate was 58% and two more agencies had dropped out of the study. There was higher attrition among the *LearningGames* providers, compared with the control providers (60% versus 55%). About half of the attrition from the provider sample was the result of the four agencies dropping out (108 providers). The remaining attrition was the result of 95 providers who withdrew for individual reasons. The provider-level attrition varied widely across the 18 agencies remaining in the sample after two years. Four of the agencies lost at least half of their providers, while other

agencies lost less than 10% of their sample. (See Appendix A for a description of level of attrition by agency.)

Exhibit 2.6: Provider Sample and Attrition Over the Study						
	Fall 2006 (18 months post RA)			Fall/Winter 2007 (30 months post RA)		
	T (n = 173)	C (n = 180)	Total (n = 353)	T (n = 173)	C (n = 180)	Total (n = 353)
Providers remaining	98	105	203	69	81	150
Overall attrition	43.3%	41.7%	42.5%	60.1%	55.0%	57.5%
Sources of attrition						
Agency attrition[a]	21.3%	25.0%	23.2%	28.9%	32.2%	30.6%
Individual provider attrition	22.0%	16.7%	19.3%	31.2%	22.8%	26.9%
[a] Two agencies dropped out of the study by fall 2006; two additional agencies dropped out by fall 2007.						

The level of provider attrition from the sample was substantial, even after one year of the intervention. In addition, by the end of the study, there also was differential attrition for the *LearningGames* providers and the control providers. Overall attrition is an issue for power to detect impacts, and it could affect the generalizability of the findings. If the providers who are left in the sample represent a particular subset of the original sample of providers, then the results can only be generalized to this subgroup. The differential attrition poses a potential threat to the internal validity of the estimates of the impacts on providers.[7] The level of attrition argues for a set of analytic steps to be conducted as part of the impact analyses. First, the study needs to determine if there are

---

[7] Under the guidelines for the What Works Clearinghouse (WWC), the rating given to a randomized study ("Meeting Evidence Standards," "Meets Standard with Reservations," or "Fails to Meet Evidence Standards") is based on overall attrition differences in the rates of attrition for the intervention and comparison groups. Both overall and differential attrition contribute to the potential bias of the estimated effect. The WWC has developed a model of attrition bias to calculate the potential bias; a combination of overall and differential attrition rates are considered to generate acceptable, potentially acceptable, and unacceptable levels of expected bias that are defined for and applied consistently for studies in a topic area. In randomized cluster studies, attrition is examined at both the cluster and the individual subject levels. For the *LearningGames* study, the differential attrition is not a problem. The attrition levels for both providers and children by the end of the study are considered to be severe, which means that the study would be judged as "expected to result in an unacceptable level of bias even under optimistic assumptions, and the study can receive a rating no higher than Meets Evidence Standards with Reservations, provided that it establishes baseline equivalence of the analysis sample" (p. 14). That is, the WWC requires that RCTs with high levels of attrition present evidence that the intervention and comparison groups are alike. Demonstrating equivalence minimizes potential bias from attrition that can alter effect size estimates. Baseline equivalence of the analytical sample must be demonstrated on observed characteristics, using these criteria: The reported difference of the characteristics must be less than 0.25 of a standard deviation (based on the variation of that characteristic in the pooled sample) and the effects must be statistically adjusted for baseline differences in the characteristics if the difference is greater than 0.05 of a standard deviation (What Works Clearinghouse, 2008).

---

significant baseline differences between the analytic samples of treatment and control providers. If there are differences, this calls for controlling for baseline characteristics in the impact analyses. Since the study collected baseline date on provider characteristics and behavior, these data can be used for these adjustments.

Child Sample

Child outcomes were assessed in winter 2006. To be eligible for the child assessments, a provider had to have at least one child enrolled who met three criteria: age (at least 12 months of age and not yet in kindergarten), time in care (at least 6 months in care with provider), and parent permission for at least one child to participate in the assessments. In addition, the provider herself had to agree to be part of the study. As shown in Exhibit 2.6, the level of provider attrition in fall/winter 2007 was 58%, which translates into 150 providers. Of these 150 providers, only 121 met all of the eligibility criteria for the child assessments. This means that the sample of providers with children in the assessments represented 34% of the original sample of providers (Exhibit 2.7). This level of cluster attrition introduces a potentially high level of bias into the child impact analyses. As was true for the analysis of provider impacts, the attrition requires the study to examine baseline differences between the remaining treatment and control children and to adjust for any differences by using baseline covariates in the impact analyses.

Exhibit 2.7: Provider Attrition at Time of Child Assessments			
	Winter 2008 (34 months post RA; 2 years of implementation)		
	T (n = 173)	C (n = 180)	Total (n = 353)
Providers remaining	59	62	121
% of sample	34.1%	34.4%	34.3%
Children assessed	182	192	374
% < 36 months	57.6%	57.0%	57.3%

The child assessments took place in January 2008, which was 30 months after random assignment and just over two years after full implementation of the intervention. At that time, 150 providers remained in the sample. Across these homes, only 4.5% of the children who were present at baseline were still in care two years later (Exhibit 2.8). As would be expected, the highest proportion of children remaining in the homes was the group who, at baseline, were less than 2 years of age. Among the older children, most were no longer in care two years after baseline, since these children had reached the age of school entry. The story was similar for the providers who participated in the child assessments. Among these 122 homes, only 5.4% of the children who were assessed had been in the homes for two years, and only since the time of random assignment.

Exhibit 2.8: Proportion of Children in Care at Baseline and at Two Years		
Age at Baseline	**Proportion Children Remaining in Care at 24 Months (n = 150 providers)**	**Proportion Children Remaining in Care at 30 Months (n = 122 providers)**
0 – 12 months	13.3%	6.7%
13 – 24 months	7.9	16.3
25 – 36 months	7.3	12.5
27 – 48 months	1.2	2.7
49 – 60 months	1.4	1.9
School-age	1.0	1.1

Even for the small number of the children who were assessed who had been in care at baseline, the study does not have child-level baseline data to examine differences between treatment and control children at baseline or to adjust for any differences that do exist.[8] Therefore, the study team concluded that the child assessment sample cannot be assumed to support credible analyses of the impact of *LearningGames* on children. Before reaching that conclusion, impact analyses were conducted on the children who were assessed. In the interest of transparency, we have presented the results of these analyses in Appendix B.

DATA COLLECTION

Data obtained for the study came from multiple sources. To address questions on implementation, information came from interviews with providers, home visitors, network administrators, and *LearningGames* trainers; review of tracking documents of technical assistance activities; and ratings of the fidelity of implementation of *LearningGames* conducted by home visitors as well as by study staff. To address the research question on provider impacts, baseline provider outcomes were measured through direct observation by the agency home visitors and outcomes after Year 1 and Year 2 by independent study staff. To address the research question on child impacts, children were assessed individually on standardized tests, which were administered by independent study staff. The data collection plan is described below for the evaluation of implementation and of impacts on providers, including the measures, training, and data collection procedures. Appendix B provides the same information for the evaluation of impacts on children.

Implementation Outcomes

Two components of implementation were evaluated: the implementation of the training/support model for the *LearningGames* trainers and the providers, and the implementation of the *LearningGames* program model in the family child care homes. Each is discussed below.

---

[8]   Home visitors were asked to assess children in the homes at baseline using Ages and Stages. By the end of summer 2005, a small percentage of assessments had been done. It was clear that requiring home visitors to complete children's baseline assessments would further delay the implementation of the intervention so this requirement was dropped.

Implementation of the Professional Development Model

The implementation of the planned training and support model (i.e., the "professional development" model) for *LearningGames* was documented through different sources: interviews with staff and other stakeholders involved in the implementation; and review of tracking documents maintained by the project coordinators, who were hired to provide ongoing technical assistance and support to home visiting staff and their networks. Tracking documents about the implementation of *LearningGames* were collected for the two years. Documents included monthly monitoring reports from project coordinators and fidelity tracking sheets submitted to the *LearningGames* developer by home visitors.

In addition, in summer 2007, Abt staff also conducted interviews with family child care network staff (including directors and home visitors) from networks participating in the study, the *LearningGames* developer, study coordinators, and lead staff at the Massachusetts Department of Early Education and Care. In total, 38 individuals associated with implementation of the *LearningGames* study were interviewed. These included all staff who had a leadership role in the study (the developer and his technical assistance staff, study coordinators, and lead staff at the Massachusetts Department of Early Education and Care), as well as staff from selected networks that had experienced both relatively high and relatively low levels of provider attrition. Interviews included questions aimed at better understanding the intended implementation of *LearningGames* and how the curriculum was ultimately used. In addition, respondents were specifically asked questions about their individual backgrounds, about the organizations for which they worked and about their roles in the study (e.g., their general involvement in the *LearningGames* study, changes in their responsibilities resulting from study participation, and the nature and quality of training and technical assistance they received). They were also asked about the planning for the study and their perceptions of different aspects of the study's implementation.

Evaluation of the Implementation of LearningGames in the Homes

Implementation of the *LearningGames* program model was measured from two perspectives. First, we gauged the extent to which treatment providers adhered to the practices deemed key to *LearningGames* by the developer. This was accomplished through ratings of provider practices by the *LearningGames* home visitors, using a 10-item checklist created by the developer (the "Procedural Fidelity Form.") Second, we used the observations that were conducted on both treatment and control providers to assess provider practices, regardless of the details of the *LearningGames* program. We created a Fidelity Scale based on selected items from among the measures used in the provider observations (as described below) that represented practices that aligned with *LearningGames* and compared practices across treatment and control providers.[9] The scale is based on 11 of these items, which were recoded on a 3-point scale, where 1 = behavior not exhibited or exhibited infrequently by provider, 2 = behavior exhibited occasionally by provider, and 3 = behavior exhibited often or consistently by provider. Each provider was rated on all 11 items. The total score on the Fidelity Scale could range from 1 to 33 points.[10]

---

[9]   Please see Exhibit 3.4 in Chapter 3 for the actual scale.

[10]   Three of the items were conditional on age of child. If there were no children in the home in the age range referenced in the item, a provider was not scored. The final score on the fidelity measure was calculated as a mean across the number of valid items for each provider (ranging from 9 to 11 items).

Provider Outcomes

Provider outcomes were assessed through direct observations of the providers and children in both the *LearningGames* and control homes. The measures are described following the discussion of the data collection protocol.

Data Collection Protocol

Observations of the homes were conducted at three times over the intervention period: at baseline (spring 2005), after one year of implementation of *LearningGames* (fall 2006), and after two years of implementation (fall/winter 2007). The impact analyses focused on the winter 2007 observations, which represented the end of the intervention. At this time point, all treatment group providers remaining in the sample had been in the study for more than two years, and treatment providers had received at least 24 months of systematic training support on *LearningGames* from the network home visitors. (The range of exposure varies somewhat, depending on the month providers received their initial training.)

Different observation measures were used at the three time points, and different groups were responsible for conducting the observations (Exhibit 2.9).

- At baseline, staff from the family child care networks conducted observations to document the quality of the home environments prior to implementation of *LearningGames*. The measures used in these observations were the QUEST (Goodson, Layzer & Layzer, 2005) and the Arnett Caregiver Interaction Scale (Arnett, 1987).

- After one year of implementation, independent trained study staff conducted observations of treatment and control homes, to evaluate both preliminary impacts on provider behavior and to assess whether the level of implementation of *LearningGames* had reached a sufficiently strong level to justify conducting child assessments. Four observation measures were used. Two were adapted from the Observation Measures of Language and Literacy Instruction (OMLIT, Goodson et al., 2005)—the Snapshot of Activities, and the Read Aloud Profile. The Read Aloud Profile was used during a structured read aloud that providers conducted for the purposes of the study, using study-provided picture books. A third measure was an existing instrument, the Arnett Caregiver Interaction Scale (Arnett, 1989). The observers also re-administered the QUEST.

- After two years of implementation, independent trained study staff again conducted observations of treatment and control homes, to evaluate the end-of-intervention impacts of *LearningGames* on providers. Four observation measures were used, and three of the four were the same as were used at the one-year observations. The two OMLIT measures were used, although the Snapshot was adapted for this observation and the Read Aloud Profile was used only if a read aloud occurred naturally during the observation. The Arnett Caregiver Interaction Scale was administered again. The fourth measure administered was the TALK (Goodson & Layzer, 2008), which was newly developed for the study to assess the amount and quality of provider oral language with individual children.

- As part of the observations after two years of implementation, the study team administered the Family Child Care Rating System–Revised (Harms et al., 2007), to asses the overall quality of the treatment and control homes using a standard measure of quality. The measure was used in a subset of the homes.

Measures

The observation measures are described below.

QUEST. The QUEST consists of two parts: an Environment Checklist, which rates the resources and safety of the care setting, and the Caregiver Rating Scale, which assesses the behavior of the adult who is caring for the children in six areas: caring and responding, supporting social-emotional development, supporting play, supporting cognitive development, supporting language development and early literacy, and television and computers. For this study, only the Caregiver Rating Scale was used, based on the appropriateness of the items to the objectives of the *LearningGames* approach. The QUEST Caregiver Rating Scale has 69 items; the observer rates the provider on each item using a 4-point Likert scale. The QUEST was used at baseline and at the end of the first year. Several items on the QUEST, most closely aligned with the *LearningGames* implementation, were also collected in fall 2007.

Exhibit 2.9: Observation Measures of Providers and Family Child Care Homes at Three Time Points			
	Observation Time Point (Observers)		
Observation Measure	**Spring 2005: Baseline (child care agency staff)**	**Fall 2006: One Year of Implementation (study staff)**	**Fall/Winter 2007: Two Years of Implementation (study staff))**
QUEST Caregiver Rating Scale	X	X	9 items only
Arnett Caregiver Interaction Scale	X	X	X
OMLIT Snapshot of Activities		X (adaptation #1)	X (adaptation #2)
OMLIT Read Aloud Profile		X (structured situation)	X (natural occurrence)
TALK			X

OMLIT. The Observation Measures of Language and Literacy Instruction (OMLIT) (Goodson et al, 2006) is a battery of measures developed originally to assess language and literacy instruction in group settings. The OMLIT measures aspects of early childhood education practice which, based on professional opinion and research, support children's acquisition of early literacy skills. The OMLIT also provides general descriptive information about the organization of and activities in the care setting. While the full OMLIT battery includes six measures, two were selected and adapted for family child care environments:

- ***The Snapshot of Activities (OMLIT-SNAP)*** is a time-sampled description of child activities and groupings, integration of literacy in other activities, and language in the setting. It has two sections. The Environment section describes the number of children and adults present, as well as the type of adult (staff, parent). The Activities section describes activities that are taking place. Then, for each activity, the observer records the number of children and adults in that activity, whether any adult or child is talking, whether they are speaking English or another language, whether any literacy materials are used (text, writing, letters), and if there is singing with the children (distinguished on the measure because of its potential as a phonological awareness/oral language support).

- ***The Read Aloud Profile (OMLIT-RAP)*** is a description of adult behavior when reading aloud to children. The RAP records adult behavior during the read-aloud session on supports for comprehension, questions, attention to print knowledge, and vocabulary. The RAP also includes quality indicators which summarize particular aspects of the read-aloud: (1) the degree to which the adult introduces and contextualizes new vocabulary to support children's learning, (2) the extent to which the adult uses open-ended questions that invite children to engage in prediction, imagination, and/or rich description, and (3) the quality of any post-reading book-related activities that the adult organizes (beyond oral discussion).

For this study, both of the OMLIT measures were adapted to be appropriate for family child care and to emphasize the variables that align most directly with the objectives of the *LearningGames* program (copies of the adapted coding forms for the Snapshot and the RAP are included in Appendix C). The Snapshot records the activities and groupings of all children and adults present in the family child care at the time of the observation. Each child and adult is assigned to one of 14 activities, such as reading, math, computer, snack, and the like. If the provider is involved in an activity with one or more children, her language and overall level of engagement are coded. Provider involvement is categorized on a scale ranging from" "observing"," to "managing" up to "playing with/teaching/demonstrating/discussing" with children. For each activity, the Snapshot indicates not only the number of children in that activity but also their ages (infants, toddlers, or preschoolers). The data can then be analyzed in terms of proportion of time over an observation period that children spent in each type of activity, actively engaged with the provider, playing alone or with other children and their ages. During the observations, the Snapshot was completed every five minutes.

The OMLIT RAP did not require substantial adaptation for family child care, since it was designed to describe the behavior of a single adult reader with any number of children. The RAP records the provider's interactions with children during a read-aloud session outside of the actual reading of the text in the book. This includes comprehension supports (e.g., telling the story in advance), open-ended questions, attention to conventions of print, focus on print knowledge, and introduction of new story-related vocabulary and types of definitional supports for new vocabulary (pictures or props, definitions with synonyms or antonyms, semantic networks). Codes were added to the RAP to record specific features of *LearningGames* such as the read-aloud strategies. A RAP was completed each time that the provider read aloud to children during an observation period.

In previous studies, the reliability of the OMLIT measures, as assessed by inter-rater agreement, was above .80 for the major codes. Reliability of the observers on the *LearningGames* study was assessed as part of the training procedure and is described below.

TALK. The TALK was developed for the *LearningGames* study to assess the extent to which providers engage in extended conversation with individual children, as well as other types of one-on-one language interactions that could build children's oral language skills. The TALK codes provider/child verbal interaction in five categories: management or helping, provider only (including provider narrating child's actions), simultaneous verbalization (singing, chanting, rhymes), discussion (short, fewer than 4 turns back and forth), and extended discussion (4 or more back and forth turns, with provider building on child's responses). In administering the TALK, the observer rotates through the children present, observing each one for two 5-minute segments and recording any individual language interactions with the provider during those two 5-minute periods. Six TALK observations were completed in an hour of observation (five minutes of observation and coding, following by a Snapshot as described above). This schedule meant that, in most homes, children were observed with the TALK at least three times.

Arnett Caregiver Interaction Scale (CIS). The 26-item Caregiver Interaction Scale assesses the quality and content of the caregiver's interactions with children. The scale was designed to provide information on various socialization practices that have been identified in research on parenting. The scale can be used without modification in both center and home-based settings. The items measure the emotional tone, discipline style, and responsiveness of the caregiver in the setting. The observer rates the extent to which the caregiver exhibits the behavior described in the item on a 4-point scale, ranging from not at all (1) to very much (4). Averages can be calculated for each subscale. The items are usually organized into the following four subscales: (1) positive interaction (warm, enthusiastic, and developmentally appropriate behavior), (2) punitiveness (hostility, harshness, and use of threat), (3) detachment (uninvolvement and disinterest), and (4) permissiveness. The CIS has adequate psychometric properties. In terms of internal consistency, Layzer, Goodson & Moss (1993) obtained Cronbach alphas of .91 for warmth/responsiveness (positive interaction) and .90 for harshness (punitiveness), while Resnick and Zill (1999) obtained alphas for the total scale of .98 for lead teachers in early childhood classrooms and .93 for assistant teachers. Jaeger and Funk (2001) reported coefficients of .81 and higher for the sensitivity (positive interaction), punitiveness, and detachment subscales. In addition, Jaeger and Funk reported inter-rater reliability coefficients ranging from .75 to .97 between a certified observer and trainees.

At posttest, nine items from the QUEST were adapted and added to the CIS. The items focus on provider behavior that aligns more closely to the objectives of *LearningGames*, including extended interactions (verbal or nonverbal) with individual children, enrichment of daily routines with language or learning, language-rich interactions with children, encouragement of reading, encouragement of exploration.

Observer Training
Prior to the observations of the family child care homes, observers were trained to reliability on the observation measures by senior Abt staff familiar with the measures and with protocols for training observers. Data collectors were trained on the three observation measures over a 4-day period. Training on all the observation instruments combined an item-by-item discussion of the instruments, illustrations and discussion of items using video-recorded segments of adult-child interactions and book reading, and procedures for conducting observations in family child care homes. Trainees were also given opportunities to practice independently coding video-recorded segments of adult-child

interactions and book readings. Among the 12 trainees, 10 passed reliability testing for all the observation instruments. To demonstrate reliability, trainees (a) achieved 80% agreement with expert raters from Abt Associates on written vignettes of family child care environments; (b) achieved 80% agreement with expert raters from Abt Associates on independently coded video-recorded samples of interactions and book readings, and (c) achieved 80% agreement with a trainer when both the trainer and trainee conducted observations in family child care homes that were not part of the study sample.

CHAPTER 3: IMPLEMENTATION STUDY

OVERVIEW

The Massachusetts Family Child Care Study is the first time that *LearningGames* has been implemented on a wide scale in family child care. Therefore, the study offered the opportunity to learn about the feasibility of implementing the program in home-based child care settings with high fidelity to the model, as well as learn about factors that were either "enablers" or "disablers" of successful implementation. The study examined two major components of the implementation of *LearningGames*: (a) the implementation by the developers and home visitors of the *professional development model* for training and supporting providers on *LearningGames*, a model that was designed specifically for the Massachusetts study, and (2) the implementation by providers of the *LearningGames* program with the children in their care. The major research questions that guided the implementation study are:

- What was the *professional development* model as planned, i.e., what types and amounts of training and support were providers *intended* to receive?
- To what extent was the *professional development* model implemented as planned, and, for areas where the planned model was not fully implemented, what were the factors that hindered full implementation?
- What was the *LearningGames program* model as planned, i.e., what types and amounts of activities were providers *intended* to use with their children?
- To what extent was the *LearningGames program* model implemented as planned, and, for areas where the planned model was not fully implemented, what were the factors that hindered full implementation?

In this chapter, we first describe the program model and the professional development model as planned. The professional development model includes specification of the planned roles and responsibilities of the organizations involved in the implementation of *LearningGames* and the types and amount of support to be provided to the family child care homes and providers. The program model includes the components of the *LearningGames* approach. We then provide information about the extent to which the implementation of the study reflected fidelity to the major elements of the professional development and program models.

The implementation study indicates that the professional development model was only partially implemented. Because of a series of barriers to implementation that were encountered, the quality of support to family child caregivers provided by home visiting staff was not optimal, at least in the initial period of the intervention. In addition, it appears that home visitors did not consistently provide the specified amount of *LearningGames* technical assistance time.

Despite the inconsistency in the implementation of the planned professional development for providers, there was evidence that providers were using the *LearningGames* program model. The home visitors reported that many of the providers used and incorporated the *LearningGames* strategies in their daily practices. In addition, Abt's fidelity measure, drawing from its provider

observations, indicated that there was a modest difference between *LearningGames* and control providers in the developmental practices supported by *LearningGames*. More details are provided in the following sections.

THE MASSACHUSETTS *LEARNINGGAMES* PROGRAM MODEL

The *LearningGames* approach includes several components:

- *LearningGames* activities for providers' use with individual or pairs of children;
- "Enriched caregiving" across all parts of the day, including during routine care and ordinary activities;
- Interactive reading using *LearningGames* Conversation Books and other storybooks;
- Specific language priority strategies to support children's language and cognitive development: 3S (See, Show, Say) and 3N (Notice, Nudge, Narrate);
- Parent handouts to encourage use of the same *LearningGames* activities at home that providers are using in the care setting; and
- Supporting materials, including a manual for family child care providers, and documentation and organizational plans and records.

Each is described in further detail below.

LearningGames

The 200 *LearningGames* are divided into five volumes corresponding to each year of age from birth through age 5 (e.g., 0–12 months, 13–24 months). Each game is designed to support one or more specific development areas, including social emotional, early literacy, oral language, cognitive, and space and action. As an example, Exhibit 3.1 provides information on the games in the third volume (for months 25–36) and the developmental areas that they address. The set of games in each volume are expected to take approximately one year to complete, if the child and caregiver starts with the first game in the volume. (Providers and children choose the most developmentally appropriate game with which to begin and this game may be midway through a volume.) The games increase in their developmental sophistication so that the last game in a volume is designed to be appropriate for a child is who is approximately one year older than when he or she played the first game. As shown in Exhibit 3.1, in the third volume of the curriculum, 24 of the games address at least one socio-emotional domain, 11 games address early literacy, 14 address oral language development, 19 address at least one cognitive development domain, and 6 address space and action.

Exhibit 3.1: Developmental Themes Addressed by *LearningGames* Volume 2 (Games 68-100+) Designed for Children Between 2 and 3 Years of Age

Game	Social and Emotional							Cognitive				
	Needs & Feelings	Self-Image	Independence	Sharing & Cooperation	Family & Culture	Early Literacy	Oral Language	Knowing & Classifying	Creativity	Object Permanence	Visual Motor	Space & Action
68. Showing On Part						●	●	●		●		
69. Making Faces	●	●				●			●			
70. Family Circle Games.	●			●	●							●
71. Dress Up		●	●						●			
72. Playing With a Mirror	●	●							●		●	
73. Seeing It a New Way			●					●	●		●	
74. What's Your Name?		●			●	●						
75. Chanting Nursery Rhymes				●	●		●					
76. Showing "One" and "Two"							●	●			●	
77. Color Sorting							●	●			●	
78. Building Blocks			●						●		●	
79. Showing Your Needs	●			●			●					
80. Making Ox and Xs						●		●			●	●
81. Playing With Others				●					●			●
82. Choosing the Doll's Clothes		●					●					
83. Drawing Around Things			●			●					●	
84. Whispering				●			●					
85. Happy Face, Sad Face	●	●			●			●				
86. Two Together				●					●			●
87. Choosing and Stringing				●							●	
88. In, Out, and Around							●	●				●
89. Giving One to Each				●	●	●				●		
90. Making a Fun Path			●				●					●
91. Using Words for Time						●	●	●				
92. Listening and Supporting	●			●	●							
93. Pairing and Sorting Pictures						●	●	●			●	
94. What's Gone							●	●		●		

Exhibit 3.1: Developmental Themes Addressed by *LearningGames* Volume 2 (Games 68-100+) Designed for Children Between 2 and 3 Years of Age

Game	Social and Emotional					Early Literacy	Oral Language	Cognitive				
	Needs & Feelings	Self-Image	Independence	Sharing & Cooperation	Family & Culture			Knowing & Classifying	Creativity	Object Permanence	Visual Motor	Space & Action
95. Cutting and Pasting			●						●		●	
96. Helping Him Help Himself			●								●	
97. What Would Happen If…						●	●	●	●			
98. Running & Walking Together				●			●					
99. Telling Family Stories		●		●	●	●		●				
100. I See Something That Is							●	●				
100+ One Picture, Two Labels				●	●	●	●	●				
Total	6	7	7	12	8	11	16	14	9	3	11	6

Source: Sparling & Lewis (2001).

Each of the rows in Exhibit 3.1 represents a title of a LearningGame in the third volume of the approach. Each game is described on the front and back of a perforated page that can be removed from the *LearningGames* volume and used separately or displayed. The front side provides the game's name, a picture, and a brief overview. On the bottom of the front page, there is a short answer to "why" this is important. For instance, for "Showing One and Two" (Game 76) the game says that the purpose of the game is "to show that 'one' and 'two' tell a particular amount." The picture shows and adult and child together doing the activity. The front page overview gives a three or four sentence explanation of the game. The reverse side provides more detailed information about what the adult and child should do and why the activity is important in terms of enhancing children's development and provides tips for extending and deepening the game.

Providers are trained to select a game that would be developmentally appropriate for each child in care. The provider repeatedly uses each game with one or two children, deepening the game as children master the game's concepts. For instance, LearningGame #50 (for 12–24 months of age) is called "First Nesting." The caregiver gives the child two objects that can be nested, such as two different size cups and lets the child explore how they fit together, while narrating what the child is doing and, eventually helping if necessary. In subsequent "plays" of the game, the caregiver might find other objects around the house and let the toddler explore how they can be "nested" while narrating what the toddler is doing. After a game has been mastered, the provider selects the next game, with the expectation that there will be natural overlap between games.

For each of the games, providers are asked to distribute handouts to parents that guide parents in using the same games at home. The parent handouts are in English and in Spanish.

Enriched Caregiving

The *LearningGames* approach also asks providers to incorporate activities throughout the day that enrich regular care routines, including meal preparation and eating, putting on coats to go outside, tying shoes, and other routine care. For example, for meal times, age-specific suggestions are provided such as: singing to a child during bottle feeding; talking about and naming items such as food, cup and spoon; using children's names; pointing to and reading aloud letters on food labels; and writing names of needed items on grocery lists. It also provides other ideas such as naming things nearby, going for a walk, singing a song, and back-and-forth language play.

Conversation Books

As part of the materials, read-aloud books are provided to each of the family child care providers. These mostly are brightly colored board books composed of pictures and simple concepts. Each day, the intervention requires providers to read at least one book to each child; this book can be either a *LearningGames* read-aloud book or another children's book. Providers are asked to read to one child alone or to two at a time, holding the child close to them while they read and encouraging children to respond, using the "3S" strategy described below.

Language Priority Strategies

The approach focuses on two sets of strategies: 3S (See, Show, Say) and 3N (Notice, Nudge, Narrate). "See, Show, Say" draws out responses from children at three levels of difficulty and is tailored to the child's age and abilities. Basing her choices on the child's developmental stage, the caregiver engages the child by identifying an object ("See"), having the child identify it through pointing ("Show"), and/or asking a question that will prompt the child to verbally identify the object ("Say"). For example, a caregiver can ask, "See the ball?" Once it is clear that the child recognizes the object, she might say to the child, "Show me the ball." Once the child has mastered this, she can ask the child, "What is this?" If the child is unable to do any one of these, the caregiver goes back one level. In this example, if she asks the child, "What is this?" and the child does not respond, the caregiver than would say, "Show me the ball," and have the child point to the ball. The caregiver would provide positive reinforcement and then ask again, "What is this?"

The 3N strategy (Notice, Nudge, Narrate) is a scaffolding strategy that also can be woven into the day. The strategy is designed to help the caregiver move the child from a current level of knowledge or skill to a higher level of competence. Using the 3N strategy, the caregiver can turn any activity into a learning experience for the child. The caregiver, observing the child, notices what the child is doing or preparing to do and uses words to describe it to the child or ask a question about it. Once the caregiver has noticed what a child is doing, she can then gently nudge the child toward a new learning opportunity. Finally she narrates, telling the story of what the child is doing to increase the child's awareness of the significance of his or her own actions. For instance, "You chose the red ball!" adds color information and affirms the significance of the choice.

Supporting Materials

In addition to a full set of games and the read-aloud books, providers were also given a family child care manual developed specifically for the intervention. The manual is approximately 20 pages and written in simple English and Spanish. It describes the *LearningGames* approach, including the games, reading aloud, and the language priority strategies and provides a number of examples of each.

The manual was accompanied by *LearningGames* materials that could be posted by the caregiver and used for lesson plans and to track children's progress. Providers also had a separate tracking document for each child, where they could record the games the child mastered as well as document read-alouds and enriched caregiving episodes. In addition, the providers were given sample lesson plans. (See Exhibit 3.2 for an example.)

THE MASSACHUSETTS *LEARNINGGAMES* PROFESSIONAL DEVELOPMENT MODEL

Roles and Responsibilities for the *LearningGames* Implementation

The professional development model that was designed for the Massachusetts study involved a system of training and support for three groups: two half-time study coordinators, would who supervise and supported the network home visitors; home visitors who would be trained in *LearningGames* and whose job was to provide technical assistance to providers; and the providers themselves.

- *The study coordinators*, one of whom was bilingual, would provide support to the home visiting staff, primarily by accompanying them on one home visit every two months. They did not receive any specialized training or skill assessment but participated in an initial three-day training designed for the home visitors, which is described in the next bullet. In addition to the training, they met and communicated regularly with Dr. Sparling, the founder of MindNurture and the developer of *LearningGames*, and with one of two of his staff, who were trained technical assistance providers. They also accompanied Dr. Sparling and MindNurture staff on visits to family child care homes.

- *Home visitors* would provide support to *LearningGames* providers. The home visitors were trained directly by Dr. Joseph Sparling and the MindNurture staff. The plan specified that home visitors would receive three days of training from Dr. *Sparling* and his staff in summer 2005 (before the intervention began), with a short refresher training in fall 2005. The home visitors would provide ongoing support to the providers in the form of feedback and technical assistance on *LearningGames* during hour-long, twice monthly visits to providers throughout the two-year training.[11]

---

[11]   The visitors also had non study-related responsibilities during the home visit, and continued to be responsible for visits to homes that were not part of the study, in addition to the *LearningGames* homes.

Exhibit 3.2: Sample Weekly Lesson Plan

This week with *LearningGames*

Name: _____

Date: _____

	Monday	Tuesday	Wednesday	Thursday	Friday
Care Routines:					
Feeding	Teach older children to say the wor" "spoo"." Let the younger children just point to the spoon when I name it.				
Dressing	Talk a lot about socks and shoes. Have the older children count socks and shoes. Have younger children point to shoes.				
Washing up	Count fingers when we wash hands. Let the younger children hold up their fingers while I count them.				
Familiar Activities:					
Naming objects	Name door and door knob Name door and door knob Name door and door knob			Name window	Name window
Going for a walk	Each day look for something green outdoors—name the things and talk about them				
Singing	Sing" "Una boquita para com"r" at nap time. Sing" "Row, row, row your bo"t" when children are doing active play.				
Conversation plan	Do back & forth babble talk at the diapering table. Make up rhyming words with the older children				
Interactive Reading:					
Using 3 S's	Make sure younger children see and show when I name the pictures. Let the older children say the names of many pictures.				
Books read:	Yo! Yes? I Spy: Little Wheels My First ABC Alic'a's Happy Day Finding Toys				
***LearningGames*:**					
Infants	#16. Ride-a-Horsie	#16. Ride-a-Horsie	#16. Ride-a-Horsie	#16. Ride-a-Horsie	#16. Ride-a-Horsie
Ones	#90. Making a Fun Path	#90. Making a Fun Path	#90. Making a Fun Path	#90. Making a Fun Path	#90. Making a Fun Path
Twos	#156. How about You?	#156. How about You?	#156. How about You?	#156. How about You?	#156. How about You?
Threes					
Fours					
Other Activities:		Make cookies today		Use fingerpaints	

Source: Materials developed by Dr. Joseph Sparling, 2006.

- *LearningGames* providers would receive the predominance of training and support from the home visiting staff through the twice monthly home visits, and, in the second year of the intervention, from Dr. Sparling and MindNurture staff. Each of the family child care homes assigned to *LearningGames* would receive the materials described above, which were supplied by Dr. Sparling to the networks. They were expected to use the *LearningGames* approach to the best of their abilities with all children under 60 months of age.

Ongoing supervision of the home visitors' support for *LearningGames* was planned to be provided by two half-time project coordinators through study funding directed to them according to the request of the Massachusetts Office of Child Care Services (OCCS). Since the two coordinators had no prior experience with *LearningGames,* they were trained in summer and fall 2005 with the home visitors. The plan specified that the two coordinators would be supervised by a staff person from OCCS and advised by Dr. Sparling. The study coordinators were then expected to accompany each *LearningGames* home visitor on one visit every other month to a *LearningGames* home, for a total of six accompanied visits per year, and provide feedback to the home visitor about her work with family child care providers. One of the study coordinators was bilingual and could provide feedback and support to home visitors in Spanish when necessary. Study coordinators were to document for the study the providers who remained in the study (both in the treatment and control groups) and to verify that the *LearningGames* home visitors were not visiting and providing technical assistance to providers in the control group. Study coordinators also were expected to communicate this information, along with any general questions or concerns about the study, to the study team at Abt Associates.

The implementation plan called for the home visitors to distribute the *LearningGames* materials to the providers and begin working with them immediately after completing the initial 3-day training. In the approximately hour-long visits to providers, home visitors were expected to cover several activities during each home visit. These included reviewing records, hearing about issues, and providing general feedback. The home visitor also would provide mentoring on specific *LearningGames* techniques. The training protocol instructed the home visitor to let the written game itself be the principal "teacher."

To make the game the "teacher," the home visitor was instructed to read aloud the text from the game sheet. The provider was then to demonstrate the game and together, the home visitor and provider were to reflect on how the actual playing of the game was similar to or varied from the text. Home visitors were instructed to reflect on the positive aspects of the way the game was played and make suggestions about how it could be improved. Similarly, if there was time during the visit, they were to observe the caregiver providing interactive book reading and make suggestions about improvements in using the 3S strategies and other book reading techniques. The approach was for home visitors to observe and suggest but not to demonstrate, that is, not to actually do the games or other strategies directly with a child.

Adaptations to the Model as Planned

The adaptations to the professional development model involved changes in the schedule and intensity of training for both the *LearningGames* home visitors and the *LearningGames* providers.

Training and Support for LearningGames Home Visitors

As we noted above, the professional development plan called for network home visitors to provide training and support to the family child care providers who were assigned to implement *LearningGames*. To develop the needed skill set to train providers on *LearningGames*, the initial plan called for home visitors to receive a 3-day training in summer 2005 and then immediately begin working with *LearningGames* providers. Then, after they had some practice as *LearningGames* coaches, they would participate in a short refresher training in the fall. As discussed in the section on Study Timeline in Chapter 2, the 3-day training for *LearningGames* had to occur as early as possible in summer 2005. However, this timing was not ideal for the study. Recruitment was not completed until spring 2005 and the home visitors were responsible for conducting the baseline observations of providers before implementation could begin. This data collection process was expected to last only a few weeks but ended up taking much of the summer for many of the networks. As a consequence, for many home visitors, several months elapsed between when they received the initial training and when they started working with providers. The actual implementation of *LearningGames* could not begin in many networks until fall/winter 2005, which represented a delay between their *LearningGames* training and their work with *LearningGames* family child care providers, creating potential issues with recall.

While the initial plan was for Dr. Sparling to return in the fall and conduct a refresher training, it became clear early on that one additional training would be insufficient even without the initial delay. The developer determined that these two trainings were not enough to enable home visitors to master both *LearningGames* and home visiting protocols. Instead, after the initial training, Dr. Sparling held quarterly *LearningGames* training meetings with family child care network staff throughout the two years of the intervention. These meetings began in fall 2005 and went through summer 2007. In most cases, both the home visiting staff and their direct supervisors participated in the training sessions.

Each of the quarterly training sessions were planned after discussions between Abt staff, project coordinators and Dr. Sparling to determine the agenda and address specific perceived needs of the home visitors and providers. For instance, a quarterly meeting in summer 2007 (approximately nine months after the implementation of *LearningGames* started) focused on giving home visitors tips on how to help providers enhance their enriched caregiving techniques. The home visitors were given short handouts that described the 3N and 3S techniques and then asked to work in pairs to come up with examples of how and when providers could use these techniques over the course of the day. They also did role plays in which one played the role of provider and one of home visitor. Finally, they watched videos of Massachusetts family child care providers who were in the *LearningGames* group and were asked to comment on what they observed in terms of enriched caregiving and what their approach as a home visitor would be to support the specific examples of such caregiving.

In addition, starting midway through the first year of the intervention, Dr. Sparling and/or one of his two technical assistance staff directly visited the networks as well as some of the family child care homes in the study to provide direct technical assistance to home visitors, to see *LearningGames* in action, and to develop videotapes of providers that could be used to train home visitors on how *LearningGames* was being implemented. In the second year of the study, the Department of Early Education and Care (formerly OCCS) directed funding to MindNurture to enable Dr. Sparling and his

staff to provide a higher level of training and support than was possible with resources in the first year.

Supporting Spanish-Speaking Home Visitors
As will be described in Chapter 4, 41% of the family child care providers only spoke Spanish or were bilingual in Spanish and English (Exhibit 4.2). Networks assign all homes in which only Spanish is spoken and many English/Spanish homes to bilingual home visitors, some of whom requested additional language support because none of the *LearningGames* professional development materials for home visitors were in Spanish. Further, Dr. Sparling and MindNurture staff did not speak Spanish. To help home visitors who requested language support, a designated table at quarterly training meetings was staffed by an Abt staff person who was bilingual. Home visitors could choose to sit at that table and the Abt staff person would translate if necessary and/or check in with the home visitors to ensure that they understood the concepts being conveyed. In addition, many of the video-taped vignettes of *LearningGames* in Massachusetts family child care homes that were created to facilitate home visitor training were from homes where Spanish was spoken. Finally, one of the study coordinators spoke Spanish and was able to provide feedback and support to home visitors when Spanish was preferred.

Training for LearningGames Providers
The professional development plan called for one-on-one, in-person training of providers in visits to the homes by the *LearningGames* home visitors. Some family child care networks reported that they added *group* training sessions for *LearningGames* providers within their systems for home visitors to provide additional modeling of the games and techniques, going over the "rules" of the curriculum (e.g., 3S strategy and 3N strategy), and to answer questions about how to incorporate *LearningGames* into their ongoing practices. In addition, Dr. Sparling and his staff provided direct training for providers in the second year of the study. All *LearningGames* providers were offered opportunities to participate in group trainings and approximately 80% participated in at least one such training.

IMPLEMENTATION OF THE PROFESSIONAL DEVELOPMENT MODEL

Fidelity of Implementation

The study did not formally measure the fidelity of the professional development model. Evidence on fidelity comes from stakeholder interviews and a review of notes and logs. Together, these sources indicate that the professional development model was not fully implemented, in terms of the fidelity of the home visiting protocol, the adherence to twice monthly home visits, and the provision of technical assistance by project coordinators.

Given the amount of new material to be mastered, both in terms of the *LearningGames* curriculum and the home visit protocol, we expected that implementation of the professional development model might begin slowly and become stronger over time. While there were no formal assessments of fidelity of the home visits to the protocols, information provided by the project coordinators and MindNurture staff reinforced this expectation, as well as the belief that some of the home visitors needed additional support beyond the initial training and the quarterly training sessions. Project coordinators and MindNurture staff indicated that the home visitors with a firm understanding of the curriculum did well in transferring their knowledge to the providers and provided high-quality

technical assistance and mentoring. However, home visiting staff expressed different degrees of understanding of the curricula and some said that they needed an additional level of support, which occurred in Year 2 when the MindNurture staff were able to provide more direct technical assistance given the additional funding received. As one home visitor stated, "When support was there it was wonderful, but it wasn't there from the beginning."

As described above, the original model called for project coordinators to shadow each of the home visitors on a *LearningGames* visit approximately once every two months. The project coordinators estimated that they made 50–70% of the visits expected of them, in part due to scheduling issues and other job responsibilities of both the providers and home visitors.

In addition, although training and materials clearly spelled out the expectation that home visits were to occur twice per month, anecdotal evidence indicates that these did not always occur, in part due to home visitor turnover and other issues described below. Interviews with family child care network staff indicate that, in some cases, providers only received one extended visit per month. In addition, some home visitors reported that, in some cases, they thought that the *LearningGames* homes did not require two visits a month for technical assistance and guidance. According to one home visitor, "I can call them and I know that I can trust they've done what's on the chart [the lesson plan]. I don't always go. Some are okay with less supervision."

Barriers to Implementation of the Professional Development Model

Barriers to implementation fell into three categories: issues related to roles and responsibilities for the implementation, to the training of *Learning Games* providers, and to the train-the-trainer approach. Each set of issues is discussed below.

Roles and Responsibility for Implementation
Implementation of the planned roles and responsibilities for the implementation of *LearningGames* was an issue from the onset of the study. As expected, the Office of Child Care Services (OCCS) was involved in the planning and early implementation phases of the study; it recruited the family child care networks and also paid for the *LearningGames* materials and some of the time of Dr. Sparling and his staff. However, the amount of Dr. Sparling's time originally supported by the state was insufficient for him to be more than a consultant to the project, as opposed to being in charge of *LearningGames* implementation.

Similarly, while OCCS directed study funding to support the project coordinators, the coordinators were staff of child care resource and referral agencies, and did not report directly to either OCCS or MindNurture. During the study's first few months, state staff held monthly conference calls with the project coordinators to monitor their activities; however this process was curtailed with state agency reorganization. When the study began, the position of OCCS commissioner was vacant and the agency was subsequently reorganized into a newly created Department of Early Education and Care (EEC), with a new commissioner starting in summer 2005. The new commissioner expressed interest in the study but determined that the state should not be directly involved in the administration or evaluation of a project that could influence the decision about adopting a curriculum for family child care homes statewide. While official state involvement was discontinued, the state did provide additional funding in Year 2 to Dr. Sparling and one of his technical assistance staff to support direct

training and other activities. The EEC Commissioner also sent a thank you letter to the providers in the study in recognition of their participation. While EEC staff did not provide any direct supervision to project coordinators, they continued to participate in the quarterly meetings to train home visitors. The reduced involvement of the state meant that Abt Associates was more involved with supporting implementation on a day-to-day basis than originally intended.

Initially, state staff held conference calls with the project coordinators to learn about issues with the implementation of *LearningGames* at specific networks and/or in specific homes and to monitor their work. For several months after the state decision not to directly oversee the implementation, Abt Associates held these calls. In the last year of the study, this became the direct role of Dr. Sparling and staff.

Training the LearningGames Providers

Home visitors initially had to address several provider perceptions about *LearningGames* and about the home visits that threatened the full implementation of the model. First, home visitors reported anecdotally that providers felt that the *LearningGames* activities, such as showing a baby her face in a mirror or singing to children at mealtimes, were what they were "already doing" despite the home visitors' assessment that they were not. Therefore, in order for home visitors to convince providers that using *LearningGames* could fundamentally change their interactions with children, home visitors required a strong grasp not only of the specific games but also of the developmental theory underlying the games. Home visitors also needed enthusiasm for the *LearningGames* approach, a solid background in early childhood development, and a strong skill set for working with family child care providers to help them developmentally enhance care.

A second provider perception that needed to be addressed by home visitors dealt with the value of working with one or two children and the possibility of this happening in homes. Overall, family child care network staff reported that providers were skeptical about the possibility of conducting *LearningGames* with individual children in their homes. Providers perceived that there were too many demands on their time and that group learning, despite the age differences of children, and free play were the only feasible approaches. Therefore, many of the initial quarterly training sessions focused on giving providers tips on how to focus attention on one or two children at a time. By the end of the two-year period, home visiting staff reported that participating providers thought an individualized approach feasible.

Some providers also reported issues with the *LearningGames* home visits. First, although there were a substantial number of technical assistance topics to be covered in one hour, some providers voiced discomfort at being coached and observed for that length of time. Second, network staff reported that some providers felt as if they were being judged or scrutinized, particularly during those visits when project coordinators accompanied the home visitors. Finally, the *LearningGames* professional protocol called for the provider and home visitor to read the game aloud. This practice was designed so that reviewing the game would be shared and the home visitor would not be put into the position of "instructor." However, network staff reported that reading aloud was not always comfortable, as neither party had experience doing so with other adults and were not always confident enough in their reading aloud skills to do so.

Finally, while it appeared that many providers found their home visitors helpful, they also wanted direct training from the developer. Direct training of the family child care providers was considered but then dismissed because it did not seem feasible, since homes were located throughout the state. On one hand, it did not seem possible for MindNuture to schedule and conduct up to 23 separate group trainings for each of the participating networks or regional offices. The other option was to offer one or a small number of centralized trainings. Given the long working hours of family child care providers and the need for them to travel to a centralized locations for this option, it seemed unlikely that many providers would be able to participate. However, network staff reported that providers wanted direct training, which was echoed by providers themselves in the second year of the study when they received it. (One of the reasons why it became feasible in the second year was that the high level of attrition reduced the number of *LearningGames* providers, making coordination of group trainings much more feasible.) Network leadership, state staff and the developer indicated that they believed that direct training earlier in the intervention would have been more helpful than relying completely on home visitors, as providers would be receiving training directly from the *LearningGames* expert, instead of from home visiting staff, many of whom had not yet mastered the approach.

Train-the-Trainer Approach With Home Visiting Staff

There were a number of issues that impeded the *LearningGames* home visitors from being optimally effective in providing mentoring and support to the *LearningGames* homes. These issues included time needed for training and mastery of the *LearningGames* approach, caseloads, staff turnover, and less than optimal initial support. Each of these issues is discussed below.

Insufficient time for mastery of *LearningGames* concepts. As stated earlier, the original plan was for a total of 5 days of training (3 initial days of training and two 1-day refresher trainings). However, home visitors were asked to attend 10 days of training (an initial 3-day training and 7 quarterly day-long meetings) over the course of the two years. Home visitors needed additional time beyond the training sessions to develop their understanding of *LearningGames.*

At least initially, the professional development model enabled home visitors to stay just one step ahead of providers. After receiving the summer 3-day training on the *LearningGames* approach and the home visiting protocol, home visitors were to read and master specific *LearningGames* and help the providers choose one to do with each of their children. Prior to every *LearningGames* visit, they needed to review and understand the *LearningGames* that were being played with each child in the home and to learn the next games to be played. They needed to know the games well enough to be able to suggest ways in which the games could be deepened and broadened and to be able to explain the developmental significance of these activities to the providers. Since a specific game is selected for each individual child, and the providers' homes had children who varied in age, this could mean home visitors needed to learn many new games to stay on top of things during any given week. While knowledge of specific games eventually would accumulate, at the outset there was a lot of material to go through. In addition, to provide general advice and support, home visitors also needed to be able to identify and support instances when the caregivers used *LearningGames* learning strategies during the course of the day (enriched caregiving, using 3S and 3N) or to identify opportunities where caregivers could use these strategies.

In addition to receiving training and mastering *LearningGames,* home visitors were required to document each of the home visits with the *LearningGames* providers. They were also asked to periodically fill in fidelity measures that indicated how well the providers were implementing each of the elements of *LearningGames*. Finally, home visitors were asked to coordinate with project staff who would accompany them on a visit every other month.

High home visitor caseloads. Initially, *LearningGames* home visitors were assigned to provide mentoring to three to ten providers doing *LearningGames*, with about one-third of home visitors working with five or more *LearningGames* providers. The number assigned depended upon the number of homes within a network participating in the study and the number of home visitors that the network decided to train. By summer 2007, home visitors were working with between two and seven *LearningGames* providers.

Home visitors who supported *LearningGames* homes also supported additional providers in the network, although none of these providers belonged to the control group. Home visitors' overall caseloads, that is, the total number of providers that they were required to visit, had a potential impact on the time they needed to do the *LearningGames* intervention. As described in Chapter 2, to participate in the study, networks had to agree that their home visitors would be able to make two *LearningGames* visits per month to the *LearningGames* homes. They did not, however, have to guarantee that the home visitors had a specific caseload of providers that would permit them to implement the model as planned. As described in Exhibit 2.2, the participating networks reported that the average home visiting caseload was 20 and approximately one-third of the networks reported case loads of 15 or fewer providers. However, anecdotal information indicated that, in reality, for many of the home visitors the actual caseload was higher, especially when visits were factored in for nutritional monitoring visits for the Child and Adult Care Food Program and/or visits to homes with children who were receiving child care because they were in child protective services, which included some of the other responsibilities they had to perform. In some cases, the network supervising staff of the home visitors augmented support to the *LearningGames* providers by conducting some home visits themselves.

Home visitor turnover. Approximately 25 home visitors initially were assigned to provide *LearningGames* support. At the end of the study, 11 of these home visitors were no longer in that role; approximately two-thirds of them had changed roles in the network and the rest had left their agencies.[12] In Chapter 2, we noted that because they were selected by networks as opposed to randomly selected, *LearningGames* home visitors could be different at baseline than control home visitors and this could contribute to any differences in provider outcomes. However, the high level of turnover of *LearningGames* home visitors might, in fact, reduce the chances that the selected *LearningGames* home visitors were systematically different than their control counterparts.

There were no formal provisions for training new home visitors. If the former *LearningGames* home visitor remained with the network, she generally provided training to the new home visitor. In all networks, the home visitor supervisor attended the quarterly training sessions and was familiar with *LearningGames* and able to offer informal support, as did home visitors who changed roles but stayed

---

[12]   Because random assignment occurred at the provider level, no homes were lost from the study as a result of home visitor turnover.

employed in the network. The new home visitor attended the quarterly meetings, but the next scheduled meeting may have occurred up to three months after she assumed her *LearningGames* duties. In Year 2, MindNurture technical assistance staff made special attempts to meet and train the new home visitors. In interviews, staff from family child care networks reported that retraining went more smoothly for those systems where home visitor supervisors also participated in quarterly meetings and were familiar with *LearningGames* as they could provide the new home visitors with training and support. Retraining of new home visitors was not documented.

We do not know if later implementation was stronger or weaker because of home visitor turnover. While new home visitors may not have been as able to support *LearningGames* as their counterparts, *LearningGames* providers likely gained more facility with the model over time and may have not needed as much support. In addition, as time went by, home visitor supervisors who participated in quarterly meetings were more knowledgeable about *LearningGames* and able to augment training and support provided by project coordinators and MindNurture staff. It is unclear which set of factors was stronger: home visitor turnover versus improvements over time in other aspects of the professional development model and in the providers' implementation of *LearningGames*.

Training and experience of home visiting staff. Interviews with network and other staff indicated that the level of education and experience of home visitor made a difference in the amount of training and support that was needed to give them the tools and skills to mentor the *LearningGames* family child care homes. As described earlier, the education attainment of the home visitors varied greatly, with approximately 16% with a high school degree, 27% with a bachelor's degree, and most of the remaining either having an associate's degree or some college. It was perceived that additional support, beyond the regional training sessions, was needed for those with less experience. To provide additional support *MindNurture* staff made visits to the family child care networks and provided additional coaching and guidance for home visiting staff and their supervisors in the second year of the intervention.

Support by project coordinators and MindNurture staff. As stated earlier, the project coordinators received training at the same time as the *LearningGames* home visitors. They were expected to provide guidance and technical assistance to home visitors, even though they had the same level of training, at least initially. Respondents to interviews in summer 2007 indicate that more training in *LearningGames* as well as in their role as project coordinators might have been helpful.

PROVIDERS' IMPLEMENTATION OF THE *LEARNINGGAMES* PROGRAM MODEL

To understand how well the *LearningGames* homes implemented the approach, we drew from (1) interviews with state staff, MindNurture staff, project coordinators and network staff; (2) a home visitor fidelity rating checklist completed in spring 2006 (approximately 18 months after implementation); and (3) a fidelity measure created from a subset of items taken from the fall 2006 provider observations. Each is described more fully below.

**Perceptions of Staff of MindNurture and Family Child Care Networks of Providers'
Implementation of *LearningGames***

The *LearningGames* developer, his staff and network home visitors reported similarly that there was substantial variation in the degree to which providers understood and were able to implement *LearningGames*. Some of the home visitors reported that they believed some of their providers had integrated the *LearningGames* approach throughout their daily activities, while others did the *LearningGames* activities for "show" during home visits but did not do them consistently throughout each day. Because implementing *LearningGames* fully and accurately was a relatively large commitment, they believed that those providers who were really serious, motivated and had the necessary basic skills were those who were most successful.

Network staff reported that many of the providers liked *LearningGames* but some did not. For instance, at one site network staff reported that providers were enjoying implementing the program and none of them wanted to stop using it. When providers criticized the approach, it was generally for two different reasons. On the one hand, network staff said that some providers felt that implementing *LearningGames* was too labor intensive and too complicated since it required delivery over the entire course of the day and individualized interactions with each child. Other providers, however, thought that the content of the approach was overly simple and that it did not add anything to the way they already interacted with children.

Family child care network staff themselves generally reported that they had positive opinions about *LearningGames* but had mixed opinions about for which providers it was most appropriate. Many staff who were interviewed reported that the *LearningGames* curriculum "works" if used as it as intended. Home visitors from several networks reported that the overall approach was simple and that the games were valuable in that they are easy to implement, age appropriate and complete.

While all of the network staff who were positive about the curriculum seemed to believe that it was an appropriate tool for new providers, there were mixed opinions about its usefulness for more experienced providers. Some home visitors considered *LearningGames* a valuable tool for seasoned providers because it reinforced their belief that what they are doing is meaningful, the importance of a one-on-one, individualized approach, and the importance of weaving learning opportunities throughout the day. However, other home visitors felt that because the curriculum seemed simplistic to many experienced providers it was less appropriate for them.

Fidelity of Implementation of *LearningGames*

In spring 2006 home visitors were asked to rate the level of fidelity of *LearningGames* being implemented by family child care providers. Home visitors submitted ratings for approximately 70% of the providers who were in the study at that time. Despite indicating during stakeholder interviews that the level of implementation was mixed, home visitors rated almost all of the family child care providers as doing all of the *LearningGames* elements "often" or "always." It must be kept in mind that these high ratings were given by technical assistance staff; the ratings of objective observers in other studies are frequently lower (Judkins et al., 2008). These ratings included playing *LearningGames*, doing interactive book reading, and enriched caregiving. (See Exhibit 3.3.)

Exhibit 3.3: Home Visitor Rating of Fidelity of Implementation by Providers (n=67 providers)				
	Never	**Some-times**	**Often**	**Always**
1. Makes weekly plans using the form *LearningGames* This Week?	5%	10%	18%	67%
2. Shares weekly plans with you?	3%	18%	17%	62%
3. Does Interactive Book Reading every day with every child?	0%	6%	21%	73%
4. Plays *LearningGames* activities every day with every child?	0	6%	32%	62%
5. Discusses *LearningGames* and Interactive Book Reading with you and demonstrates games and book reading when you visit?	0	8%	27%	66%
6. Sends *LearningGames* activities (1 or 2 at time) home to parents when they are used?	2%	20%	16%	63%
7. Sends conversation books home to parents; tells parents how important book reading is?	7%	20%	18%	56%
8. Uses Enriched Caregiving?	0%	5%	12%	83%
9. Uses 3S strategy (See/Show/Say) to get responses from children during Interactive Book Reading?	0%	8%	8%	85%
10. Uses 3N strategy (Notice/Nudge/Narrate) during free play and enriched caregiving?	0	9%	8%	83%

Measurement of Fidelity in *LearningGames* and Comparison Homes

In addition to relying on the home visitors' ratings of family child care homes, Abt Associates created a fidelity rating scale using those items from the provider observation that were most closely aligned with the *LearningGames* approach. Exhibit 3.4 describes each of these variables, which largely focus on extended and enriched interactions between caregivers and children throughout the day. As the list shows, it would be possible for the control group also to be practicing these behaviors as they are consistent with high-quality caregiver-child interactions. For each of the items, we developed a 3-point scale, with a rating of "3" indicating that providers were engaging in the activity at a level that would be considered "fully implementing" the *LearningGames* approach.

Exhibit 3.4: Elements of the *LearningGames* Fidelity Scale	
Variable	**Rating**
Extended verbal/non-verbal interactions with individual or pairs of children (Source: QUEST item)	**1:** never or infrequently; **2:** occasionally; **3:** often/consistently
Nudges children to try something new (Source: QUEST item)	**1**: never or infrequently; **2**: occasionally; **3**: often/consistently
Enriches routine through language interactions/learning (Source: QUEST item)	**1**: never or infrequently; **2**: occasionally; **3**: often/consistently
Language-rich interactions (Source: QUEST item)	**1**: never or infrequently; **2**: occasionally; **3**: often/consistently
Encourages children to engage with print (Source: QUEST item)	**1**: never or infrequently; **2**: occasionally; **3**: often/consistently
If child < 12 months: Encourages infants to explore/be active (Source: QUEST item)	**1**: never or infrequently; **2**: occasionally; **3**: often/consistently
If child > 36 months in care: Helps children talk about what they are doing/thinking through open-ended questions (Source: QUEST item)	**1**: never or infrequently; **2**: occasionally; **3**: often/consistently
If child > 36 months in care: Extended rich conversations with individual or pairs of children (Source: QUEST item)	**1**: never or infrequently; **2**: occasionally; **3**: often/consistently
Proportion of time in meaningful talk with individual children (extended conversation; singing/back-and-forth verbal games with infants or toddlers) (Source: TALK)	**1**: > 5% **2**: 5-25%; **3:** 25% or more
Proportion of time in routine activities that provider is playing, demonstrating/discussing with children (Source: SNAP)	**1:** 0%; **2:** 1-25%; **3:** 25% or more
Proportion of reading aloud that is with individual or pairs of children (Source: RAP)	**1:** 0%; **2:** 1-75%; **3:** 76% or more

The total number of possible points on the fidelity scale ranged from 11 to 33.[13] There was a significant difference on the fidelity score between the *LearningGames* providers and the control providers (Exhibit 3.5). The average fidelity score for the *LearningGames* providers was 18.4, compared with an average score of 15.3 for the control providers. In addition, we created a score based on the proportion of items on which a provider received a rating of "1," meaning that they never or infrequently exhibited the behavior; therefore receiving the lowest rating on multiple items was seen as an indicator of low fidelity to the *LearningGames* approach. The average proportion of

---

[13]   For the items that depended on the ages of children in the home, missing values were set to the mean score for that home on the other items.

items with a rating of "1" was 50% for the *LearningGame*s providers and 69% for the control providers, which was significantly different. This suggests that the *LearningGames* training was effective at changing the behavior of the family child care providers in line with the *LearningGame*s objectives.

Exhibit 3.5: Scores on Fidelity Scale after Two Years of *LearningGames* Intervention by Treatment Status			
Measure	**Treatment Providers**	**Control Providers**	**Statistical Significance of Difference**
	Mean	**Mean**	**p-value**
Fidelity rating (out of 33)	18.4	15.3	.03
Proportion of fidelity items where provider scored as "1"	50%	69%	.0001

CHAPTER 4: IMPACTS OF *LEARNINGGAMES* ON FAMILY CHILD CARE PROVIDERS

OVERVIEW

In this chapter, we present findings on the impact of *LearningGames* on provider practices at two points during the intervention: after one year of *LearningGames* and after two years, which represents the end of the study. In this chapter, we describe the analytic sample, the outcomes tested, strategies for developing the outcome constructs, and the analytic approach to estimating impacts. To summarize, the analyses indicate that by the end of two years of intervention, *LearningGames* showed significant impacts on provider behavior, although these same impacts were not evident after only one year of implementation.

RESEARCH QUESTIONS

As described in Chapter 1, *LearningGames* is hypothesized to improve the developmental outcomes for the children whose providers are trained on the approach. Changes in providers in *LearningGames* homes are seen as intermediate outcomes that are necessary precursors to impacts on children. The study investigated impacts on providers at the end of one year of the *LearningGames* intervention (intermediate impacts) and at the end of two years (posttest impacts). At the end of one year, the implementation of *LearningGames* was halfway through its planned intervention period. Analyses investigated the evidence that the first step in the logic model (changes in providers) was occurring by examining a relatively broad set of outcomes that reflected high-quality practices for supporting children's learning and development, which were aligned with but not confined to the objectives of the *LearningGames* program. The two-year data collection and analyses represented the full *LearningGames* treatment. To avoid statistical complexities associated with testing a large number of outcomes, the two-year impact analyses were limited to a small set of provider outcomes that measured key goals of *LearningGames*.

PROVIDERS AT BASELINE

The results of the impact analyses are preceded by discussion of the providers at baseline. Even when, as is the case in the current study, the integrity of the random assignment is preserved, the resulting samples may not be equivalent on all baseline characteristics. These differences do not threaten the internal validity of the study but should be adjusted for in any subsequent impact analyses.

Interactions with Children

Exhibit 4.1 presents the scores for the treatment and control providers on the baseline observations, which were conducted by the child care network home visitors prior to the *LearningGames* training. There were no significant differences between the *LearningGames* and the control providers on either the QUEST Caregiver Rating Scale or the Arnett CIS. On the QUEST, which uses a 3-point Likert

---

scale, treatment and control providers were rated near the top of the rating scale in all areas of practice with children. Similarly, on the Arnett, which uses a 4-point Likert scale, both treatment and control providers were rated near the top of the scale on their responsiveness, warmth and engagement with children. Note that the uniformly high ratings of providers may be at least in part a function of having agency staff conduct the observations. These staff did not undergo rigorous training to a level of research reliability, and their role in providing technical assistance and training for the providers may have provided pressure to present as positive a picture as possible through their ratings. There is no reason to believe that agency staff rated *LearningGames* providers differently than providers in the control group and therefore any "error" rates would be evenly distributed among the two groups. However, overly inflated ratings may have a ceiling effect on variation between providers in the treatment and control groups.

Exhibit 4.1: Baseline Scores for Providers on QUEST Caregiver Rating Scale and Arnett Caregiver Interaction Scale by Treatment Status			
Subscore (# items)	Treatment Providers Mean	Control Providers Mean	Statistical Significance of Difference *p-value*
QUEST Caregiver Rating Scale (1- 3)			
Caring and responding (10)	2.78	2.78	*.90*
Using positive guidance and discipline (9)	2.63	2.63	*.99*
Supervision (4)	2.83	2.84	*.84*
Does no harm (5)	2.92	2.99	*.48*
Supporting social emotional development (8)	2.69	2.72	*.43*
Supporting play (8)	2.74	2.76	*.56*
Instructional style (5)	2.53	2.58	*.35*
Learning activities and opportunities (11)	2.53	2.59	*.308*
Supporting language and literacy (11)	2.53	2.53	*.98*
Television and computers (2)	2.76	2.76	*.97*
Arnett Caregiver Interaction Scale (1-4)			
Overall rating (26)	3.46	3.49	.49
Sample size	*153*	*153*	*316*

Demographic Characteristics

Exhibit 4.2 presents the characteristics of the *LearningGames* and the control providers and homes at baseline. Almost 70% of the providers in the analytic sample were between 36 and 50 years of age. On average, they were experienced as caregivers and had operated family child care providers for more than five years. Nearly half of the providers had some college education (46%), although only 14% had a four-year college degree. About one third of providers reported having a CDA. Over a

third of the providers were white non-Hispanic and 45% were Hispanic, with a much smaller number of Black providers. Just over half of the providers spoke English primarily or exclusively in their family child care homes (58%).

Exhibit 4.2: Baseline Demographic Characteristics of Providers by Treatment Status				
	Control Group %	Treatment Group %	Total Sample %	Statistical Significant of Difference *p-value*
Age at assignment				
21 years old or younger	0	0	0	
22 – 35 years old	7.3	9.2	8.3	
36 – 50 years old	74.5	63.0	68.8	
51 years old or older	18.2	27.8	22.9	
Average age in years	36.6	40.3	38.4	*.35[a]*
Background/ethnicity				*.21[b,c]*
White, non-Hispanic	44.6	29.1[b]	36.9	
Hispanic	41.1	49.1	45.0	
Black	10.7	10.9	10.8	
Other	3.6	10.9	7.2	
Language(s) used with children in care				*.62[b]*
Primarily English	55.4	61.1	58.2	
Primarily Spanish	14.3	11.1	12.7	
Bilingual (English/Spanish)	26.8	25.9	26.4	
Bilingual (English/Other)	3.6	1.9	2.7	
Highest level of education				*.37[b]*
Less than high school	14.3	10.7	12.5	
High school diploma	37.5	44.6	41.1	
Some college, no degree	4.7	5.3	4.9	
AA degree	31.2	28.6	29.9	
BA degree	14.3	10.8	11.6	
Child Development Associate Certification				
CDA	35.7	29.0	32.4	*.23[a]*
Years in Family Child Care				*.13b[a]*
Less than 5 years	17.9	26.6	20.7	
More than 5 years	82.1	76.4	79.3	
Sample size	*144*	*147*	*297*	

[a] Significance based on t-test   [b] Significance based on chi-square test.
[c] Difference in proportion of *LearningGames* and control providers who were white, non-Hispanic vs. other was not significant. (p = .12).

PROVIDER IMPACTS AFTER ONE YEAR OF IMPLEMENTATION

As described in Chapter 3, the implementation process in the first year of the intervention appeared to be less intensive and systematic than planned. The observations at the end of the first year provided an objective test of whether or not the uneven implementation support in the first year resulted in significant changes in the practices of the *LearningGames* providers. As described in Chapter 2, at the time of the one-year observations, 203 providers (57%) from the originally assigned sample of 353 providers remained in the study, which included 98 *LearningGames* providers and 105 control providers.

Baseline Differences in the Analytic Sample

The first question tested was whether the samples of treatment and control providers who remained in the sample after one year were statistically different from each other, on either demographic characteristics or interactions with children. There also were no significant differences between the treatment and control providers in the analytic sample on demographic characteristics (Exhibit 4.3). Similarly, there were no significant differences between the *LearningGames* and the control providers in the analytic sample after one year of implementation on the QUEST Caregiver Rating Scale and the Arnett CIS, which were administered at baseline by staff from the child care networks (Exhibit 4.4). On the QUEST, which uses a 3-point Likert scale, treatment and control providers were rated near the top of the rating scale in all areas of practice with children. Similarly, on the Arnett, which uses a 4-point Likert scale, both treatment and control providers were rated near the top of the scale on their responsiveness and engagement with children.

Exhibit 4.3: Selected Baseline Demographic Characteristics of Analytic Sample after One Year of *LearningGames* Intervention by Treatment Status				
	Control Group %	Treatment Group %	Total Sample %	Statistical Significant of Difference p-value
Providers are white, non-Hispanic	43.2	30.3[b]	35.8	.11
Provider speaks primarily English with children	51.4	59.3	58.2	.44
Provider has college degree (AA or higher)	42.6	40.7	41.9	.31
Sample size	*90*	*101*	*191*	

Exhibit 4.4: Baseline Scores on QUEST Caregiver Rating Scale and Arnett Caregiver Interaction Scale for Analytic Sample after One Year of *LearningGames* Intervention by Treatment Status			
Subscore (# items)	**Treatment Providers** **Mean**	**Control Providers** **Mean**	**Statistical Significance of Difference** **p-value**
QUEST Caregiver Rating Scale (1- 3)			
Caring and responding (10)	2.7	2.8	*.45*
Using positive guidance and discipline (9)	2.6	2.6	*.53*
Supervision (4)	2.8	2.8	*.87*
Does no harm (5)	2.9	2.9	*.62*
Supporting social emotional development (8)	2.7	2.7	*.89*
Supporting play (8)	2.7	2.7	*.95*
Instructional style (5)	2.5	2.6	*.37*
Learning activities and opportunities (11)	2.5	2.5	*.85*
Supporting language and literacy (11)	2.5	2.5	*.94*
Television and computers (2)	2.7	2.8	*.44*
Arnett Caregiver Interaction Scale (1-4)			
Overall rating (26)	3.4	3.5	.49
Sample size	*98*	*105*	*203*

Impacts on Providers

The analyses of the one-year provider outcomes were considered exploratory, since the study design called for the primary test of impacts on providers to be based on outcomes at the end of the full two years of the intervention. Differences in the behavior of the treatment and control providers were evaluated based on five observation measures that were administered by independent observers at the end of one year of *LearningGames*. The measures (all described in Chapter 2) included: the QUEST Caregiver Rating Scale, the Arnett CIS, adapted versions of the OMLIT Snapshot of Activities and the OMLIT Read Aloud Profile, and a draft time-sampled measure—Providers' Interactions with Children (PIC)—which was developed for the current study to assess the extent of *LearningGames* implementation (or *LearningGames*-like activities).

From these five instruments, 18 outcomes were constructed to assess the impact of *LearningGames* on family child care providers' instructional approaches and caregiving activities. Some of the outcomes were designed to assess instructional strategies that were specifically targeted by *LearningGames*, particularly those associated with enriched caregiving and interactive book reading. Other outcomes represented high-quality practices to support children's learning and development. Together, the outcomes provided a broad portrait of the types of activities, interactions, and

instructional approaches that providers use in family child care homes. Note that this set of outcomes developed for the one-year impacts is different from the three composite outcomes used in the two-year impact analyses. This is partially because of the differences in the measure battery but more importantly because we wanted the primary impact analyses to be based on a small set of outcomes, to reduce concerns associated with multiple comparisons. (The description of the composite outcomes developed for the two-year analyses is in "Provider Outcome Measures" in the section below on Provider Impacts after Two Years of Intervention.)

Exhibit 4.5: Impacts on Provider Practices after One Year of *LearningGames* Intervention			
	Treatment Providers %	Control Providers %	Statistical Significance of Difference p-value
OMLIT Snapshot of Activities			
Children involved in high-value activities[a]	50.2	53.2	.15
Provider highly involved in children's activities (instructing, reading, discussion)	31.0	32.3	.65
Provider not involved in children's activities	33.0	35.0	.39
Provider Interactions with Children			
Enriched caregiving with one or two children	35.9	28.8	.04*
QUEST Caregiver Rating Scale (1- 3)	Mean	Mean	
Provider support for cognitive, language, and social development	2.09	2.12	.57
Arnett Caregiver Interaction Scale (1- 4)	Mean	Mean	
Responsive	3.36	3.28	.35
Warm	3.76	3.70	.41
Attached/Engaged	3.63	3.57	.41
Permissive	3.05	3.03	.84
OMLIT Read Aloud Profile	%	%	
Reads aloud to one or two children	34.7	32.4	.73
Uses "see, show, say with one or two children	31.6	29.5	.74
Points out features of print	90.8	87.6	.46
Points out sounds/letters or sound-letter link	7.1	12.4	.21
Promotes print motivation	75.5	77.1	.78
Introduces/highlights vocabulary	25.5	25.7	.97
Supports comprehension: provides information	90.8	85.7	.26
Supports comprehension: links to children's experience	31.6	27.6	.53
Supports higher order thinking through the use of questions	12.2	12.4	.98
Sample size	*98*	*105*	

[a] Includes reading and literacy activities; dramatic, creative, sensory and fine motor play, blocks, and games.

Key: * = p < .05; ** = p < .01.

There was a statistically significant difference between the *LearningGames* and control providers on only 1 of the 18 provider outcomes tested: proportion of time that providers used "enriched caregiving" (Exhibit 4.5). This outcome described the provider's introduction of cognitively stimulating language play and interactions during caregiving routines such as washing hands and eating snack; narrating, talking about, giving feedback on, or asking questions about what children are doing; and nudging children to try something new or to extend an activity by themselves. It should be noted that testing this number of outcomes means that by chance alone, one or two of the contrasts may be significant.

PROVIDER IMPACTS AFTER TWO YEARS OF IMPLEMENTATION

At the time of the two-year observations, 150 providers from the originally assigned sample of 353 providers remained in the study, 69 *LearningGames* providers and 81 control providers.

Baseline Differences in the Analytic Sample

As with the Year 1 sample, for the observation measures administered at baseline, the *LearningGames* and control providers in the two-year observation sample did not differ at a statistically significant level on any of the baseline scores for the QUEST or the Arnett CIS (Exhibit 4.6).

Exhibit 4.6: Baseline Scores on QUEST Caregiver Rating Scale and Arnett Caregiver Interaction Scale for Analytic Sample after Two Years of *LearningGames* Intervention by Treatment Status

Subscore (# items)	Treatment Providers Mean	Control Providers Mean	Statistical Significance of Difference *p-value*
QUEST Caregiver Rating Scale (1- 3)			
Caring and responding (10)	2.8	2.8	.75
Using positive guidance and discipline (9)	2.6	2.6	.83
Supervision (4)	2.9	2.8	.27
Does no harm (5)	2.9	2.9	.82
Supporting social emotional development (8)	2.7	2.7	.89
Supporting play (8)	2.8	2.8	.96
Instructional style (5)	2.5	2.6	.37
Learning activities and opportunities (11)	2.5	2.5	.88
Supporting language and literacy (11)	2.5	2.5	.93
Television and computers (2)	2.7	2.8	.31
Arnett Caregiver Interaction Scale (1-4)			
Overall rating (26)	3.5	3.5	.98
Sample size	*69*	*91*	*150*

For selected demographic variables, the *LearningGames* and control providers remaining in the analytic sample were not statistically different (Exhibit 4.7).

Exhibit 4.7: Selected Baseline Demographic Characteristics of Analytic Sample after Two Years of *LearningGames* Intervention by Treatment Status

	Control Group %	Treatment Group %	Total Sample %	Statistical Significant of Difference p-value
Providers are white, non-Hispanic	42.4	31.6[b]	35.7	.13
Providers speak primarily English with children	56.1	60.7	58.9	.52
Providers have college degree (AA and higher)	42.1	38.3	40.0	.78
Sample size	*56*	*55*	*111*	

Characteristics of Homes in the Two-Year Analyses

Based on the observations, we could characterize the homes in the final impact analyses. As shown in Exhibit 4.8, the average enrollment of these homes was between 5 and 6 children, although 40% of the homes were larger (between 6 and 8 children). As noted earlier, the eligibility requirements at the beginning of the study included the requirement that the home had at least one child in care under 3 years of age. Additionally, it was desirable that there be at least one infant in care (defined as less than 12 months of age). This second criterion was intended to increase the chances that, at the end of the intervention, there would be children in care who were at least 3 years of age, which was the target age for the intended assessments. It was understood that this requirement could not guarantee that a sample home would have a preschool child at the end of the intervention, since, over the two years of the intervention the children who were there at the time of random assignment could leave the home and be replaced, resulting in homes with younger children. In fact, over 85% had at least one preschool-age child in their home, while only 45% had at least one infant age child.

The modal home in the sample contained both toddlers (children between 1 and 3 years of age) and preschoolers (children 3 to 5 years of age). Just over a third of homes contained infants, toddlers and preschool children. (A number of homes also cared for school-age children in the hours after school, although these children were not the focal age for the intervention and were not present in the observations.) Only a quarter of the providers cared for a related child, defined as either their own child or another related child. In a large number of homes, all of the children were from English language backgrounds. However, a significant number of homes served a mix of English-language and bilingual children. In the majority of homes with at least one English Language Learner, the provider spoke the home language(s) of all of the children in care. Less than 20% of the homes in the sample were accredited.

Treatment and control homes differed only on the match between the provider's language and the children's language. There was more likely to be a match between the provider's language and the children in her care in the control homes.

Exhibit 4.8: Characteristics of Child Care Homes in the Analytic Sample after Two Years of *LearningGames* Intervention by Treatment Status				
	Control Group %	**Treatment Group** %	**Total Sample** %	**Statistical Significance of Difference** p-value
Size of homes: # of children enrolled[a]				
% homes with < 3 children	13.6	11.6	12.7	.80
% homes with 3 – 5 children	68.1	65.2	66.7	.95
% homes with 6 – 8 children	14.6	23.2	19.6	.12
% homes with > 9 children	3.7	0.0	2.0	.47
Ages of children enrolled in homes				
% of children 0 – 11 months	22.3	24.4	23.3	.91

Exhibit 4.8: Characteristics of Child Care Homes in the Analytic Sample after Two Years of *LearningGames* Intervention by Treatment Status

	Control Group %	Treatment Group %	Total Sample %	Statistical Significance of Difference p-value
% of children 12 – 23 months	43.5	40.9	42.3	.74
% of children 24 – 35 months	34.2	34.8	34.5	.78
% of children 36 – 71 months	33.6	35.5	34.5	.69
% homes with any infant	50.6	58.0	54.0	.47
% homes with any toddler	98.8	97.1	98.0	.86
% homes with any preschooler	77.8	82.6	80.0	.88
% homes with majority of children < 3 years	97.5	97.1	97.3	.93
% homes with majority of children > 3 years	2.5	2.9	2.7	.79
Mix of ages of children enrolled in homes				
One age group only	7.4	8.8	8.0	.56
% with only infants	0	0	0	
% with only toddlers	7.4	7.3	7.3	
% with only preschool	0	1.5	0.7	
Two age groups	58.0	44.9	52.0	.10
% with infants/toddlers	14.8	10.1	12.7	
% with toddlers/preschool	42.0	33.3	38.0	
% with infants/preschool	1.2	1.5	1.3	
Three age groups	34.6	46.4	40.0	.07
Presence of related children (own/other)				
% homes with provider's own child	26.1	27.6	26.8	.82
% homes with child related to provider	11.4	13.2	12.2	.90
% homes with own child and related child	14.8	14.5	14.6	.93
Home language background of children				
All children monolingual English	67.1	61.8	64.6	.79
All children monolingual Spanish/other	9.1	5.3	6.7	.14
Monolingual English & bilingual children	23.9	32.9	28.1	.06
Match of provider/children's language(s)b				
Provider speaks language(s) of all DLLs	95.2	76.9	85.1	.03
Accreditation				

Exhibit 4.8: Characteristics of Child Care Homes in the Analytic Sample after Two Years of *LearningGames* Intervention by Treatment Status				
	Control Group %	Treatment Group %	Total Sample %	Statistical Significance of Difference p-value
NAFCC-accredited	21.4	18.2	19.8	.61
Sample size	69	81	150	

[a] Average number of children: control homes = 5.45 (s.d.= 1.78); treatment homes = 5.66 (s.d.= 1.94); overall = 5.54 (s.d.= 1.85).

[b] In 47 homes with any dual language learners.

Provider Outcome Measures

An important analytic task was to develop constructs that measured the provider behaviors that were the focus of the *LearningGames* program. The observation measures that were administered at posttest provided a rich set of data that could be used to assess impacts on providers. However, we wanted to develop a smaller number of constructs to avoid problems associated with multiple comparisons. When a study examines many outcomes or findings simultaneously, the statistical significance of findings may be overstated. Without accounting for these multiple comparisons, the likelihood of finding a statistically significant finding increases with the number of comparisons. A number of statistical methods can be used to correct for multiple comparisons.[14] The statistical methods for correction decrease the likelihood that a finding will be shown to be significant, with the need for greater adjustment the more outcomes that are being tested. Even when a correction is not applied, keeping the number small reduces concerns about false positives. Therefore, our objective was to create a small number of reliable constructs that, based on the items that made up each construct, measured outcomes that could reasonably be assumed were the goals of *LearningGames*.

One of the challenges of identifying a small number of key outcomes for *LearningGames* lay in the scope of caregiver behavior that *LearningGames* intends to influence. Our strategy was to develop a construct that reflected major components of *LearningGames*. Specific constructs included:

- The amount of time the provider was engaged with individual or pairs of children in extended language interactions with cognitively rich content, to assess the provider's engagement in *LearningGames* activities (or *LearningGames*-like activities);
- The provider's availability to children, positive interactions with children, and responsiveness, across all activity contexts, to assess the provider's responsiveness to children; and

---

14 The traditional approach to correcting for multiple significant tests is the Bonferroni method, which lowers the critical p-value for individual comparisons by a factor of 1/m, where m is the total number of comparisons. The Benjamini-Hochberg method (Benjamini & Hochberg, 1995) is less conservative than the Bonferroni method but is considered by many in the field to protect adequately against Type I error in a wide range of applications.

- The extent to which the provider supported children's oral language comprehension, across all activity contexts, to assess the provider's support for learning vocabulary and concepts, as in the interactive book reading.

One of the constructs, provider responsiveness, was based on a single rating scale (the Arnett Caregiver Interaction Scale). For the other two outcomes, the process for developing constructs from the multiple variables available from the different observation measures involved a multi-stage process:

1. Identified for each outcome of interest (see above) the variables from the observation measures that appeared to address some aspect of that outcome.
2. Tested the internal consistency of the set of variables from the observation using Cronbach's alpha to determine which variables formed the most psychometrically sound construct.
3. Rescaled all of the variables in the construct on the same metric (i.e., transformed each variable into a z-score, with a mean of zero and a standard deviation of one).
4. Created a score for each provider by summing the z-scores for the variables in the construct.[15]

Each stage is described more completely below.

(1) Identifying observation variables for outcomes. We first reviewed the large set of variables from the observation measures to identify a subset that we believed would be related to each of the three provider constructs.

Exhibit 4.9 shows the final set of variables used to build each of the three provider constructs and their disposition in the development process.

(2) Testing internal consistency. For each construct, we tested the extent to which the initial set of items in that cluster was in fact measuring the same phenomenon (i.e., the degree of internal consistency of the construct). We calculated a Cronbach's alpha[16] for the construct, and then dropped individual items from the construct when doing so increased the value of the alpha. We dropped items one at a time, starting with the item that increased our alpha the most, and recalculated our Cronbach's alpha on the remaining set of items. Where the Cronbach's alpha increased, it meant that the reliability of our measure had improved by eliminating a particular variable. In this way, we eliminated from the construct any variables whose inclusion *reduced* the reliability of the construct. We repeated this process until we were left with a final set of items where, if any single component or item were dropped from the construct, the reliability of the construct measure would be diminished.

We developed two constructs through this process: (a) rich oral language interaction between providers and children and (b) level of support for language comprehension. Exhibit 4.9 identifies the

---

[15] By definition the sum of the z-scores created in the previous step should also have a mean of zero and a standard deviation of one.

[16] Cronbach's alpha is a statistic often used in social science research to test the consistency of items within a domain. It is an indicator of the average correlation of these items.

final variables in these first two constructs and the associated Cronbach's alpha, which ideally should be above 0.70. The ratings for the third construct (responsiveness to children) were handled differently; the measures for this construct were taken entirely from the Arnett. In the current analysis, we used the three constructs that are typically created from the Arnett, based on earlier work by the developer.

(3) Rescaling items and (4) calculating a final scale. For each of the constructs, the individual items, which are on different scales, were transformed into a standardized measure (z-score). In standardizing each measure, we (1) mean-centered each observation and (2) divided this mean-centered value by the standard deviation of the overall measure. Applying this process for each item resulted in a uniform measure across items, where each item is expressed as the proportion of standard deviations above or below the mean. We then summed these standardized measures into a single value which was used as our construct measure. Each provider in the sample was then assigned a score for the construct.

Models for Estimating Impacts
We used regression models to test the impacts of *LearningGames* on provider behavior/activities. Specifically, we estimated the regular OLS model shown below to estimate the effect of treatment on each provider outcome.

$$Y_k = \beta_0 + \beta_1(T_k) + \sum_{m=2}^{M} \beta_m(X_{mk}) + r_k$$

where Y_k is the outcome measure (e.g. "rich oral language interaction) for the kth provider,

   T_k is an indicator variable, indicating whether the kth provider was randomly assigned to *LearningGames*,

   X_{mk} is the mth provider characteristic which significantly predicts the outcome (Y_k) for the kth provider,

   r_k is a random error term

Using this model, we estimated the program impact of *LearningGames* (i.e. the treatment effect) as $\hat{\beta}_1$. We ran two models—an unconditional model, without covariates, and the model with a small set of covariates—to control for measurable differences between providers and improve the precision of our estimated treatment effect. Since including covariates that do not significantly predict the measured outcome can actually decrease the precision of our estimated treatment effect, we used backward elimination to refine the model, beginning with an initial (complete) set of covariates which we believed might predict the selected outcome (Y_k).[17] In performing this backward elimination, we first fit a model using a full set of chosen covariates. Once we estimated this model, we used the results to identify the covariate estimate ($\hat{\beta}_m$) with the largest p-value (not including the treatment

---

[17]   This issue is a real concern, particularly since our provider-level sample size is very small.

estimate, $\hat{\beta}_1$) and evaluate its predictive value. If this estimate had a p-value > 0.20, then the corresponding covariate was dropped from the model specification, and the new model was refit.[18]

This process was repeated until all covariates with corresponding estimates that did not reach the pre-set significance criterion (p ≤ 0.20) were dropped from the model.

Exhibit 4.10 describes the provider variables used as covariates in the impact models. It should be noted that two of the covariates that involved the ages of children in care were measured at the time of the posttest observations, which means they were measured after random assignment. It is at least theoretically possible that these covariates were affected by the treatment. For example, it is possible that *LearningGames* caused a provider to change the ages of the children that she accepted into care. We believe that this is unlikely since *LearningGames* was designed so that a provider could use it with any age.

---

[18] Our choice of a p ≤ 0.20 cutoff is based on prior research on backward elimination strategies. See Maldonado & Greenland (1993), and Budtz-Jorgensen, Keilding, Grandjean,Weihe, & White (2001).

Exhibit 4.9: Provider Outcome Constructs and Linked Variables from Observation Measures

Provider Construct	Candidate Observation Variables		Stayed in Construct	Final Alpha
	Measure	**Variable(s)**		
Rich Oral Language Interaction	QUEST	Item 31; Extended interaction with child/pairs	Yes	.78
		Item 34; Engagement in rich language interactions	Yes	
		Item 39[a]; Extended Rich conversation with child/pairs	No	
	TALK	Proportion of talk with one child that is extended conversation, focal child only	Yes	
		Proportion of talk with one child that is extended conversation, any child	Yes	
	Snapshot	Proportion of time where child and provider are in activities which highly involved talking	Yes	
		Proportion of time where child and provider are in activities which involve rich interaction	Yes	
Support for Comprehension	QUEST	Item 32; Provider nudges child toward new or additional activities	Yes	.81
		Item 34; Engagement in rich language interactions	Yes	
		Item 35; Provider encourages activities with books/reading/print	Yes	
		Item 37; Provider makes a variety of material available to child	Yes	
	Snapshot	Proportion of time children spend in reading (with print) activities	No	
		Proportion of time children spend in early literacy, activities (excluding reading)	No	
		Proportion of time children spend in oral language activities	No	
		Proportion of time children spend in math activities	No	
	RAP	Number of read alouds for classroom	No	
		Average length of read aloud	No	
		Total time in reading aloud	No	
		Proportion of read alouds with post reading discussion	No	
		Proportion read alouds where provider asks open-ended questions	No	
		Proportion of read alouds with attention to letters/sounds	No	
		Average number of new vocabulary identified in read alouds	Yes	
		Proportion of new vocabulary with comprehension supports (pictures, semantic networks)	Yes	

[a] This item, by definition, was missing for providers without infants/toddlers, and therefore was dropped from the construct because it was missing for 24 providers with no children less than 3 years in their care.

Exhibit 4.10: Covariates in Provider Impact Analyses		
Variable	**Source**	**Definition**
Extent to which provider uses high-quality practices	Baseline provider observation: QUEST	Average rating on 9 subscores (1–3)
Extent to which provider is responsive and engaged with children	Baseline provider observation: Arnett CIS	Average rating on 26 items (1–4)
Highest educational attainment of provider	Provider background questionnaire	H.S. diploma or less Some college BA
Years experience in family child care	Provider background questionnaire	Less than 1 year 1–3 years 3–5 years More than 5 years
Child-related specialization	Provider background questionnaire	No specialization Child-related specialization or CDA
Provider language with children during observation	Baseline provider observation: Snapshot of Activities	Spoke > 90 % English Spoke > 90 % Spanish Spoke a mix of English and Spanish
One or more infants present during observation	Posttest provider observation: Snapshot of Activities	No infant present during observation At least one infant present
Majority of children in home ages 3–5 years during observation	Posttest provider observation: Snapshot of Activities	Majority of children present during observation are > 3 years of age Majority of children present during observation are 3–5 years of age

Impacts on Providers

LearningGames had statistically significant impacts on all three provider outcomes. That is, compared with the control providers, the *LearningGames* providers had substantially higher frequencies of rich oral language interactions and of interactions presumed to support children's understanding of vocabulary or concepts, and they had significantly higher ratings on their responsiveness to the children. The effect sizes for the treatment-control differences were nearly half a standard deviation, which by convention is labeled a moderate effect size. Also, none of the provider baseline covariates was a statistically significant predictor of the three provider outcomes. The consistency of the findings suggests that the *LearningGames* intervention, despite the apparent variability in the extent to which providers implemented a fully realized model, was able to make a significant difference in how providers talked to and interacted with the children in their care.

Exhibit 4.11: Impacts of *LearningGames* on Provider Behavior

	Control Group Mean	Treatment Group Mean	Treatment Effect	SE	Statistical Significance of Impact (t-value)
Rich oral language interactions	-0.18	0.22	0.40**	0.11	3.72
Support for development of vocabulary/comprehension	-0.17	0.20	0.37**	0.10	3.58
Responsiveness to children	-0.19	0.23	0.47**	0.16	2.97
Key:* = p < 0.05; ** = p < 0.01.					

CHAPTER 5: SUMMARY OF RESULTS AND DISCUSSION

The study of *LearningGames* was undertaken in the context of policy concerns about the development and school readiness of at-risk children who receive their out-of-home care in family child care homes. In Massachusetts, children cared for in family child care homes include many of our young children who are the most at risk for poor school outcomes (Rulf Fountain & Goodson, 2008). While many studies have shown that children in family child care homes are generally safe and well-cared for, these same studies also document that the learning opportunities for young children in family child care typically are not as great as for children in center-based care, especially those in public school district programs and Head Start programs (Layzer & Goodson, 2007). Family child care is often the care arrangement of choice for families with children under 3 years of age, for low-income families, and for families from language and cultural minority groups, especially recent immigrants. Because of concerns about the full development and ultimate school readiness of the children in our country, especially those who may be at risk for poor academic outcomes, it is essential to identify effective strategies to enhance adult-child interactions in family child care that help children acquire the important skills that predict long-term school success. Further, recent research on language development suggests that the first three years of life may be critically important in children's development, and family child care is and is likely to remain the setting of choice for many families with children in that age range even with affordable and culturally appropriate center-based options. The *LearningGames* approach, including its well-documented success in the Abecedarian project, appeared well-suited to test in the family child care environment.

This chapter of the report further discusses the results of the study and their ramifications for policy and for future research. The chapter begins with a brief overview of the findings on the impacts of *LearningGames* and the barriers to implementation. The chapter concludes with a discussion of the larger issues that the study raises about the challenges and potential of implementing an intensive intervention in family child care. Finally, the chapter addresses the value and potential benefits of conducting additional investigations of the impact of *LearningGames* with family child care providers.

SUMMARY OF IMPACTS OF *LEARNINGGAMES* ON PROVIDER BEHAVIORS

We believe that further study of *LearningGames* in family care is merited for two major reasons: (1) the study was able to show impacts on providers despite substantial variation in implementation of the professional development model; and (2) the study was not able to provide evidence of whether or not the changes in providers led to meaningful improvements in child outcomes. Both of these points are discussed below.

This study showed that *LearningGames* had statistically significant positive impacts on the behavior of the family child care providers who received up to two years of support in implementing the program. *LearningGames* was effective at promoting high-quality, individualized and small group interactions between providers and children, which have been shown in previous research to be associated with children's cognitive and language development. The effect sizes of these outcomes ranged from .37 to .47 standard deviations, which the field considers to be of moderate size. However, the study could not provide credible evidence about the impacts of *LearningGames* on

children, since the high level of attrition in the child sample and the lack of a baseline assessment to verify that observable characteristics across the treatment and control group children assessed posed insurmountable threats to the internal validity of the estimates. This was compounded by threats to external validity, since there was no way to compare the assessed sample to the original one.

The logic model for the impact of *LearningGames* on children assumes that impacts on providers will lead to enhanced outcomes for children. We were unable to test this assumption, but note that a number of studies of early childhood interventions have reported impacts on teachers and no concomitant impacts on children (for example, Judkins et al., 2008; Gamse, Jacob, Horst, Boulay, & Unlu, 2008; Preschool Curriculum Evaluation Research Consortium, 2008). A recent paper (Garet, 2008) explored the relationship between teacher behavior and child outcomes in studies that tested impacts of interventions, such as *LearningGames*, where the causal pathway is assumed to lead from teacher professional development to changes in specific provider behaviors with children to improved outcomes for those children. Garet's research indicates that the strength of this relationship varies as a function of the population studied, the ages of the children, the child outcomes, and the method of estimating impacts. Garet concludes overall, that an intervention with a large impact on teacher behavior (e.g., 1 standard deviation on a quality score) may only have a small impact on students (e.g., 0.25 standard deviations).[19] This suggests that if we had been able to examine child impacts for *LearningGames*, we might have found only small effects, despite the moderate provider-level effects. However, our inability to conduct a valid examination of child impacts is one reason we believe that this study does not provide a sufficient test of the effectiveness of the *LearningGames* model.

IMPLEMENTATION OF *LEARNINGGAMES*: BARRIERS AND LESSONS LEARNED

As described in Chapter 3, barriers to implementation limited the intensity of the planned professional development model as received by the providers. We believe that this may have affected providers' ability to reach a consistently high level of fidelity to all elements of the *LearningGames* model. Below we further discuss the barriers to implementation and identify lessons learned.

The major barriers to implementation fell into three categories:

- *Roles and responsibilities for the LearningGames implementation*. Even initially, the lines of authority were complicated and not always clear. They became more complicated when the Department of Early Education and Care (EEC) decided that while it would endorse the study and provide funding for the intervention, it should not be directly involved in the implementation of the *LearningGames* professional development model.

---

[19] Garet estimates that the stable variation in teacher behavior accounts for between 1% and 10% of the total variation in student outcomes, which implies a stable between-teacher standard deviation ranging from 0.1 to 0.32. Extrapolating from these data, Garet argues that an intervention with a large impact on teacher behavior of 1 standard deviation on a quality score would only have a small impact on students (e.g., 0.25 standard deviations). That is, choosing the middle point in the range of between-teacher variance (6%), students taught by a teacher who is one standard deviation above average in quality of practices would end the year with achievement scores 0.25 standard deviations higher than the scores of students taught by a teacher of average quality.

- *Training LearningGames providers.* At least initially, home visitors met with resistance on the part of some of the family child care providers, some of whom believed that they were already using the approach because the techniques were deceptively simple. Others believed that it was not possible to work with one or two children. However, at the end of the study, home visitors reported that providers in the *LearningGames* homes had by and large mastered the individualized approach. In addition, there was some resistance among some providers to being subjected to bimonthly hour-long TA visits as well as some aspects of the protocol. Providers also reported that they desired getting direct training from the developer and many attended direct training sessions held in Year 2 of the study.

- *Train-the-trainer approach using home visiting staff.* The study did not anticipate the amount of time that would actually be needed for home visitors to master the *LearningGames* approach. Even more time appeared to be needed for home visiting staff with relatively low levels of educational attainment or knowledge of child development. Providing home visitors with adequate time for mastery of the approach was further impeded by high home visitor caseloads and a high level of turnover among home visitors.

- *Support by project coordinators and MindNurture staff.* Since project coordinators received training at the same time as did the home visiting staff, they did not have the opportunity to master the approach before they were asked to support its use by the home visiting staff. In addition, in the first year of the study, while Dr. Sparling and his staff provided more training than was originally planned, MindNurture did not receive the level of resources necessary for staff to be in the state providing direct support to the project coordinators and networks to the degree needed, in large part because these needs were not well understood prior to implementation. More funding added in Year 2 facilitated his ability to provide more technical assistance to staff as well as direct training to providers.

Although these issues were serious, and four networks withdrew from the study, it is important to point out that most of the network staff believed that the study was worthwhile, were glad to participate in it, and did what they could to address the issues described above. Network leadership supported the *LearningGames* approach and several reported planning to continue to use it with family child care providers after the study had ended.

Indeed, despite barriers, many providers received periodic home visits that supported their practice of *LearningGames*. Network staff and others reported that at least some of the caregivers had mastered the *LearningGames* approach. When asked to complete fidelity ratings, they scored most of their homes as implementing most aspects of *LearningGames*. Finally, a separate fidelity rating developed by Abt staff indicated that the *LearningGames* providers were more likely to exhibit behaviors that are closely tied to successful implementation.

Implementation Lessons Learned

The fact that *LearningGames* resulted in positive provider impacts leads us to recommend further exploration of the suitability of *LearningGames* in family child care homes. If *LearningGames* were implemented again in this setting, we have a number of recommendations on how it should be

undertaken to address systemic issues about the implementation of strategies that use a train-the-trainer approach, about the *LearningGames* model itself, and about implementing high-intensity interventions in family child care homes.

Addressing Barriers to Implementing the Professional Development Model
Once *LearningGames* was selected as the intervention to be tested in Massachusetts, Abt worked with the developer to determine the best approach to professional development, given the level of resources available for training, the distance between the developer's home base and the provider sites, and the organization of the family child care networks within which the intervention would be implemented. The train-the-trainer model and the focus on in-home coaching of the providers by the home visitors were selected because they seemed like the best fit within the budgetary and organization constraints of the study. Since this was the first major "real world" implementation of *LearningGames* in family child care, there were many implementation issues that were not fully anticipated but could be addressed in future efforts. Some suggestions include the following:

- ***Build in more time for training the trainers.*** More time is needed than the study provided for the initial training of home visiting staff on *LearningGames* and for the staff providing support to home visitors.

- ***Lower home visitor caseloads***. If home visitors are expected to take on the work of training providers on a specific curriculum such as *LearningGames*, the home visitor caseloads should be lowered sufficiently to allow home visitors to have the needed time to do the standard *LearningGames* protocols, although not be so low as to make real-life implementation of the model infeasible. Lower caseloads are needed to ensure that there is sufficient time for the home visiting staff to prepare for, conduct, and document the visit. In addition, home visitors from networks have additional technical assistance duties that are separate from the *LearningGames* protocol, which means that a visit needs to be longer than one hour.

- ***Address home visitor turnover***. Factors in home visitor turnover that are within the control of the networks should be addressed. For example, it would be possible that networks would ensure that home visitors would not be moved from their roles during the intervention except under special circumstances. In addition, in other studies, professional development staff have been provided with a bonus for staying in their role for at least one year; this strategy could be used here.

- ***Develop a system for training new home visitors***. A formal system of training new home visitors needs to be in place so that new visitors could be retrained sufficiently so that their providers would not lose ground during the rehiring and retraining period.

- ***Augment the train-the-trainer model with direct training***. The train-the-trainer approach should be augmented, especially in the first year, with direct training of providers if at all possible. Direct training could serve to jump-start providers and build their enthusiasm for the endeavor. While direct training is likely to be a very helpful augmentation, ongoing in-home instruction still seems fundamental.

- ***Focus more on fidelity measurement***. Fidelity of the professional development model should be formally measured and information should be used to document issues to make midcourse corrections, as needed.

Some of the issues above could be addressed with additional resources for the *LearningGames* implementation. While family child care networks received financial support from the Department of Early Education and Care, they did not receive any direct funding specifically for *LearningGames*. Networks still attempted to use their ongoing funding for these additional responsibilities; however; we believe that future implementations of *LearningGames* could be enhanced if networks and other technical assistance providers received financial support that was sufficient to pay for the additional time needed for home visiting staff and others.

Addressing Barriers to Provider Acceptance of the LearningGames Model

LearningGames aims to change fundamentally adults' interactions with children, weaving rich oral language and developmental scaffolding throughout all daily activities. It also seeks to strengthen a unique and positive aspect of many family child care settings: a smaller adult/child ratio that can be capitalized upon for the individualized *LearningGames* approach. However, there was initial resistance to the approach by many family child care providers and by some home visitors. First, the games and instructions were deceptively simple and many providers perceived that they were "doing these things already." In addition, network staff and home visitors reported that providers initially did not believe that individualized approaches were feasible given the many pressing demands on providers, such as feeding and toileting very young children. For some providers, this initial resistance to playing the simple games changed as they saw how children reacted to *LearningGames* approaches. In addition, home visitors reported that the resistance to individual-level interaction changed as providers saw how it was possible to take time to focus on a specific child. It might be possible for the developer to include explicit training on strategies for organizing children into multiple activities and/or adding components on building children's self-regulation skills so that the provider can work with only some children and feel comfortable that other children are engaged and safe.

One of the great appeals of *LearningGames* is that it includes activities and strategies for children from birth through 5 years, since this, in theory, addresses one of the challenges for family child care providers—the expectation that they can provide appropriate stimulation for all age groups, as opposed to center-based teachers who work with children at similar developmental levels. There are relatively few curricula available for children under 3 years of age, which is one of the reasons that *LearningGames* is attractive for family child care homes, which often serve younger children. In fact, the strongest results for *LearningGames*, from the Abecedarian study, were for children under 3 years. For older preschool children in family child care, there may be alternatives to *LearningGames* suitable for family child care in the form of evidence-based curricula, which might offer more comprehensive support for children's development. For example, curricula such as Breakthrough to Literacy[20] or Tools of the Mind[21] work on a range of skills (e.g., early math, early literacy, self-regulation). Some of these curricula, in whole or in part, might be adaptable for use in family child care homes, so that the children in home-based care could receive the benefit of more intensive instructional support. We believe that additional research should compare the *LearningGames*

---

[20]   Published by Wright Group/McGraw Hill. http://www.breakthroughtoliteracy.com/

[21]   Published by Metropolitan State College of Denver.
        http://www.mscd.edu/extendedcampus/toolsofthemind/curriculum/index.shtml

approach for preschool children with such other curricula and evaluate the possibility of using other approaches instead of or alongside *LearningGames.*

Future efforts could also address some provider criticisms of some of the aspects of the home visiting model. Anecdotal evidence indicates that some providers reported being uncomfortable and sometimes judged when they were watched by home visitors and other staff as they interacted with children. They also described being uncomfortable with some specific components of the protocol. These issues could be addressed by training home visitors to help them with specific techniques as well as testing different *LearningGames* home visit protocols and getting feedback from providers about what was most helpful to them.

Addressing Turnover Among Providers and Children
Even if the train-the-trainer approach is sufficiently funded, staffed, and planned, and even if the *LearningGames* approach were modified to facilitate its earlier adoption by providers, the issues of turnover among family child care providers and children in care would hinder the effectiveness of this or any other intervention in family child care settings. If the field is to pursue quality enhancements in family child care, these issues need to be addressed. For the Massachusetts study, we attempted to include those providers who were most likely to remain in the field the longest. There were providers who dropped out because they no longer wanted to be in the study. However, there also were many who stopped being family child care providers, had no children in care for significant periods of time or left the family child care network and therefore no longer received technical assistance visits. While turnover is a problem among child care center teachers, the center remains in operation when a teacher leaves and therefore there is generally still a way to reach the same children; this is not the case in family child care.

A second issue to be addressed relates to turnover among children. Unlike center-based arrangements, where children frequently "graduate" from one classroom to the next and must form new relationships with caregivers each year even when there is no teacher turnover, family child care offers the opportunity for ongoing and sustained interactions between adults and young children, particularly those who enter care as infants and toddlers. Our study indicates that despite this potential, nearly all of the children who were in care at baseline were not there after two years. Some of this turnover is to be expected and appropriate, as children reach school age or move to center-based care; however, even for the children who were less than 3 years of age at baseline, who could still be with the provider two years later, more than 90% were not in the same homes two years later. This suggests that many children in a family child care home would not have the opportunity to receive the benefit of a sustained intervention. Instability for children also potentially has consequences for providers, who are challenged to establish a consistent program to support individual children's learning and development. More needs to be learned about continuity of children's experiences in family child care and whether policies can be changed to enhance continuity.

The Future for *LearningGames* in Family Child Care

In summary, we suggest that there is a rationale for further study of *LearningGames* in family child care, if certain conditions can be met in support of full implementation of the intervention and for ensuring the integrity of an evaluation study. In terms of implementation, *LearningGames* should

have a more resource-intensive support system and some redesigned training strategies to address barriers to the implementation of the model. In terms of the evaluation design, a data collection approach for measuring child outcomes needs to take into account the high level of turnover among children. A continuous system of child assessment to gather baseline information when children enter care, measure children's outcomes before they leave a provider, and follow up with children after they leave a provider is most desirable. However, in spite of these improvements there is concern that these changes to the implementation of *LearningGames* and to future evaluation designs may not be cost effective if fundamental issues of family child care turnover are not addressed. In the current study, in spite of recruitment of providers who were associated with networks and who had been in business for at least two years, (a relatively stable group of providers) the study suffered from significant levels of attrition.

REFERENCES

Arnett, J. (1989). "Caregivers in day-care centers: Does training matter?" *Journal of Applied Developmental Psychology*, *10*, 541-552.

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: a practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society, Series B (Methodological), 57*, 289-300.

Bromer, J., Van Haitsma, M., Daley, K., & Modigliani, K. (2009.) *Staffed support networks and quality in family child care: Findings from the Family Child Care Network Impact Study.* Chicago, IL: The Erickson Institute.

Budtz-Jørgensen E., Keiding, N., Grandjean, P., & Weihe, P. (2007). Confounder selection in environmental epidemiology: Assessment of health effects of prenatal mercury exposure. *Annals of Epidemiology, 17*, 27-35.

Campbell, F. A., & Ramey, C. T. (1994). Effects of early intervention on intellectual and academic achievement: A follow-up study of children from low-income families. *Child Development, 65,* 684-698.

Campbell, F. A., Ramey, C. T., Pungello, E. P., Sparling, J., & Miller-Johnson, S. (2002). Early childhood education: Young adult outcomes from the Abecedarian Project. *Applied Developmental Science, 6,* 42-57.

Campbell, F. A., Pungello, E. P., Miller-Johnson, S., Burchinal, M., & Ramey, C. T. (2001). The development of cognitive and academic abilities: Growth curves from an early childhood educational experiment. *Developmental Psychology*, 37(2), 231-242.

Capizzano J., Adams, G., & Sonestein, F. (2000). *Child care arrangements for children under five: Variations across states* (New Federalism: National Survey of America's Families, Series B, No. B-7). Washington, DC: The Urban Institute.

Gamse, B.C., Jacob, R.T., Horst, M., Boulay, B., & Unlu, F. (2008). *Reading First Impact Study final report* (NCEE 2009-4038). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Garet, M. (2008). *Impacts on teachers and impacts on schools: Some speculations.* American Institutes for Research. Paper prepared for Institute of Education Sciences Methods Group, U.S. Department of Education.

Goodson, B., & Layzer, C. (2008). *TALK.* Cambridge, MA: Abt Associates Inc.

Goodson, B., Layzer, J., & Layzer, C. (2005). *QUEST.* Cambridge, MA: Abt Associates Inc.

Goodson, B., Layzer, C., Smith, W., & Rimzdius, T. (2006). *Observation Measures of Language and Literacy Instruction (OMLIT).* Cambridge, MA: Abt Associates Inc.

Halle, T., Forry, N., Hair, E., Perper, K., Wandner, L., Wessel, J., & Vick, J. (2009). *Disparities in early learning and development: Lessons from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B).* Washington, D.C.: Child Trends.

Harms, T., & Clifford, R. (1989). *Family Day Care Rating Scale.* New York: Teachers College Press.

Harms, T., Cryer, D., & Clifford, R. (2007). *Family Child Care Environment Rating Scale–Revised Edition (FCCERS-R).* Teachers College Press, New York, NY.

Jaeger, E., & Funk, S. (2001). *The Philadelphia Child Care Quality Study: An examination of quality in selected early education and care settings.* Philadelphia: Saint Joseph's University.

Judkins, D., St. Pierre, R., Gutmann, B., Goodson, B., von Glatz, A., Hamilton, J., et al. (2008). *A Study of Classroom Literacy Interventions and Outcomes in Even Start* (NCEE 2008-4028). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Layzer, J., & Goodson, B. (2007). *National Study of Child Care for Low-Income Families: Care in the home: A description of family child care and the experiences of families who use it.* Cambridge, MA: Abt Associates Inc.

Layzer, J., Goodson, B., & Moss, M. (1993). *Observational study of early childhood programs, Final report, Volume I: Life in preschool.* Cambridge, MA: Abt Associates, Inc.

Maher, E. J., & Joesch, J. M. (April 2005). *The prevalence and characteristics of child care provided by family, friends, and neighbors.* Paper presented at the Society for Research in Child Development Biennial Meeting, Atlanta.

Maldonado, G., & Greenland, S. (1993). Simulation study of confounder-selection strategies. *American Journal of Epidemiology, 138*(11), 923-936.

Marshall, N., Creps, C. L., Burstein, N. R., Cahill, K. E., Robeson, W. W., Wang, S Y., et al. (2003). *Massachusetts family child care today: A report of the findings from the Massachusetts Cost and Quality Study.* Wellesley College Center for Research on Women and Abt Associates Inc.

National Center for Education Statistics. (2005). *National Household Educational Surveys Program.* Washington, D.C.

National Child Care Information Center, National Association for Regulatory Administration. (2009). *The 2007 Child Care Licensing Study: Final report.* Lexington, KY: National Association for Regulatory Administration.

Neuman, S., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy instructional practices. *American Educational Research Journal* 46(2) 532-566.

NICHD Early Child Care Research Network. (2004). Type of child care and children's development at 54 months. *Early Childhood Research Quarterly, 19*(2).

Pianta, R.C., La Paro, K.M., & Hamre, B.K. (2008). *Classroom Assessment Scoring System™ (CLASS™). Manual. Pre-K.* Baltimore: Brokes Publishing.

Preschool Curriculum Evaluation Research Consortium. (2008). *Effects of Preschool Curriculum Programs on School Readiness* (NCER 2008-2009). Washington, DC: National Center for Education Research, Institute of Education Sciences, U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Raikes, H.A., Raikes, H., & Wilcox, B. (2005). Regulation, subsidy receipt and provider characteristics: What predicts quality in child care homes? *Early Childhood Research Quarterly 20*(2) 164-184.

Ramey, C. T., & Campbell, F. A. (1984). Preventive education for high-risk children: Cognitive consequences of the Carolina Abecedarian Project. *American Journal of Mental Deficiency, 88*, 515-523.

Ramey, C. T., Campbell, F. A., Burchinal, M., Skinner, M. L., Gardner, D. M., & Ramey, S. L. (2000). Persistent effects of early intervention on high-risk children and their mothers. *Applied Developmental Science*, *4*, 2-14.

Resnick, G., & Zill, N. (1999). *Is Head Start providing high-quality education services? "Unpacking" classroom processes.* Albuquerque, NM: Biennial Meeting of the Society for Research in Child Development.

Rulf Fountain, A., & Goodson, B. D. (2008). *Massachusetts Universal Pre-Kindergarten Pilot Program evaluation.* Cambridge, MA: Abt Associates Inc.

Sparling, J., & Lewis, I. (2001). *LearningGames the Abecedarian curriculum: 24 to 36 months.* Tallahassee, FL: Early Learning Press Inc.

West, J., Wright, D. A. , & Hausken, E. G. (1996). *Statistics in brief: Child care and early education program participation of infants, toddlers, and preschoolers*. Washington, DC: National Center for Educational Statistics.

What Works Clearinghouse. (2008, December). *Procedures and Standards Handbook.* Downloaded from http://ies.ed.gov/ncee/wwc/pdf/wwc_procedures_v2_standards_handbook.pdf

APPENDIX A: RECRUITMENT AND ATTRITION BY AGENCY

Exhibit A.1   Sample at Baseline and Attrition Over Time by Agency

	Sample of Homes Recruited (spring 2005)			Sample of Homes Participating (Fall 2006 Observations)			Sample of Homes Participating (Fall 2007 Observations)			Sample of Homes Participating (Winter 2008 Assessments)			% Attrition from Recruited Sample (Observations Fall 2007)		
	T	C	Total	T	C	Total	T	C	Total	T	C	Total	T	C	Total
Agency 1	5	5	10	4	5	9	4	4	8	3	4	7	0.2	0.2	0.2
Agency 2	5	6	11	3	2	5	2	2	4	1	2	3	0.6	0.67	0.64
Agency 3	10	10	20	9	7	16	8	7	15	7	6	13	0.2	0.3	0.25
Agency 4	5	6	11	5	6	11	5	5	10	5	3	8	0	0.17	0.09
Agency 5	6	6	12	5	5	10	4	3	7	4	2	6	0.33	0.5	0.42
Agency 6	11	11	22	9	8	17	7	9	16	5	5	10	0.36	0.18	0.27
Agency 7	11	9	20	8	9	17	6	8	14	5	7	12	0.45	0.11	0.3
Agency 10	9	11	20	6	6	12	0	0	0	0	0	0	1	1	1
Agency 11	9*	5	14	6	2	8	4	1	5	4	0	4	0.56	0.8	0.64
Agency 12	17	22	39	0	0	0	0	0	0	0	0	0	1	1	1
Agency 13	7	7	14	5	6	11	3	6	9	3	3	6	0.57	0.14	0.36
Agency 14	16	17	33	0	0	0	0	0	0	0	0	0	1	1	1
Agency 15	13	14	27	5	10	15	3	9	12	3	8	11	0.77	0.36	0.56
Agency 16	3	4	7	1	4	5	0	1	1	0	1	1	1	0.75	0.86
Agency 17	7	7	14	3	6	9	2	6	8	2	6	8	0.71	0.14	0.43
Agency 18	11	11	22	10	8	18	10	8	18	9	8	17	0.09	0.27	0.18
Agency 19	5	5	10	3	5	8	2	4	6	2	4	6	0.6	0.2	0.4
Agency 20	6	7	13	4	4	8	2	3	5	1	2	3	0.57	0.67	0.62
Agency 21	9	9	18	6	5	11	6	5	11	5	1	6	0.33	0.44	0.39
Agency 22	8	8	16	7	7	14	7	7	14[a]	0	0	0	1	1	1
All Agencies	173	180	353	99	105	204	76	88	164	59	62	121	0.43	0.38	0.41

[a] This agency dropped out of the study after the provider observations but before the child assessments. For the assessments, therefore, the sample is smaller by 14 homes, which raises the attrition rate to 46% overall, 45% for LearningGames providers and 40% for control providers.

* Five of these providers were originally randomly assigned to LearningGames within agency 12 but switched to agency 11 and continued study participation before implementation

APPENDIX B:

CHILD IMPACTS

As stated earlier, we concluded that because of the high sample attrition and the lack of baseline data to adjust for potential bias in the analytic sample, the study could not provide credible estimates of child impacts. As exploratory analyses, we did examine child impacts at the end of Year 2, after providers had the opportunity to implement *LearningGames* for two years.

Child Sample

To participate in the child assessments, a child had to meet two eligibility criteria:

1. The child had to have been with the family child care provider for at least six months prior to the assessments (since approximately July 2007).
2. The child had to have signed parent consent to be part of the assessments.

The six-month criterion was implemented to insure that children in the assessments had been exposed to their provider for a sufficient time to expect any effects of *LearningGames*. It should be noted that this criterion also meant that children assessed were all at least six months of age.

The data collection plan included that four children were to be assessed from each family child care home, if possible: two children under 3 years of age and two children between 3 and 5 years of age. If there were not enough eligible children in one of the two age groups, more children could be selected in the other age group, up to four children total. If there were fewer than four eligible children in the home, all eligible children were tested regardless of age.

Assessments were conducted on 374 children, representing 121 (34%) of the originally-assigned 353 providers. As described in Chapter 2, 19 (13%) of the 150 providers who remained in the study at posttest did not have any children who were assessed, either because there were no children of eligible age in the home or because the provider did not collect any signed parent permissions. In the majority of the homes in the sample, at least one child in each of the two age groups was assessed (Exhibit 4.9).

Exhibit B-1 Providers in the Child Assessment Sample by Treatment Status				
	Control Group	Treatment Group	Total Sample	Statistical Significance of Difference (p-value)
Only children < 3 years	16 %	17 %	16 %	.87
Only children 3 – 5 years	21 %	12 %	16 %	.11
At least 1 child in each age group	63 %	70 %	66 %	.24.
Sample	*62*	*59*	*121*	

The child sample included more females than males, in both the treatment and the control group (Exhibit B-2). Most children were at least 30 months old. The majority of children in the sample came from homes where English was spoken, but more than a third of the children came from homes where another language was spoken (usually Spanish). Most of these children were bilingual and spoke at least some English in the family child care homes. A quarter of the children in the sample spoke only Spanish. The sample included only a small number of children who were related to the provider. Overall, 8 percent of the children were related to the provider—about half of these were the providers' own children and the other half were nieces, nephews or grandchildren.

Exhibit B-2 Characteristics of Child Sample at Posttest				
	Control Group	Treatment Group	Total Sample	Statistical Significance of Difference
	%	%	%	p-value
Sex				
Male	45	46	45	.95
Age				.39[b]
6 – 12 months	3	6	5	
13-24 months	20	20	19	
25-36 months	34	31	32	
37-48 months	25	24	24	
49-60 months	21	15	18	
60-72 months[a]	1	3	2	
Home language				.59b
Monolingual English	65	61	63	
Bilingual	12	13	12	
Monolingual Spanish	23	27	25	
Related to provider				
Provider's own child	5	5	4	.88
Other family relationship	5	5	5	.91
Sample	62	59	121	
[a] Children not yet in kindergarten				
[b] Chi-square test				

Child Outcome Measures

The child outcomes were standard scores calculated from the two standardized assessment measures administered in the study: the Preschool Language Scale, Fourth Edition: Auditory Comprehension (PLS-4: Zimmerman, Steiner & Pond, 2002) and the Bracken Basic Concept Scale-Revised (BBCS-R SRC: Bracken, 1998). The PLS-4 was administered to all children in the sample starting at 6 months of age. The BBCS-R also was administered to children who were at least 30 months of age.

On the PLS-4, the outcome measure was the standardized score for Auditory Comprehension (mean = 100, standard deviation = 15), which is age-adjusted. On the BBCS-R, the outcome measure was the standardized score for the School Readiness Construct.

Estimated Impacts on Children

Models for Estimating Impacts

Hierarchical linear regression models (HLM) were used to test for impacts on child outcomes, to account for the clustering of children within family child care home.[1] We estimated three HLM models. Model 1 (the unconditional model) estimated the treatment effect without any additional child- or provider-level covariates. Model 2 estimated the treatment effect and includes the child- and provider-level covariates. Model 3 included the same covariates and treatment interactions with the covariates. The models included four covariates at the child level (sex, age in months at time of testing, relationship to the provider, and home language) and four covariates at the provider level (provider education, the majority age of children in the home, if there was at least one infant in care and if there was at least one pre-school age child in care). Exhibit B-3 describes the values taken by the covariates tested in the child impact models. Since the standardized scores on the two child assessments represented age-adjusted scores, there was no need to include age separately as a covariate.

The equations below specify the HLM model (model 2) for testing impacts where children (level 1) are nested within providers (level 2).

Level-1 Model:

$$Y_{jk} = \beta_{0k} + \sum_{m=1}^{M} \beta_{mk}(X_{mjk}) + r_{jk}$$

Level-2 Model:

$$\beta_{0k} = \gamma_{00} + \gamma_{01}(T_k) + \sum_{n=2}^{N} \gamma_{0n}(Z_{nk}) + u_{0k}$$

$$\beta_{mk} = \gamma_{m0} + \gamma_{m1}(T_k)$$

$$r_{jk} \sim N(0, \sigma^2)$$

$$u_{0k} \sim N(0, \tau_{0k})$$

where Y_{jk} is the outcome measure (i.e. either the PLS-4 or Bracken score) for the jth child nested within the kth provider,

T_k is an indicator variable, indicating whether the kth provider was randomly assigned to receive the LG curriculum,

X_{mjk} is the mth child-level characteristic which may predict overall test score for the jth child nested within the kth provider,

Z_{nk} is the $(n-1)$ provider-level characteristic which may predict differences in average outcomes

---

[1]   Hierarchical linear modeling helps correct for potential complexities that arise from the clustered design (i.e. intercluster correlations, heteroscedasticity, etc.) and adjusts the standard errors of our estimates normally obtained through an ordinary OLS model.

In this model, we are most interested in the average estimated treatment effect, τ, which is expressed

as $\hat{\gamma}_{01} + \sum_{m=1}^{M} \hat{\gamma}_{m1} \overline{X}$. This estimate tells us the expected impact of Learning Games on language

assessments for the average child who received the intervention. The average child ($\overline{X}$) in this case is represented by the average characteristics of the sample of children included in the estimation of Y. In other words, where the dependent variable (Y) is a child's standardized score on the Bracken SRC, then the estimated τ represents the impact of treatment on the average Bracken-tested child, who is different from the average PLS4-tested child.

Baseline measures of child and provider-level covariates were included in the models to control for measurable differences between children and to improve the precision of our estimated treatment effect. In the case of the child outcomes, we were also interested in determining whether the observed characteristics of children significantly predicted differences in outcomes consistent with our theory about their potential explanatory power in predicting differences. Therefore, the HLM models included all of the covariates in order to evaluate the estimates for all of the covariates even where they were not significant predictors of our child outcomes.

Exhibit B-3 Covariates in Child Impact Analyses		
Variable	**Level**	**Description**
Sex	Child-level	Female Male
Language	Child-level	English is primary language Spanish is primary language English-Spanish bilingual
Age	Child-level	Younger than 30 months 30 months or older
Education level of provider	Provider-level	H.S. diploma or less Some college BA or more
One or more infants present in home	Provider-level	- Infant is present - No Infant present
Majority age of children in home	Provider-level	- Majority is pre-K - Majority is not pre-K

Results
Exhibit B-4 summarizes the findings from the regression models estimating the impact of *LearningGames* on child outcomes, based on the unconditional model without covariates. On the PLS-4, the difference in performance for the treatment and control children is not statistically significant. On the BBCS-R School Readiness Construct, the preschool children in LearningGames homes scored, on average, significantly lower relative to children in the control group homes (p < .01). As a standardized effect, the estimated treatment effect size on the BBCS-R SRC is 0.43 standard deviations, which is generally considered to be a moderate effect.

When the covariates were added to the models, the direction and magnitude of the effect sizes were not affected (Exhibit B-5). Exhibit B-6 shows detailed results from HLM models including

covariates. The covariates themselves were related to child outcomes in expected ways. Boys scored significantly lower than girls on both the PLS-4 and the Bracken. Similarly, children who were bilingual or monolingual Spanish-speaking scored significantly lower on the PLS-4 and the Bracken than children who spoke only English (Exhibit B-7).

Exhibit B-4 Estimated impacts of *LearningGames* on Child Outcomes: Unadjusted HLM Model				
	Standardized Effect Size	Treatment Effect	SE	t-stat
PLS-4 Auditory Comprehension Subscale *(full child sample)*	0.23	-3.65	1.87	1.95
BBCS-R School Readiness Composite *(children over 30 months)*	0.43	-7.82**	2.80	2.79
Note: * = p < 0.05; ** = p < 0.01				

Exhibit B-5: Estimated Impacts of *LearningGames* on Child Outcomes based on Three HLM Models						
					Covariates in Model	
	Standardized Effect Size	Estimate (τ)	SE	t-stat	Child- and Provider-Level	Treatment Interactions
PLS-4 Auditory Comprehension[a]						
Model 1 Treatment Effect	0.23*	-3.69	1.93	-1.91		
Model 2 Treatment Effect	0.20*	-3.24	1.76	-1.84	x	
Model 3 Treatment Effect	0.21*	-3.26	1.76	-1.85	x	X
Bracken School Readiness Construct[b]						
Model 1 Treatment Effect	0.44***	-7.99**	2.76	-2.89		
Model 2 Treatment Effect	0.42***	-7.75**	2.70	-2.87	x	
Model 3 Treatment Effect	0.42***	-7.72**	2.72	-2.84	x	X
[a] Two cases were dropped from analysis [b] One case was dropped from analysis * = p < < 0.05; ** = p < 0.01						

Exhibit B-6 Estimated Effects of Covariates in Child Impact Models				
	PLS-4		Bracken	
Model	**(2)**	**(3)**	**(2)**	**(3)**
Covariates				
Intercept	**110.09****	**107.65****	**94.38****	**91.66****
Child Characteristics				
Male	**-4.87****	**-4.41***	-3.45	-4.69
Age in months	-0.06	-0.03	**0.21***	0.29
English speaking home	**-8.02****	**-4.82**	**-8.85****	**-10.35***
Bilingual home	**-5.80***	**-6.02**	**-8.97****	-9.12
Provider Characteristics				
PreK-age child present in home	**-7.83****	**-7.59****	—	—
Infant present in home	—	—	0.39	-0.45
Treatment and Treatment Interactions				
Treatment	—	0.56	**-7.75****	-2.34
Treatment *Male	—	-0.74	—	2.44
Treatment *Age	—	-0.06	—	-0.16
Treatment *Spanish speaking home	—	-5.67	—	3.17
Treatment *Bilingual home	—	0.27	—	0.68
Sample	366		219	
* = p < < 0.05; ** = p < 0.01				

Exhibit B-7 Average Differences on Child Outcomes for Subgroups of Children		
	Average Score	
Group	**PLS-4 Auditory Comprehension Subtest**	**BBCS-R School Readiness Composite**
Male	-6.7**	-3.2
Spanish-speaking home	-7.3**	-8.6**
Bilingual home	-5.7*	-8.2
Sample	366	219
* = p < 0.05) (** = p < 0.01		

Results by Age of Child

We analyzed the scores on the PLS-4 by age of child, to investigate whether the impacts of *LearningGames* varied by age of child. We then added a covariate to the models to test the effect of mixed age groups on children's performance. For the test of impacts for younger children on the PLS-4, we added a covariate indicating whether or not there was a preschool-age child in the home as well as the younger child. For the tests of impacts for the older children on the PLS-4 and the Bracken, we added a covariate indicating whether or not there was an infant or toddler in the home as well as the preschooler. The results are shown in Exhibit B-8. Exhibit B-9 provides detailed results from HLM models for subgroups of children.)

Preschool children. On the PLS-4, for the preschool children, there was no impact of *LearningGames*. As was true for the full sample, males scored less well compared with females, and children from homes where another language than English was spoken performed less well compared with children from monolingual English-speaking homes.

Infants/Toddlers. On the PLS-4, for the infants and toddlers, there was no impact of *LearningGames*. Boys scored less well compared with girls, and there was also a negative effect of being from a monolingual Spanish-speaking home. The presence of a preschool-age child also was negatively related to scores on the PLS-4.

Exhibit B-8 Estimated Impacts of *LearningGames* on the PLS-4 by Age of Child		
	Infants & toddlers	**Preschoolers**
Treatment	-2.64	**-3.80***
Child Characteristics		
Male	**-7.97****	-3.39
Age in months	-0.25	-0.19
Monolingual Spanish home	**-7.71***	**-8.55****
Bilingual home	-1.70	-9.46**
Provider Characteristics		
PreK-age child present in home	**-10.50****	--
Infant present in the home	--	0.39
Sample	*149*	*219*
* p < 0.05; ** p < 0.01		

Exhibit B-9 Estimated Effects of Covariates on Child Impacts for Subsamples of Children by Age

	PLS-4 Full Sample		PLS-4 Children < 3 Years (PLS-4 Only)		PLS-4 Children > 3 Years (PLS-4 and Bracken)		Bracken Full Sample	
	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3
Covariates								
Intercept	**110.09****	**107.65****	**116.89****	**117.50****	**109.42****	**105.51****	**94.38****	**91.66****
Child Characteristics								
Male	**-4.87****	**-4.41***	**-7.97****	-5.90	-3.39	-3.26	-3.45	-4.69
Age in months	-0.06	-0.03	-0.25	-0.38	-0.193	-0.11	0.21	0.29
English speaking home	**-8.02****	-4.82	**-7.71***	-5.28	**-8.55****	-6.66	**-8.85****	**-10.35***
Bilingual home	**-5.80***	-6.02	-1.70	-0.05	**-9.46****	**-11.10***	**-8.97****	-9.12
Provider Characteristics								
PreK-age child present in home	**-7.83*****	**-7.59*****	**-10.50****	**-9.86****	—	—		
Infant present in home	—	—	—	—	0.39	1.26	-0.45	2.69
Treatment and Treatment Interactions								
Treatment	**-3.24***	0.56	-2.68	-5.36	**-3.80***	3.53	**-7.75*****	-2.34
Treatment *Male	—	-0.74	—	-3.52	—	-0.35	—	2.44
Treatment *Age	—	-0.06	—	0.25	—	-0.16	—	-0.16
Treatment *Not English speaker	—	-5.67	—	-3.69	—	-3.17	—	3.17
Treatment *Bilingual speaker	—	0.27	—	-2.61	—	3.06	—	0.68
Number of Observations	366		149		217		**219**	

* = p < < 0.05; ** = p < 0.01

Sensitivity Analyses

Outliers. Because we were concerned with undue effect of children with very low or very high scores on the assessments, we tested the sensitivity of our estimated treatment to the influence of outlying observations by re-estimating the models without observations where test scores are at the extreme values. When two observations were dropped from the analysis of the PLS-4 and one observation from the Bracken, the estimates of the treatment effect were not significantly different from our estimates using the full sample, after omitting these extreme values. Exhibit B-10 shows the results of the HLM models excluding outliers.

Score Discrepancies. Another cause for concern in the data is when a child's scores on the PLS-4 and the Bracken are very different. Widely varying scores may be indications or evidence of unreliable measures of child outcomes. Therefore, we also tested the sensitivity of our estimated treatment to the exclusion of observations where a child's scores on the two tests varied widely. This was defined as an absolute difference between PLS-4 and Bracken scores greater than 15 points (approximately one standard deviation of the nationally normed test). It should be noted that this only applies to the older children who were administered both tests. The impacts models were re-estimated excluding observations with large differences, which involved dropping 56 observations from the analysis of the PLS-4 and 53 observations from the analysis of the Bracken. The new estimates were not significantly different from our estimates using the full sample. Exhibit B-11 provides detailed results of the HLM models excluding cases with discrepant scores.

Exhibit C10 Estimated Treatment Effect of *LearningGames* on Child Outcomes, with Outliers Excluded						
					Covariates Used	
	Standardized Effect Size	Estimate (τ)	SE	t-stat	Child- and Provider Level	Treatment Interactions
PLS-4 Auditory Comprehension[a]						
Model 1 Treatment Effect	0.24	-3.65	1.94	-1.88		
Model 2 Treatment Effect	0.21	-3.24	1.77	-1.83	x	
Model 3 Treatment Effect	0.21	-3.27	1.77	-1.85	x	x
Bracken SRC[a]						
Model 1 Treatment Effect	**0.42****	**-7.64****	**2.70**	**-2.83**		
Model 2 Treatment Effect	**0.41****	**-7.42****	**2.65**	**-2.80**	x	
Model 3 Treatment Effect	**0.41****	**-7.37****	**2.67**	**-2.76**	x	x

[a] Two cases were dropped from analysis
[b] One case was dropped from analysis
* = $p < 0.05$; ** = $p < 0.01$

Exhibit B-11: Estimated Treatment Effect of *LearningGames* on Child Outcomes, Excluding Cases with Discrepant Scores on Two Outcomes[a]

	Standardized Effect Size	Estimate (τ)	SE	t-stat	Covariates Used	
					Child-and Provider Level	Treatment Interactions
PLS-4 Auditory Comprehension [b]						
Model 1 Treatment Effect	0.20	-3.20	2.16	-1.48		
Model 2 Treatment Effect	0.17	-2.71	1.93	-1.41	x	
Model 3 Treatment Effect	0.17	-2.76	1.94	-1.42	x	x
Bracken School Readiness Construct [c]						
Model 1 Treatment Effect	**0.36***	**-5.88****	**2.99**	**-1.97**		
Model 2 Treatment Effect	**0.31***	**-5.09***	**2.89**	**-1.76**	x	
Model 3 Treatment Effect	**0.31***	**-5.00***	**2.92**	**-1.71**	x	x

[a] Defined as scores that are more than 1 standard deviation (15 points) different.

[b] 56 cases were dropped from analysis

[c] 53 cases were dropped from analysis

* = $p < 0.05$; ** = $p < 0.01$

APPENDIX C: CODING FORMS

Snapshot of Activities: Family Child Care Home – Fall 2007

Number	Children Present in Home
	Infants (< 3 yrs old, not walking)
	Toddlers (under 3 yrs old, walking)
	Preschool (3 – 5 yrs old)
	School age (>5 yrs old)
	TOTAL Children (all ages)

Number	Staff
	Provider
	Assistant (paid)
Number	**Other Adults Present in Home**
	Adult dropping off /picking up /visiting
	Volunteer
	Other family member(s)
	TOTAL Adults (staff and other adults)

Snapshot #31

Time: ___ ___ : ___ ___ am pm

Key—Provider/Asst. Language:

  E = English   [circled = rich]
  S = Spanish
  O = Other
Provider Involvement:
✓ = active; L = letters/ #s used

Activity	# children				Prov/Asst language & #Adults			Prov/Asst Involvement		Describe Activity
	Infants	Toddlers	Preschoolers	School-Agers	Provider	Assistant	Other	Play/ teach/ demo/discuss	Print (L)	
1 Reading /text /vocabulary (w /print)										
2 Early literacy (non-reading)										
3 Oral language & basic concepts										
4 Early math										
5 Developmental activities										
6 Group/meeting time										
7 TV /video /computer										
8 Gross motor play										
9 Physical care/self-help/ comforting										
10 Meals /snacks										
11 Transition / routines / management										
12 Not involved in other listed activity										
13 In restraints										
14 Sleeping										
Other: _____										

FCC-SNAPSHOT Definitions

1. Reading/text/vocabulary (with print)

- Looking at books or pictures, adult reading aloud, children reading together without adult, emergent reading (pretending to read), shared reading activities.
- Listening to stories on audiotape or CD.
- Teaching children new vocabulary words *with print support* for vocabulary (e.g., printed word).

2. Early literacy activities (non-reading)

- Alphabet/letter knowledge—recognizing letter/numeral forms, letter/sound correspondence
- Sounds/singing/rhymes/poems
- Emergent writing/copying/tracing—Child writing includes pretend writing, scribbling, invented spelling. Child dictation to teacher; tracing letter/number templates. Practice in correctly writing numerals/distinguishing numerals.

3. *Oral language & basic concepts instruction/game*

- Discussions, new concepts, and vocabulary.
- Provider with 1 or 2 children, in **structured cognitive game** (labeling, naming, identifying, discussing).

4. Early math activities

- Math concepts/attributes/colors—formal and informal communication of math concepts, attributes, or colors. Shapes, counting, measuring, patterns, amount. Identifying and matching non-geometric shapes (animals, familiar objects). Identifying and matching colors and color names.

5. Developmental activities

- Science/nature—formal and informal communication of science or nature. Examples: astronomy, working with pets, collecting leaves, feeding pets, magnets, health & safety.
- Dramatic play—pretend or make-believe play; dress-up, playing with dolls; assigning roles; zooming cars and trucks. Includes acting out stories/playing with puppets, figures of people/animals, and stuffed animals in pretend worlds.
- Creative play / Arts and crafts—creating visual art (painting, drawing, sculpting clay & play dough, cutting and pasting). PlayDoh®
- Music—using instruments, formal and informal movement/dance activities
- Block play—construction play with blocks and other large building materials
- Fine motor play--manipulation of materials, such as puzzles, stringing beads, sewing cards, woodworking, LEGOs®, Lincoln Logs®, interconnecting building pieces.
- Sensory play—manipulating sand, water, textured materials such as beans, rice, shaving cream, learning about qualities of materials rather than constructing a particular object.
- Non-educational games with rules--playing board games, card games that are not explicitly educational.

6. Group / meeting time

- Meeting time--routines or daily rituals as part of group or circle time. Includes repeated activities such as calendar, day of the week, weather, the day's activities, etc.

7. TV / video / computer

Watching commercial television programs, videotapes / DVDs, or computer programs which may or may not be educational. **Note:** Circle "TV," "Video," or Computer" I to indicate which one child(ren) are using.

8. Gross motor play

Large muscle play—active outdoor play and indoor physical activity (tunnels, gymnastics). Include outdoor walks here (e.g., walking to and from a destination such as the library).
Note: Code organized dance/movement activity as *"Developmental activity."*

9. Physical care/self-help

Bathroom, changing diapers, washing hands; includes **comforting**. Also includes **helping children learn self-help skills** such as putting on clothes, tying shoes.
Note: Self-help involving eating goes under *Meals/Snacks.*

10. Meals/Snacks

Activities involved in the act of eating a meal/snack, and/or meal/snack preparation and clean-up.

11. Transition/Routines/Management

- Routines/transitions: Arriving/departing; transition between activities.
- Conversation/management--**Any talking or interaction between adult and child, between children, or between adults outside of a listed activity**. Conversation may be positive or negative. Examples: adult managing a child's behavior, comforting a child, or chatting. Children interacting in nonproductive ways would be coded in this "activity".

12. Not involved in any other listed activity

Children roaming aimlessly around room, having a tantrum, solitary & note engaged in another listed activity; otherwise unengaged. Not interacting with another child or adult.

13. In restraints

Indicate number of infants or toddlers awake but in restraints (walkers, cribs, swings, high chairs) who are not included in other children's activities.

14. Sleeping

Indicate number of infants, toddlers or other children sleeping, regardless of where in the home they are asleep

Provider or Assistant Language:

If provider/assistant in activity is talking with child(ren), then write letter of language spoken by adult (E, S, or O). If the language used by the adult is rich, then circle the letter.

Provider or Assistant Involvement:

✓ — if provider or assistant is actively involved in teaching, playing, demonstrating, or discussion;

L — if words, letters, or numbers used/present in activity

Read-Aloud Profile – R   (RAP-R)

Fall 2007

Start Time __ : __ am/pm End time __ : ___ am/pm | **Title of Book:** _____ | **Staff ID#** _____   **RAP #1**

☐ No read-aloud in observation—RAP ∅

A. Instructional Strategies Used by Reader (*mark tally each time strategy is observed*)		B. Frequency of Strategy		C. Number of Children, by Age (*enter # for each age*)	D. Reader's Language (*circle all that apply*)	E. Features of Book (*circle one response for each*)	
1	**Comprehension supports**	**Tally**	**#**	Infants	1 English	**E1**	**Type of book**
a	Introduces background information related to the story/book			Toddlers	2 Spanish	a	Picture book
b	Relates text to class activities; reminds children of same/similar book read before			Preschool	3 Other	b	Alphabet book
c	Narrates/tells the story in advance of reading			School-age		**c**	Counting book
d	Talks about events and/or features to listen, look for in the story/book					d	Chapter book
e	Asks questions about book/connects to children's personal experiences					e	Reference book
f	Points to picture; names, talks about picture; asks questions about picture					f	Conversation book
g	Invites child to touch/point to picture						
h	Question with known answer: who, what, when, where					**E2**	**Words/page**
i	Summarizes story; retells story; acts out story/asks child to act out story					**a**	0 words
j	Non-discussion extension activity(art project/drama project based on story)					b	1 word
2	**Open-ended questions**					**c**	2-10 words
a	Prediction (what's going to happen in story); analysis (Why? question, inc feelings)					d	> 10 words
b	Hypothesize about real world or about things outside children's experience						
3	**Conventions of print**					**E3**	**Language of book**
a	Tracks print					a	English
b	Discusses print conventions (punctuation, capitals, space between words)					b	Spanish
c	Points to/discusses book features such as the title, illustrator, author					c	English & Spanish
4	**Print knowledge**					d	Other language
a	Comments on sounds, letters, sound/letter links; tells C to listen/look for them						
b	Asks child to point to word(s), letter(s), or number(s) on page					**E4**	**Book features**
5	**Print motivation**					a	Rhyming
a	Uses props/dramatic voices/gestures' expresses enthusiasm for reading					b	Predictable/repetitive
b	Children join in reading/complete text on own as group (choral reading)					c	Both

		Supports					Key		d	Neither
6	**Introduction of new story-related vocabulary**	**B**	**O**	**P**	**D**	**S**	B = book picture	☐ Reader reads book straight through with no codes in Column A.		
a							O = other picture	☐ Read-aloud ends before book is finished.		
b							P = prop; D = define	☐ Audiotape or CD of book used.		
c							S = semantic network			

Child/Provider Conversation Record

Fall 2007

Child/Provider Conversation Record
Fall 2007

Child #____

Child Age_____ years/months[a]

Provider ID _____

☐ No talking occurred between provider or assistant and focal child during interval

A Conver- sation	B **Number of Times Child/Provider Talks during Conversation**		C **Topic/Activity Context[b]**
	Child Turns	**Provider Turns**	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

[a] Indicate age in years for children 3 years and older, age in months for children under 3
[b] For Topic/Activity, describe briefly and identify those that are management-oriented

In table below, check the number of each type of conversation recorded above:

# conversations	0	1	2	>2
Management or helping				
Provider talk only (with no child response; includes provider narrating actions)				
Simultaneous talk (includes singing, chanting, reciting rhymes)				
Discussion (short or not building*)				
Extended discussion (4+ turns & building*)				

* "Building" = provider's turn builds on or extends child's comment/response

Arnett Caregiver Global Rating Scale
With Additional Items from the QUEST Caregiver Rating Scale

Summer 2006
Fall 2007
Fall/Winter 2008[1]

---

[1] The Arnett was used at baseline (summer 2006), Fall 2007, and Fall/Winter 2008. The additional items from the QUEST Caregiver Rating Scale (Items 31-39) were collected Fall/Winter 2008.

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:					
1 **Speaks warmly to children** (e.g., positive tone of voice, body language).	1	2	3	4 [warm]	1 Rarely speaks warmly to children; neutral or negative 2 Sometimes speaks warmly to children or only speaks warmly to some children 3 Speaks warmly to children much of the time or to some children 4 Consistently speaks warmly to children
2 **Seems critical of children** (e.g., puts children down, uses sarcasm).	1	2	3	4 [critical	1 Never seems critical of children, verbally or non-verbally 2 Rarely seems critical of children, verbally or non-verbally 3 Often seems critical of children, verbally or non-verbally 4 Consistently Is critical of or sarcastic with children, verbally or non-verbally
3 **Listens attentively when children speak to her** (e.g., looks at children, nods, rephrases their comments, engages in conversations).	1	2	3	4 [listens]	1 Does not listen attentively when children speak 2 Rarely listens attentively when children speak 3 Usually listens attentively when children speak 4 Consistently listens attentively when children speak—looks at children, talks with them
4 **Places high value on obedience** (e.g., expects children to follow adult agenda, fails to respond to daily events in a flexible way**).**	1	2	3	4 [obey]	1 Does not seem to place a high value on obedience Responds to daily events flexibly 2 Sometimes expects children to follow rules/ conventions but allows some flexibility 3 Usually emphasizes following rules or conventions rather than responding flexibly 4 Consistently expects children to follow adult rules/conventions Does not respond to daily events flexibly
5 **Seems distant or detached from children** (e.g., sits apart, does not touch children, does not greet children).	1	2	3	4 [distant]	1 Consistently is involved with, watches children with interest 2 Is usually involved with children, but in some instances is distant or detached 3 Is usually distant or detached but not always 4 Is consistently distant or detached Sits apart, does not touch /talk to children
6 **Seems to enjoy children** (e.g., conveys warmth by smiling, touching, taking children's conversations seriously).	1	2	3	4 [enjoys]	1 Consistently fails to show enjoyment of/warmth toward children--may be harsh or distant 2 Usually fails to show enjoyment of/warmth toward children 3 Usually seems to enjoy children but sometimes is distant or harsh 4 Consistently seems to enjoy children—warm, smiling, touching, listening seriously
7 **Reasons with children when they misbehave** (e.g., explains rule they are breaking, discusses consequences, redirects behavior, discusses alternatives).	1	2	3	4 [reasons]	1 Rarely explains rules/discusses consequences when children break them 2 Usually does not explain rules, discuss consequences 3 Usually explains the reasons for rules and consequences for breaking them 4 Consistently explains the reasons for rules, explains consequences, redirects behavior
8 **Encourages children to try new experiences** (e.g., suggests children do it together, helps children start, introduces new materials).	1	2	3	4 [try]	1 Does not encourage children to try new experiences 2 Rarely encourages children to try new experiences 3 Often encourages children to try new experiences 4 Consistently encourages children to try new experiences--provides opportunities/support
9 **Exercises too much control over children** (e.g., doesn't seek child input, rigidly adheres to rules and schedules).	1	2	3	4 [control]	1 Consistently seeks child input, does not rigidly adhere to rules and schedules 2 Imposes some control over children's behavior but usually allows children flexibility 3 Keeps children in control most of the time--imposes rules and manages children's behavior closely 4 Exercises too much control over children Adheres rigidly to rules/schedules with no child input
10 **Speaks with irritation or hostility to children** (e.g., sharp tone, raises voice).	1	2	3	4 [irritated]	1 Does not speak with irritation or hostility to children; does not uses sharp tone or raise voice 2 Rarely speaks with irritation or hostility to children 3 Often speaks with irritation or hostility to children 4 Consistently speaks with irritation and/or hostility to children; uses sharp tone, raises voice

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions	
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:						
11 **Seems enthusiastic about children's activities and efforts** (e.g., congratulates children, states appreciation for efforts).	1	2	3	4 [enthuse]	1 2 3 4	Does not seems enthusiastic about children's activities/efforts Rarely seems enthusiastic about children's activities/efforts Usually seems enthusiastic about children's activities/efforts Consistently seems enthusiastic about children's activities/efforts; congratulates them, recognizes their efforts
12 **Threatens children in trying to control them** (e.g., uses bribes and threats of punishment).	1	2	3	4 [threats]	1 2 3 4	Does not threaten punishment/bribe children to control/manage them Usually does not bribe/threaten punishment to control children Often uses bribes/threats of punishment to control children Consistently uses bribes/threats of punishment to control children
13 **Spends considerable time in activity not involving interaction with children** (e.g., does adult tasks during child activity periods).	1	2	3	4 [apart]	1 2 3 4	Rare spends time in activities that do not involve children Usually remains involved with children during Frequently spends time in activities that do not include children Spends substantial time in activities that do not include children
14 **Pays positive attention to children as individuals** (speaks to individual children, uses names, calls attention to prosocial behaviors, comments on their strengths).	1	2	3	4 [attends]	1 2 3 4	Does not pay positive attention to children as individuals; does not single out children Rarely pays positive attention to children as individuals Often pays positive attention to children as individuals or pays attention to some but not all children Consistently pays positive attention to most/all children as individuals
15 **Reprimands children too strongly when they misbehave** (e.g., fails to acknowledge difficulties of learning self-control, fails to redirect behavior).	1	2	3	4 [repri-mands]	1 2 3 4	Rarely/never reprimands children too strongly Always tries to redirect children's behavior without punishing them Sometimes reprimands children too strongly but sometimes deals with misbehavior by talking to children, offering alternatives, asking about reasons Often reprimands children who misbehave too strongly Consistently reprimands children too strongly--uses punishment, reprimands, threats
16 **Talks to children on a level they can understand** (e.g., uses terms familiar to children, checks for clarification).	1	2	3	4 [talks]	1 2 3 4	Consistently talks to children in a way that is inappropriate for their developmental level Usually talks to children on a level they cannot understand Usually talks to children on a level they can understand, altering language for different levels Consistently talks to children at a level they can understand, checks to be sure they understand
17 **Punishes children without explanation** (e.g., does not discuss infraction).	1	2	3	4 [punish]	1 2 3 4	Does not punish children without explanation--discusses misbehavior, reason for rules Usually provides explanation for punishment and discusses misbehavior, rule Usually fails to provide explanations to children for punishment Consistently punishes children without explanation for punishment, discussion
18 **Exercises firmness when necessary** (e.g., provides clear and direct directions, checks for understanding).	1	2	3	4 [firm]	1 2 3 4	Consistently lets misbehavior, conflicts get out of control without exercising firmness--does not provide clear direction Often lets misbehavior, conflicts get out of control without stepping in Usually does not let misbehavior/conflicts get out of control without stepping in, exercising firmness Consistently exercises firmness, direction when necessary—doesn't let things get out of control

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:					
19 **Encourages children to exhibit prosocial behavior** (e.g., sharing, cooperating, pairs socially skillful with those children who need practice).	1	2	3	4 [share]	1 Does not encourage prosocial behavior (sharing, cooperation) 2 Rarely encourages prosocial behavior 3 Usually encourages prosocial behavior 4 Consistently takes advantage of opportunities to encourage prosocial behavior; encourages children to work together, help each other
20 **Finds fault easily with children** (e.g., uses negative tone, is critical).	1	2	3	4 [fault]	1 Consistently avoids finding fault easily with children; does not blame or criticize needlessly 2 Rarely finds fault easily with children, blames or criticizes needlessly 3 Often finds fault with children too easily, blames or criticizes needlessly 4 Consistently finds fault too easily with children Is quick to criticize, lay blame,
21 **Fails to show interest in children's activities** (e.g., removes self from children's activities, doesn't talk to children or extend their conversations).	1	2	3	4 [no interest]	1 Consistently shows interest in children's activities, talking to/interacting with them 2 Often shows interest in children's activities but sometimes does not or not for some children 3 Often fails to show interest in children's activities or interacts with them in activities, 4 Consistently fails to show interest in children's activities or to interact with them in activities
22 **Seems to prohibit many of the things children want to do** (e.g., adheres to rigid schedule or adult outcomes and agendas).	1	2	3	4 [prohibit]	1 Does not prohibit most things children want to do—consistently lets them decide what to do 2 Rarely prohibits what children want to do; usually lets them decide 3 Often prohibits what children want to do 4 Consistently prohibits what children want to do Follows adult agenda rigidly
23 **Fails to supervise children very closely** (e.g., fails to foresee and forestall mishaps).	1	2	3	4 [not close]	1 Consistently supervises closely, rarely letting children out of sight or hearing; foresees mishaps 2 Usually supervises children closely; usually forestalls and foresees mishaps 3 Often fails to supervise children very closely Often fails to foresee mishaps 4 Consistently fails to supervise very closely, often leaving children out of sight or hearing; fails to foresee mishaps
24 **Expects children to exercise self-control** (expects children to be undisruptive for short group, caregiver-let activities; to be able to stand in line calmly; reminds children of expectations, asks for cooperation in supportive ways).	1	2	3	4 [self-control]	1 Does not expect children to control their own behavior--to be able to stand in line, wait their turn, listen and participate in an orderly way during caregiver-led activities 2 Usually does not expect children to be in control of their own behavior 3 Usually expects children to be in control of their own behavior 4 Expects children to exercise self-control; asks for cooperation in supportive ways
25 **When talking to children, kneels, bends or sits at their level to establish better eye contact** (e.g., e.g., ensures connection when having a conversation).	1	2	3	4 [kneels]	1 Does not kneel, bend when talking to children; does not ensure a connection 2 Rarely kneels, bends when talking to children 3 Usually kneels, bends when talking to children to ensure a connection 4 Consistently moves to child's height when talking to ensure a connection; establishes eye contact
26 **Seems unnecessarily harsh when scolding or prohibiting children** (e.g., angry tone, shakes children, uses physical punishment, uses "time out" without explanation).	1	2	3	4 [harsh]	1 Consistently avoids unnecessary harshness in discipline; does not use angry tone, use physical punishment, use "time out" without explanation 2 Usually avoids unnecessary harshness when disciplining children 3 Often seems unnecessarily harsh when scolding children 4 Consistently seems unnecessarily harsh when scolding or prohibiting; uses angry tone, physical punishment, "time out" without explanation

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions	
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:						
27 **Does self-help tasks for children** (e.g., dresses them, wipes their noses, selects materials for choice time).	1	2	3	4 [does tasks]	1 2 3 4	Consistently lets children do own self-help tasks--wipe own noises, wash own hands, dress for outdoors, select materials for choice time. Often lets children do own self-help tasks. Often does self-help tasks for children. Consistently does self-help tasks for children
28 **Does not get child assistance with tasks** (e.g., watering plants, animal care, putting away toys, cleaning tables and other routine maintenance).	1	2	3	4 [no assist]	1 2 3 4	Consistently gets children to help with tasks Usually gets children to help with tasks Rarely gets children to help with tasks Does not get children to help with tasks--water plans, care for pets, put away toys/materials
29 **Promotes leadership skills** (e.g., gives assignments for jobs like line leaders, clean-up inspector, talks about children's contributions to the group).	1	2	3	4 [leaders]	1 2 3 4	Does not promote leadership skills in children--does not assign jobs, talk about children's contributions to group. Rarely promotes leadership skills in children Often promotes leadership skills in children. Consistently promotes children's leadership skills through job assignments, talk about contributions to group, asking children's opinions
30 **Assists children in making productive choices** (e.g., uses a planning process or discussion to outline choices during activity periods, narrows choices when children have difficulty).	1	2	3	4 [choices]	1 2 3 4	Does not assist children in making productive choices by discussing choices, helping narrow choices, redirecting poor choices Usually does not assist children in making productive choice. Usually assists children in making productive choices. Consistently assists children in making productive choices.

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:					
31 **Has extended interactions with individual children or pairs of children** (e.g., lasting longer than 3 minutes).	1	2	3	4 [extended]	1 Never has extended interactions with or conversations with a single child or a pair of children; either has only brief interactions or interacts with children only in groups of 3 or more. 2 Infrequently (1 time) has extended interactions or conversations with a single child or a pair of children. 3 Occasionally (2-3 times) has extended interactions or conversations with a single child or a pair of children. 4 Often (4 or more times) has extended interactions or conversations with a single child or a pair of children.
32 **Nudges children to try something new or add on to an on-going activity** (e.g. makes suggestions, asks questions, makes encouraging comments, or offers materials or toys).and threats of punishment).	1	2	3	4 [nudges]	1 Never nudges children to try something new or add to an on-going activity. 2 Infrequently (1 time) nudges children to try something new or add to an on-going activity. 3 Occasionally (2-3 times) nudges children to try something new or add to an on-going activity. 4 Often (4 or more times) nudges children to try something new or add to an on-going activity.
33 **Enriches a routine or transition by engaging children in language interactions or learning opportunities** (e.g., provides opportunities for children to learn something or develop language skills during routines or transitions).	1	2	3	4 [enriches]	1 Never enriches routines or transitions with language interactions or learning opportunities; is either occupied elsewhere during routines or interactions with children are focused on managing behavior. 2 Infrequently (1 time) enriches routines or transitions with language interactions or learning opportunities. 3 Occasionally (2-3 times) enriches routines or transitions with language interactions or learning opportunities. 4 Often (4 or more times) enriches routines or transitions by conversing with children, singing or reciting rhymes or poems, or creating learning opportunities.
34 **Engages in language-rich interactions with children** (e.g., engages children in conversation, enriches routines and transitions with language activities, provides text-based or letter-based activities, supports children learning a second language).	1	2	3	4 [engages]	1 Never engages in language-rich interactions with children; most language interactions with children are limited to behavior management. 2 Infrequently (1 time) engages in language-rich interactions with children. 3 Occasionally (2-3 times) engages in language-rich interactions with children. 4 Often (4 or more times) engages in language-rich interactions with children.
35 **Encourages children to look at or read books or other forms of print on their own.**	1	2	3	4 [encourages]	1 Never encourages children to look at or read books or other print materials on their own; books or other print materials are never available. 2 Infrequently (1 time) encourages children to look at or read books or other print materials on their own; books or other print materials are infrequently available. 3 Occasionally (2-3 times) encourages children to look at or read books or other print materials on their own; books or other print materials are occasionally available. 4 Often (4 or more times) encourages children to look at or read books or other print materials on their own; books or other print materials are available to children a large portion of the time.
36 **Helps children (3 years old or older) talk about what they are doing and thinking by asking open-ended questions** (e.g., questions that encourage a thoughtful response rather than a brief answer; that ask children to predict, explain, hypothesize, or analyze).	1	2	3	4 [helps]	1 Never uses open-ended questions with children 3 years and older. 2 Infrequently (1 time) uses open-ended questions with children 3 years and older. 3 Occasionally (2-3 times) uses open-ended questions with children 3 years and older. 4 Often (4 or more times) uses open-ended questions with children 3 years and older. NA= Not applicable; there are no children 3 years old or older present.

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions	
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:						
37 **Provides a variety of activities for children to engage in on their own or materials that support children's own activities** (e.g., children usually have activities or materials that they can use on their own without the provider intervening, interacting with them, providing direction, or offering alternative materials or activities).	1	2	3	4 [variety]	1	Never provides activities or materials that children can engage with; children are usually bored or uninvolved without provider intervention.
					2	Infrequently (1 time) provides activities or materials that children can engage with; children are frequently bored or uninvolved without provider intervention.
					3	Occasionally (2-3 times) provides activities or materials that children can engage with; children are infrequently bored or uninvolved without provider intervention.
					4	Often (4 or more times) provides activities or materials that children can engage with; children are never bored or uninvolved without provider intervention.
38 **Encourages infants (children who can not walk on their own) to explore and be active** (e.g., encourages infants to move around, get involved in activities, explore, and play with materials by providing safe and age-appropriate materials, activities, and equipment, and by providing them with time and space for supervised self-directed movement) *If an infant is in restraints (e.g. a high chair, car seat, or swing) for more than 20 minutes at one time, code '**1**'.*	1	2	3	4 [encourages]	1	Never encourages infants to explore and be active OR keeps an infant in restraints (e.g. a high chair, car seat, swing) for more than 20 minutes at one time.
					2	Infrequently (1 time) encourages infants to explore and be active OR does so for less than 20 minutes.
					3	Occasionally (2-3 times) encourages infants to explore and be active OR does so for more than 20 minutes but less than an hour.
					4	Often (4 or more times) encourages infants to explore and be active OR does so for an hour or more. NA= Not applicable; there are no infants present.

Snapshot of Activities: Family Child Care Home (OMLIT-SNAP)

Fall 2006

Snapshot of Activities: Family Child Care Home (OMLIT-SNAP)

Number	Children Present in Home
	Infants & toddlers (under 3 yrs old)
	Preschool (3 – 5 yrs old)
	School age (5+ yrs old)
	TOTAL Children (all ages)

Number	Staff
	Provider
	Assistant (paid)
Number	**Other Adults Present in Home**
	Adult dropping off / picking up / visiting
	Volunteer / visitor (non-relative)
	Other family member
	TOTAL Adults (staff and other adults)

Snapshot #1

Time: ___ ___ : ___ ___ am pm

Key:
Language(s) spoken:
E = English
S = Spanish
O = Other
*=Provider's own child (on roster)

Activity	1	2	3	4	5	6	7	8	9	10	Care-giver	Other Adults	Literacy L	Description of Activity
1 Reading / text / vocabulary (w / print)													L	
1a Alphabet / numerals													L	
1b Sounds / singing														
1c Oral language / vocabulary (no print)														
2 Emergent writing / copying / tracing													L	
3 Science / nature														
4 Math concepts / attributes / colors														
5 Dramatic play														
6 Creative play														
7 Block play														
8 Fine motor play														
9 Sensory play														
10 Meeting time (daily routines)														
11 Games with rules														
12 TV / video / computer														
13 Gross motor play														
14 Other activity														
15 Routines / management														
16 Meals / snacks														
17 Napping														
18 Child not involved in activity														

1. *Reading / text / vocabulary (with print)*

Looking at books or pictures, adult reading aloud, children reading together without adult, emergent reading (pretending to read), shared reading activities. Listening to stories on audiotape or CD. Teaching children new vocabulary words **with print support** for vocabulary (e.g., printed word).

1a. *Alphabet / numerals*

Recognizing letter / numeral forms, letter / sound correspondence. ***Always involves print.***

1b. *Sounds / singing*

Sounds of words with no print. All singing (may or may not have print, e.g., words of song displayed).

1c. Oral language / vocabulary (no print)

Discussions, new concepts and vocabulary with either **no print or no print emphasis.**

2. *Emergent writing / copying / tracing*

Child(ren) writing, includes pretend writing, scribbling, invented spelling. Child dictation to teacher. Tracing letter or number templates. Practice in correctly writing numerals / distinguishing numerals. ***Always involves print***

3. *Science / nature*

Formal and informal communication of science or nature. Science examples: astronomy, working with pets, collecting leaves, feeding pets, magnets, health & safety.

4. *Math concepts / attributes / colors*

Formal and informal communication of math concepts, attributes, or colors. Shapes, counting, measuring, patterns, amount. Identifying and matching non-geometric shapes (animals, familiar objects). Identifying and matching colors and color names.

5. *Dramatic play*

Pretend or make-believe play; dress-up, playing with dolls; assigning roles; zooming cars and trucks.
Note: Includes acting out stories / playing with puppets, figures of people / animals, and stuffed animals in pretend environments.

6. *Creative play*

Arts and crafts – creating visual art (painting, drawing, sculpting clay & play dough, cutting and pasting). *Note:* Always code PlayDoh® as "*Creative play*."
Music – instruments, formal and informal movement / dance activities.

7. *Block play*

All building with blocks and other large building materials.
Note: Once construction is done, and blocks are part of a completed pretend environment with cars, trucks, figures of people, code as "*Dramatic play*.". *Fine motor play*

Manipulation of materials, such as puzzles, stringing beads, sewing cards, woodworking, LEGOs®, Lincoln Logs®, interconnecting building pieces.

9. *Sensory play*

Manipulating sand, water, and textured materials such as beans, rice, shaving cream, where objective is learning about qualities of materials and not constructing a particular object.

10. *Meeting time*

Routines or daily rituals as part of group or circle time. Includes activities such as calendar, day of the week, weather, the day's activities, etc.

11. *Games with rules*

Playing board games, card games, and video games (e.g., Nintendo, Game Boy, Play Station) that are **not** explicitly educational.

12. *TV / video / computer*

Watching commercial television programs, video tapes / DVDs, or computer programs which may or may not be educational.
Note: If activity involves computer, circle "Computer" in description box.

13. *Gross motor play*

Large muscle play—active outdoor play and indoor physical activity (tunnels, gymnastics). Include outdoor walks here (e.g., walking to and from a destination such as the library).
Note: Code organized dance / movement activity as "*Creative play*."

14. *Other activity*

Special activities that are not part of the regular activities on list, e.g. special events / destinations, field trips, student assessments school assembly, library). *Note:* Specify activity in description box.

15. *Routines / Management*

Routines / transitions: Arriving / departing, napping / sleeping, physical care / hygiene (including first aid, toileting), setting up or cleaning up of activities / materials, lining up.

Conversation / management: Any talking or interaction between adult and child, between children, or between adults outside of a listed activity. Conversation may be positive or negative. Examples: adult managing a child's behavior, comforting a child, or chatting. Children may be interacting in nonproductive ways.

Uninvolved / administration: Adults not involved in any activity listed above and not interacting with another person. Teacher / other adult doing administrative work, monitoring overall classroom activity from a distance.

16. *Meals / Snacks*

Engaged in the act of eating a meal / snack, and / or meal / snack preparation and clean-up.

17. *Napping*

Children napping in any room in the house.

18. *Uninvolved in Activity*

Child roaming aimlessly around classroom, having a tantrum, otherwise unengaged.

Read-Aloud Profile (OMLIT-RAP)

Adapted for the Massachusetts Family Child Care Study

Fall 2006

A. PRE-Reading

1. **Guides book choice; discusses children's book choice(s):** Adult encourages children to choose the book; talks about their choice with them. Helps them make appropriate choice.

2. **Points to features of the book such as the title, illustrations, author:** **Points to** title, author, illustrator, or illustration on front of book (or points to chapter title in a chapter book)

2a. **Discusses concepts of print such as the title, illustrator, author:** Defines**,** describe meaning of concepts of print such as title, author, illustrator, or illustration.

3. **Reminds children of similar books they have read or that they have read same book before:** Calls attention to books children by the same author, same illustrator, same topic, etc. OR reminds children they've already read same book before. Ex: "What was another book that we read about ducks?" or " …by Eric Carle?"

4. **Comments on sounds, letters, and/or sound-letter links to listen, look for in the story/book:** Talks about sounds they will hear in the story, especially sounds they may have been learning about in class. Or talks about letters they will see in the story, especially letters they have been learning about. Ex: "During the story, when you hear the 'buh' sound, raise your hand." Or "This story has a lot of words that begin with the letter 'g.' Let me know when you see one."

5. **Introduces story-related vocabulary:** Highlights or explains new vocabulary. Ex: "This book is about a fish called a 'sunfish.' Sunfish have fins. Fins are what they use to move around in the water. When we read the book, you will see pictures of sunfish and we can pick out their fins."

6. **Relates the story/book to other activities in class, class theme:** Calls attention to the book's relation to class activities or theme. Ex: "This duck likes to eat fish. What does our pet turtle like to eat?" Or, "Remember last week when we went to the fire station? This story is about firemen like the ones we met."

7. **Talks about events and/or features to listen, look for in the story/book:** Helps children anticipate things that will happen in the book. Ex: "At the end we'll talk about all the different things that the caterpillar likes to eat. What do we think his favorite food is?"

8. **Introduces background information related to the story/book (with or without child input):** Describes what the book is about. Ex: "This book is about a birthday party that Little Bear has with all his forest friends." May or may not invite child discussion.

9. **Narrates/tells the story in advance of reading:** Recites all or major parts of book (e.g., nursery rhyme in book based on rhyme) before actually reading story.

10. **Relates the story/book to children's own experiences outside of classroom activities:** Links book to children's experiences outside of class. For example: "Have you ever fed the ducks in the park before? What sound did they make?" or "What kinds of things do you like to do on a rainy day?"

11. **No pre-reading experiences or activities (without any codes 1-10):** The adult may alert children to the reading activity but does not provide any of the above listed experiences/activities.

B. Reading

1. **Tracks print:** Adult **moves her finger** along the page below the line of print or **points sequentially** to words in text as she reads.

2. **Uses props / dramatic voices / gestures:** Uses props (e.g., hand puppets, stuffed animals, items in the story), gestures, or different voices to tell story.

3. **Directs children's attention to illustrations/text/story. (i.e., asks questions about; discusses/expands on meaning; offers new information):** Points to, or in some way calls children's attention to the book's illustrations, details of the illustrations. Engages children in (brief) discussion about the meaning of text or illustrations and/or offers new information about the story that may not be written in the text or depicted in illustration (e.g., explaining about something unfamiliar in the text or pictures).

4. **Comments on sounds, letters, and/or sound-letter links in the story/book:** Calls children's attention to sounds, letters, or sounds and their corresponding letters in the story text.

5. **Highlights new story-related vocabulary:** Calls attention to, defines, and/or gives examples to help children understand unfamiliar words in story.

6. **Relates the story/book to other activities in class, class theme:** Places the story in context by mentioning the class theme and/or how the book fits into the class activities.

7. **Expands on children's comments about the story/book:** When child makes a comment, adult extends by asking child for elaboration or restating child's comment.

8. **Answers children's questions about the story/book or related topics:** Allows children to ask questions about the story and then responds to those questions.

9. **Has children join in reading/completing text on their own or as a group (choral reading):** Pauses and/or indicates to children in some way that they should recite words/numbers, phrases, or longer chunks <u>of the text</u> aloud with her.

10. **Asks recall questions about earlier parts of the story/book:** Asks children to recall events, characters, attributes from earlier in the story.

11. **Relates the story/book to children's experiences/Asks the story/book-related questions about children's experiences outside of classroom activities:** Extends children's understanding by tapping into their own experiences to help them comprehend the story.

12. **Asks the story/book-related <u>open-ended</u> questions (requires prediction, expanded response, thinking, and/or analysis):** Probes children's comprehension by asking questions about the story that require children to predict (e.g., "What do you think will happen next? What if..."), elaborate responses; engage in more thought or analysis of the story.

13. **Picture walk:** "Walks through" the book without reading text; turns pages and describes aspects of the illustrations, and/or asks children about the illustrations. May or may not "tell" the story.

14. **Reads text straight through (without any codes 1-13):** The adult does not engage children in any of the activities or behaviors listed above while reading the story.

C. POST-Reading

1. **Answers children's questions about the story/book or related topics:** Teacher reads, speaks, without expecting response from children at that time.

2. **Expands on children's comments about the story/book or illustrations:** Allows children to ask questions about the story and then responds to those questions.

3. **Comments on sounds, letters, and/or sound-letter links in the story/book:** Calls children's attention to sounds, letters, or sounds and their corresponding letters in the story text.

4. **Reviews/reinforces story-related vocabulary <u>with or without</u> print reference:** The teacher suggests ways of extending activities (e.g., to include or extend literacy activity) or offers materials (e.g., literacy materials).

5. **Summarizes/retells the story <u>without</u> child involvement:** Re-tells plot of story to remind children; help children who didn't understand what the story meant.

6. **Summarizes/retells the story <u>with</u> child involvement:** Involves children in retelling plot of story.

7. **Asks for recall of information about the story/book:** Asks children to recall events, characters, attributes from the story she just read aloud.

8. **Asks story/book-related questions about children's experiences outside of classroom activities:** Extends children's understanding by tapping into their own experiences to help them comprehend the story.

9. **Asks story/book-related open-ended questions (requires speculation, expanded response, thinking, and/or analysis):** Probes children's comprehension by asking questions about the story that require speculation, longer or more elaborated responses, more thought, or analysis of the story. Ex: "What do you think would have happened if...?"

10. **Organizes post-reading story/book -related activity (beyond oral discussion):** The teacher suggests ways of extending activities (e.g., to include or extend literacy activity) or offers materials (e.g., literacy materials).

11. **No post-reading activity or extension occurs (without any codes 1-10):** The adult does none of the above listed extensions or activities after reading the book.

Note: Discussion of concepts of print during post-reading should be coded as A-2a.

Read-Aloud Profile 🥚MLIT-RAP

Start Time ____ : ____ am pm

End Time ____ : ____ am pm

Title of Book: _____

Author: _____

Staff ID# _____   **RAP #1**

❏ Read-Aloud ends before book is completed

A. PRE-Reading (set-up) (circle all that apply)		B. Reading (circle all that apply)		C. POST-Reading (extension) (circle all that apply)		D. Adult Reading Book (circle all that apply)		E. Adult Language with Children (circle all that apply)		F. Number of Children Reading (circle one of F1-4; also F5 if applies)		G. Book Characteristics (circle one for each)	
1	Guides book choice; discusses children's book choice(s)	1	Tracks print	1	Answers children's questions about the story/book or related topics	1	Teacher	1	English	1	One child		*Type of book*
2	Points to features of the book such as the title, illustrations, author	2	Uses props/dramatic voices/gestures									1a	Picture book
												1b	Alphabet book
						2	Assistant/ Aide	2	Spanish	2	Two children	1c	Counting book
												1d	Chapter book
2a	Discusses/defines concepts of print such as the title, illustrator, author	3	Directs children's attention to illustrations/text/story (i.e., asks questions about; discusses/expands on meaning; offers new information)	2	Expands on children's comments about the story/book or illustrations	3	Other Adult	3	Other language	3	Small group (3-5 children)	1e	Reference book
													Big Book
												2a	Yes
												2b	No
3	Reminds children of similar books they have read or that they have read same book before	4	Comments on sounds, letters, and/or sound-letter links in the story/book	3	Comments on sounds, letters, and/or sound-letter links in the story/book					4	Large group (6+ children)		*Language*
												3a	English only
												3b	Spanish only
												3c	Eng & Spanish
4	Comments on sounds, letters, sound/letter links, or tells children to listen and look for them in story	5	Highlights new story-related vocabulary	4	Reviews/reinforces story-related vocabulary **with** or **without** print reference					5	Whole class	3d	Other language
							Vocabulary & Supports:					3e	Eng & other language
		6	Relates the story/book to other activities in class, class theme									❏	Book is read in different language
5	Introduces story-related vocabulary	7	Expands on children's comments about the story/book	5	Summarizes/retells the story **without** child involvement								*Words/page*
												4a	0 words
6	Relates the story/book to other activities in class, class theme	8	Answers children's questions about the story/book or related topics									4b	1 word
												4c	2-10 words
												4d	>10 words
7	Talks about events and/or features to listen, look for in the story/book	9	Has children join in reading/completing text on their own or as a group (choral reading)	6	Summarizes/retells the story **with** child involvement		**Open-ended Questions:**						*Book on tape*
												5a	Yes
												5b	No
8	Introduces background information related to the story/book (book (with or without child input)	10	Asks recall questions about earlier parts of the story/book	7	Asks for recall of information about the story/book								*Related to class theme*
9	Narrates/tells the story in advance of reading	11	Relates the story/book to children's experiences/Asks story/book-related questions about children's experiences outside of classroom activities	8	Asks story/book-related questions about children's experiences outside of classroom activities							6a	Yes
												6b	No
												6c	Don't know
10	Relates the story/book to children's experiences outside of classroom activities	12	Asks story-related <u>open-ended</u> questions (requires prediction, expanded response, thinking, and/or analysis)	9	Asks story/book-related <u>open-ended</u> questions (requires speculation, expanded response, thinking, analysis)								
11	**No pre-reading experiences or activities (without any codes 1-10)**	13	Picture Walk	10	Organizes post-reading story/book-related activity (beyond oral discussion)								
		14	**Reads text straight through (without any codes 1 – 13)**	11	**No post-reading activities or extension occurs (without any codes 1-10)**								

A. PRE-Reading (set-up)		B. Reading	
(circle all that apply)			(circle all that apply)
12	Invites child to read.	15	Points to illustrations while naming them or talking about them ["see"].
13	Takes child on lap or positions child close to herself.	16	Asks child to point to specific illustrations. ["show"].
14	Asks rhetorical introductory questions.	17	Asks child to name specific illustrations ["say"].
		18	Invites child to act out a part of the story or act out answers to questions.

A. Pre-Reading

12. Invites child to read by talking to child and/or holding up book for child to see: Talks about book, e.g. "Here's something that will be fun to read" and/or displays book so the child can see it as the adult approaches child.

13. Takes child on lap or positions child close to herself: This assumes that there are two or three children at most in the reading session.

14. Asks rhetorical introductory questions such as "I wonder what this story will be about": Asks a question even though the child is too young to answer. May give the answer to her own question.

B. Reading

15. Points to illustrations while naming them or talking about them (to draw children's attention to the book illustrations). ["see"]

*can also be done without pointing (see manual)

16. Asks child to point to specific illustrations. For example, "Point to the kitty." Or "Show me the boy wearing a hat." ["show"]

*can be a variety of actions (see manual)

17. Asks child to name specific illustrations: The adult asks for a verbal response from the child with questions such as, "Who's this?" or " What do you see on this page?" ["say"]

18. Invites child to act out a part of the story or act out answers to questions: Asks a question that the child can answer with a gesture or movement, such as "How do birds use their wings?"

Quality Indicators for OMLIT-RAP

	❑ 1 = Minimal	❑ 2	❑ 3 = Moderate	❑ 4	❑ 5 = High
1. Story-related vocabulary *Code as "1" if no A5, B5, or C3 is circled Code item as "1" if no new vocabulary introduced.*	Some story-related vocabulary words are introduced/discussed, but the definition of one or more of the words is misleading or wrong.		**One** story-related vocabulary word is introduced or discussed and the definition is accurate AND <u>At least one</u> of the following comprehension supports is given for the word: • A picture, gesture, or other concrete visual aid is used; • The word is linked to a rich network of related words or concepts.		**At least 2** story-related vocabulary words are introduced or discussed and the definition of each vocabulary word is accurate AND <u>Both</u> of the following comprehension supports are given for each word: • A picture, gesture, or other concrete visual aid is used; and • Each word is linked to a rich network of related words or concepts.
2. Adult use of open-ended questions *Code item as "1" if no open-ended questions (no A10, B11, B12, C8 or C9 circled)*	Adult poses only **one** open-ended question and does not provide opportunity for children to respond to question (child not given time to respond, or adult moves on after child has responded).		Adult poses **two** open-ended questions and provides opportunity for children to respond to **one but not both** of the questions.		Adult poses **at least four** open-ended questions and consistently shows interest in/actively encourages children's responses (e.g., pausing for children, restating question, calling on particular children, acknowledging children's response).
3. Depth of Post-Reading *Code item as "1" if no C1-C10 is circled)*	No post-reading extension or activities. (Post-reading coded as **C11**)	Relates to the book but lasts **LESS** than 5 minutes	Discussion and/or activity that • Relates to the story/book but does not extend its meaning or comprehension **AND** • Lasts at least 5 minutes.	Extends comprehension and lasts **LESS** than 10 minutes	Discussion and/or activity that • Extends the meaning of the text and reinforces comprehension of the story/book **AND** • Lasts at least 10 minutes.

Observations of Provider Interactions
With Children

Fall 2006

Provider's Interactions With Children

Observation # ___   Start time: _____ : _____ am/pm

A. Child Activity Context	Activity				
	1	**2**	**3**	**4**	**5**
1. P Interacts (with 1-2 children) during the following type of activity: *(Check one)*	Activity Code:	Activity Code:	Activity Code:	Activity Code:	Activity Code:
a. *LearningGames (LG)* activity b. Non-*LG* activity c. Free play d. Interactive reading e. Routine or transition f. Other	☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f.	☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f.	☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f.	☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f.	☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f.
2. Briefly describe activity/LearningGame					
3. Number of children involved in context activity (if more than 2)					
4. Age ranges of children involved – no more than 2 total. *(Write the number of children in each age range, up to 2 children in one age range or one in each of 2 age ranges)*	__ a. < 1 __ b. 1-2 __ c. 3-5 __ d. 6+	__ a. < 1 __ b. 1-2 __ c. 3-5 __ d. 6+	__ a. < 1 __ b. 1-2 __ c. 3-5 __ d. 6+	__ a. < 1 __ b. 1-2 __ c. 3-5 __ d. 6+	__ a. < 1 __ b. 1-2 __ c. 3-5 __ d. 6+
B. Verbal Behaviors *(Check all that apply)*					
1. P **nudges** C to try something new/extend activity • Makes suggestions • Asks questions					
2. P **narrates/talks** about what C is doing, or • Asks questions about what C is doing • Gives feedback on what C is doing *Do not count giving directions or discipline.*					
3. P **introduces/extends language play or learning with Child** (Ex: sings, plays sound/rhyming game, uses letters or print, teachers new word, plays back-and-forth game with nonverbal child)					
4. P **encourages/supports Child to do activity on own** (Ex: feed self, ride bike, use scissors, look at book)					
C. Non-Verbal Behaviors *(Check all that apply)*					
1. P **nudges** Child to try something new/extend an activity: • Offers a new toy or material					
D. Interactive Book Reading Behaviors *(Code only for Activity A1d. Check all that apply)*					
1. P reads/talks about book and points to pictures while Child is actively looking at book ("see") • *P does **not** explicitly ask Child for a response*					
2. P asks Child question about book and waits for <u>nonverbal</u> response from Child ("show")					
3. P asks Child questions about book and waits for <u>verbal</u> response from Child ("say")					
E. Reasons for not Coding Any Behaviors *(Check one if no other codes were checked during the observation period):*					
1. P interacted with 1-2 children but none of the behaviors (B-D) were observed ☐					
2. P only interacted with 3 or more children ☐					
3. P did not interact with any C/out of room ☐					
4. RAP ☐					
5. Other (specify) ☐					

QUEST Caregiver Rating Scale

Summer 2006
Fall 2007

Relationships and Learning Activities	Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions	
Caregiver With Children--Caring and Responding						
1 Caregiver **shows interest** in what children say and do, and listens attentively to them.	1	2	3		1 2 3	Rarely/never pays attention to children/noticeable lack of interest in children Inconsistent attention/interest OR only attention to some children Consistent attention to and interest in children*
2 Caregiver **responds to children's language** and babies' vocalizations.	1	2	3		1 2 3	Rarely/never responsive to children's language/vocalizations Only sometimes responsive to children Consistently responsive verbally or non-verbally to most/all children*
3 Caregiver **has conversations** with each child.	1	2	3		1 2 3	No/almost no individual caregiver/child in-depth conversation with most children Individual in-depth conversations with a few/some children Individual in-depth conversations with most/all children*
4 Caregiver **shows affection** to each child, including gentle touch, kind words, special looks.	1	2	3		1 2 3	Rarely/never shows affection to children Shows affection to some children but not to others Consistently shows affection to most/all children*
5 Caregiver **offers children help** when needed.	1	2	3		1 2 3	Rarely/never notices/offers help, or help is interfering rather than helpful Sometimes notices and offers help OR only notices some children Consistently notices/offers help when needed/does not interfere/force help
6 Caregiver **acknowledges specific aspects** of each child's efforts and accomplishments.	1	2	3		1 2 3	Rarely/never acknowledges children's efforts Only sometimes acknowledges children's efforts OR only acknowledges efforts of some children Consistently acknowledges each child's efforts
7 Caregiver **accepts children's feelings**.	1	2	3		1 2 3	Rarely/never accepts children's feelings Sometimes accepts children's feelings/or only feelings of some children Consistently accepts children's feelings/attends to how most/all children feel*
8 Caregiver **recognizes signs of distress** in children and responds and comforts them.	1	2	3		1 2 3	Rarely/never recognizes signs of distress/doesn't respond appropriately Sometimes recognizes/responds to signs of distress or only responds to some children Consistently recognizes/responds appropriately to distress for most/all children*
9 Caregiver **plays interactively** with children.	1	2	3		1 2 3	No interactive play with children Plays interactively 1-2 times, OR only with some children Plays interactively more than two times with all/most children*
10 Caregiver **holds babies**.	1	2	3	No children under 2	1 2 3	Rarely/never holds babies for any reason Holds babies only some of the time/only some babies/only holds babies in distress All/most babies are held both when in distress and other times Code as NA if no children under 2 years old.

*Note: In setting with 4 or fewer children, code 3 only if caregiver does this with <u>all</u> children;

in setting with 5 children, code 3 if caregiver does this with at least 4 of 5 children;

in setting with 6 children, code 3 if caregiver does this with at least 4 of 6 children;

in setting with 7 or 8 children, code 3 if caregiver does this with at least 5 children.

Relationships and Learning Activities	Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions
Caregiver With Children--Using Positive Guidance and Discipline					
11 Caregiver **states needed limits** and consequences clearly and calmly.	1	2	3		1 Needed limits/consequences rarely/never stated OR if stated, not in calm, clear way 2 Needed limits only sometimes stated clearly and calmly 3 Needed limits consistently stated clearly and calmly
12 Caregiver **helps children learn to understand/ and express feelings and** gain control over impulses.	1	2	3		1 Rarely/never helps children understand/express feelings or control impulses by talking 2 Sometimes helps children understand/express feelings OR only helps some children 3 Consistently helps children understand/express feelings and control impulses by talking through feelings, giving alternative strategies for expressing feelings or gaining control
13 Caregiver **helps children to notice others' needs** and feelings.	1	2	3		1 Rarely/never helps children notice others' needs and feelings 2 Sometimes helps children notice others' needs, feelings OR only helps some children 3 Consistently helps children notice others' needs and feelings
14 Caregiver **helps children experience the consequences** of their own misbehavior when safe.	1	2	3		1 Rarely/never lets children experience consequences of misbehavior; imposes arbitrary limits 2 Sometimes helps children experience natural consequences OR only some children 3 Consistently helps children experience natural consequences of their own misbehavior when it is safe to do so.
15 Caregiver **does not force children into activities** except during transitions.	1	2	3		1 Often forces children into activities, doesn't let them make choices on own 2 Sometimes forces children into activities rather than letting them decide OR only some 3 Consistently lets children decide their own activities *Do not count transitions*
16 Caregiver **emphasizes what children should do** rather than what they should not do.	1	2	3		1 Instructions usually/consistently emphasize what children should **not** do 2 Some instructions emphasize what to do and others what **not** to do 3 Instructions usually focus on what children *should* do
17 Caregiver **encourages/helps children resolve conflicts** by talking through feelings and solutions.	1	2	3		1 Rarely/never helps children resolve conflicts by talking through feelings and solutions; resolves conflicts on her own without involving children 2 Sometimes helps children resolve conflicts by talking; other times solves them herself OR only helps some children 3 Consistently helps resolve conflicts by talking rather than resolving conflicts without input from children.
18 Caregiver **redirects children or introduces a new activity** to minimize their frustrations.	1	2	3		1 Rarely/never helps minimize children's frustration by redirecting/introducing new activity 2 Sometimes helps children by redirecting/offering new activity OR only helps some 3 Consistently minimizes children's frustration by redirecting/introducing new activity
19 Any **time out or time away from the group** is used to help child gain self-control, not as punishment.	1	2	3		1 Time out used as punishment or time out lasts too long 2 Timeout sometimes used as punishment and sometimes to help child regain control 3 Timeout consistently used in positive manner and for appropriate length of time.

Relationships and Learning Activities	Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions
Caregiver With Children--Supervision					
20 Caregiver **can see or hear children** at all times or makes sure another adult is monitoring children.	1	2	3		1 There are substantial amounts of time when caregiver cannot see or hear children (excluding children over 6 years) 2 There are a few times when caregiver cannot see or hear all children (excluding children over 6 years) 3 Children 6 years and under can be see or heard at all times etc; there is no time when caregiver is out of range of either seeing or hearing what children are doing • Children 2 years or under must always be in line of sight when outside • Children 6 years or under must be in sight **or** hearing at all times • Other arrangements may be made for children 6 years or older
21 The caregiver's **level of supervision is appropriate** for each child's age, activities and abilities.	1	2	3		1 Supervision is often insufficient for each child's activities and abilities 2 Supervision is sometimes sufficient, but there are times/activities when there should be more supervision (e.g., depending on where children are, materials they are using) 3 Supervision is consistently appropriate for each child's activities and abilities
22 Special supervision is given during **potentially hazardous activities**, including swimming, water play, woodworking, cooking, field trips.	1	2	3		1 No additional supervision during potentially hazardous activities 2 Additional, appropriate supervision observed during some but not all potentially hazardous activities 3 Additional, appropriate supervision consistently provided during potentially hazardous activities.
23 Use of **equipment that restrains** children's movement is limited.	1	2	3	No children under 2 yrs	1 One or more children are left in restraining equipment for more than 30 minutes in a 2-hour period when they are awake 2 One or more children are left in restraining equipment for more than 20 minutes in a 2-hour period when they are awake 3 Children who are awake are not left in restraining equipment for more than 20 minutes in any 2-hour period

Relationships and Learning Activities		Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions	
Caregiver With Children—Does No Harm							
24	Caregiver **does not use physical punishment** or humiliation.	1	2	3		1 2 3	Physical punishment or humiliation used two or more times or with two children Physical punishment or humiliation observed one time No use of physical punishment (hitting, slapping, smacking, spanking, pinching) or humiliation (criticize, speak degradingly or sarcastically).
25	Caregiver **does not handle children roughly**.	1	2	3		1 2 3	Multiple children handled roughly (yanking, pulling, etc) OR one child handled roughly two or more times One child handled roughly once No children handled roughly
26	Caregiver **does not criticize**, shame, tease, threaten, or yell at children.	1	2	3		1 2 3	Multiple children/groups of children criticized, shamed, teased, threatened, or yelled at OR one child multiple times One child/group of children criticized, shamed, teased, threatened, or yelled at once No children are criticized, shamed, teased, threatened, or yelled at
27	Caregiver **does not take over or dominate** play or exert unnecessary control.	1	2	3		1 2 3	Tries to dominate or exert unnecessary control over children more than once Tries to dominate or exert unnecessary control over children once Does <u>not</u> try to dominate or exert unnecessary control over children
28	Caregiver **avoids power struggles** with children.	1	2	3		 1 2 3	(**power struggle**=ongoing competition for power where each person tries to control/subdue the other) Two or more power struggles or an ongoing struggle with at least one child Power struggle with one child. Power struggles with children consistently avoided. Tries to help children understand why they need to do something they don't want to do.

Relationships and Learning Activities	Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions	
Supporting Social Emotional Development						
29 Caregiver provides **opportunities for and encourages children to work together** and play together, outside of meal times.	1	2	3	Only 1 child in setting	1	Provides few (0-1) opportunities and little/no encouragement for children to work/play together (other than meal times)
					2	Provides some opportunities and encouragement for children to work/play together OR only encourages some children (other than meal times)
					3	Provides many opportunities and encouragement (other than meal times) for children to do things together, not necessarily structured group activities
30 Caregiver **teaches children about sharing**, taking turns, and cooperating with each other, through structured discussion or in everyday situations.	1	2	3		1	No/almost no discussion/teaching children about sharing, taking turns, cooperating
					2	A few discussions/instances of teaching children about sharing, taking turns, and cooperating OR only teaches some children
					3	Many discussions/instances of teaching children about sharing, taking turns, and cooperating, not just structured lessons but also using everyday situations
31 Caregiver teaches and **encourages children to help and take care of others, especially any older and more competent children with younger, less competent children.**	1	2	3	Only 1 child in setting	1	Rarely/never teaches, encourages children to take care of others
					2	Sometimes teaches and encourages children to take care of others but misses some opportunities, especially if there are children of different ages, levels of competence
					3	Uses many opportunities to teach and encourage children to take care of others, especially older and more competent children
32 Caregiver **teaches social rules** or limits to children, not only in structured discussions but also in the context of everyday activities.	1	2	3		1	Rarely/never teaches social rules or limits to children
					2	A few instances of teaching social rules or limits but misses some opportunities OR only teaches some children
					3	Takes many opportunities to teach social rules or limits tomost/allchildren, not only in structured discussions but also in the context of everyday activities (e.g., on field trips, greeting visitors)
33 **Teasing, bullying, or hurtful behavior** is noticed by caregiver, who helps children notice it and stand up for each other/themselves and assures that the outcome is fair and considerate of all.	1	2	3		1	Ignores teasing, bullying; rarely/never children stand up for each other/themselves
					2	Sometimes helps children notice teasing etc and to stand up for each other, but ignores/fails to notice some of this behavior OR only helps some children
					3	Consistently helps children notice teasing etc and stand up for each other/ themselves and helps assure fair outcomes
34 Caregiver **teaches children about community members** and their roles, and helps children get to know people in the community.	1	2	3		1	Rarely/never teaches children about community members, community roles
					2	Takes some opportunities (1-2) to teach children about community members, roles OR only teaches some children
					3	Takes many opportunities to teach children about community members, roles
35 Caregiver responds factually and respectfully to children's curiosity **about people's similarities and differences.**	1	2	3	No curiosity observed	1	Rarely/never responds factually to/ignores children's questions/comments about differences
					2	Sometimes responds factually to children's questions/comments about differences but other times either ignores children's curiosity or responds inappropriately OR only responds to some children
					3	Consistently responds factually and respectfully to children's curiosity about people's similarities and differences
36 Caregiver teaches children to **take care of the equipment**, materials, and the environment.	1	2	3		1	Children rarely/never expected to take care of materials, etc, including not destroying them and cleaning up
					2	Children only sometimes expected to take care of materials or only some children expected to take care
					3	Consistently teaches children to take care of the equipment etc; takes advantage of opportunities during activities

Relationships and Learning Activities	Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions	
Supporting Play						
37 Caregiver helps children learn to **plan their own activities** by providing free-choice time when activities are not predetermined.	1	2	3		1	Rarely/never gives children opportunities to plan and freely choose own activities; always provides children with activities that they have to do
					2	Sometimes gives children opportunities to plan/choose own activities but sometimes requires them to follow adult-directed schedule
					3	Consistently/regularly gives children opportunities to plan and select own activities, providing support by helping children take turns in activities, try new activities, have time for activities they want to do
38 Caregiver gives children ample **opportunities to play**, providing a variety of materials/activities for children to choose from to explore their interests.	1	2	3		1	Children rarely/never given sufficient free-play time (< 60 minutes) over a half-day **AND in**sufficient materials/activities to choose among
					2	Children are given either sufficient free-play time (at least 60 minutes) during a half-day period) OR sufficient materials/activities to choose among, but not both
					3	Children are given sufficient free-play time (at least 60 minutes) during half-day AND sufficient materials/activities to explore their own interests
39 Caregiver actively **supports children's play** by observing, offering materials, joining in, or making gentle suggestions as needed.	1	2	3		1	Rarely/never supports children's play; either ignores what children are doing or tries to exert control over children's play by offering unneeded suggestions, changing directions
					2	Sometimes supports children's play but at other times either ignores children, tries to control children's play
					3	Consistently supports children's play by observing and providing encouragement and praise or by joining in; does not try to take over the play activity with suggestions unless asked
40 Caregiver provides time for **active physical play every day,** either indoors or outdoors.	1	2	3		1	No opportunities for active physical play provided, either outdoors or indoors
					2	Opportunities for active physical play, but lasting less than 45 minutes OR only for some children
					3	Opportunities for physical play that last at least 45 minutes

Relationships and Learning Activities		Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions	
Supporting Cognitive Development: Instructional Style							
41	Caregiver takes advantage of and builds upon natural learning experiences and **teachable moments** as they arise.	1	2	3		1	Rarely/never takes advantage of or builds on natural learning experiences; misses opportunities
						2	Sometimes takes advantage of/builds on natural learning experiences, but also misses some opportunities OR only builds on natural experiences for some children
						3	Consistently takes advantage of and builds upon natural learning experiences and "teachable moments"
42	Caregiver provides **activities for all children to engage in** at all times. If children are discouraged from one activity (because of age or safety reasons), Caregiver provides alternatives.	1	2	3		1	Frequent instances where children do not have an activity in which to engage; does not offer alternatives for children
						2	Some instances when one or more children do not have an activity in which to engage and alternatives only sometimes provided
						3	Children consistently have an activity in which to engage and alternative activities provided when needed
43	Caregiver helps children talk about what they are doing and thinking by asking **open-ended questions**, i.e., questions that encourage a thoughtful response rather than a brief answer.	1	2	3	No children over 3 years	1	Rarely/never uses open-ended questions with children 3 years and older
						2	Only a few (1-2) open-ended questions or only to some of children 3 yrs and older
						3	Multiple instances of open-ended questions about what they are doing and thinking; questions asked of most/all children 3 years and older
44	Caregiver helps children learn **specific skills and concepts**, both cognitive and self-help skills, especially when children show interest or are having trouble with new skills.	1	2	3		1	Rarely/never helps children learn specific skills and concepts when they are ready
						2	Sometimes helps children learn specific skills but does not always respond when children indicate they are ready or only some children are helped
						3	Consistently helps children learn specific skills and concepts when they are ready, including adaptive and cognitive skills
45	When introducing a new activity, caregiver **introduces** it and orients children about what is involved.	1	2	3		1	Children are not introduced or oriented to what is involved in new activities.
						2	Children only sometimes are oriented to new activities or only some children are given this support
						3	Children are consistently introduced or oriented to what is involved in new activities

Relationships and Learning Activities	Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions
Supporting Cognitive Development: Learning Activities and Opportunities					
46 Caregiver provides opportunities and resources for **fine motor activities** (small interlocking blocks, puzzles, etc).	1	2	3		1 No/almost no opportunities/resources provided for fine motor play for any age 2 Limited number of opportunities/resources provided for fine motor play OR opportunities only for some children 3 Multiple opportunities/resources provided for fine motor play for children of all ages
47 Caregiver provides opportunities and resources **for dramatic play.**	1	2	3		1 No opportunities/resources provided for dramatic play for children (costumes/clothing, household items, telephones, etc.) 2 Limited opportunities/resources provided for dramatic play OR opportunities only for some children 3 Multiple opportunities/resources provided for dramatic play for children of all ages
48 Caregiver teaches **early math concepts.**	1	2	3		1 No teaching of early math concepts to children of any age—comparisons, shapes, measurement, etc. 2 Limited teaching of early math concepts OR only to some children 3 Multiple instances of teaching of early math concepts to children of all ages
49 Caregiver encourages children **to use math** in everyday contexts.	1	2	3		1 Little/no encouragement of children to use math in everyday contexts. 2 Some encouragement of children to use math in everyday contexts but misses some opportunities OR only with some but not all children 3 Consistently encourages most/all children to use math in everyday contexts
50 Caregiver provides opportunities and resources for **construction activities** with blocks or other building materials.	1	2	3		1 No/almost no opportunities/resources provided for construction activities for children of any age 2 Limited number of opportunities/resources provided for play OR opportunities only for some children 3 Multiple opportunities/resources provided for fine motor play for children of all ages
51 Caregiver gives children **opportunities to explore the natural and physical environment**.	1	2	3		1 No/almost no opportunities provided for children of any age to explore natural world 2 Limited number of opportunities provided for exploring natural world OR opportunities only for some children 3 Multiple opportunities provided for children of all ages to explore natural world
52 Caregiver provides opportunities and resources for **creative activities that are open-ended** and child-directed.	1	2	3		1 No/almost no creative activities provided or all creative activities are close-ended and caregiver-directed. 2 Some creative activities are open-ended and self-directed, others are not. 3 All/most creative activities are open-ended and child-directed
53 **Evidence of children's art** and other work products is visible or readily available and does not show preference for work that looks realistic or pretty.	1	2	3		1 No examples of children's art visible/available 2 Only a few examples of children's art visible/available OR there is a clear preference for realistic or "pretty" work 3 Multiple examples of children's art visible/available and all children's art treated equally (no preference for pretty or realistic work)

Relationships and Learning Activities	Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed
Supporting Cognitive Development: Learning Activities and Opportunities				
54 Caregiver gives children opportunities to **make their own music (**chants/finger plays) with their voices or instruments (purchased/home-made).	1	2	3	
55 Caregiver gives children opportunities to **dance or move creatively.**	1	2	3	
56 Caregiver provides opportunities and resources for **sensory play.**	1	2	3	

Definitions

1	No opportunities/resources for children of any age to make their own music
2	Single opportunity/resource for children to make their own music OR only some children provided with an opportunity to make music
3	Multiple opportunities/resources for children of all ages to make music, chants, using voices/instruments
1	No opportunities for children of any age to dance or move creatively
2	Single opportunity for children to dance or move creatively OR only some children provided with an opportunity to dance
3	Multiple opportunities for children of all ages to dance or move creatively
1	No opportunities/resources for children of any age to engage in sensory play (water, clay, sand)
2	Single opportunity/resource for children to engage in sensory play OR only some children provided with an opportunity/resources for sensory play
3	Multiple opportunities/resources for children of all ages to engage in sensory play

Relationships and Learning Activities	Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions	
Supporting Language Development and Early Literacy						
57 Caregiver **reads** to all children every day.	1	2	3		1	No reading aloud to any children
					2	Reads no more than one book (or reads for less than 30 minutes) daily to children of any age OR reads multiple books but only to some children
					3	Reads at least 30 minutes daily with most/all children of all ages (alternative arrangements can be made for school-age children)*
58 Caregiver **encourages children to look at or read** books or other forms of print on their own.	1	2	3		1	Rarely encourages children to look at or read books on their own. Books are often not available; reading is rarely suggested
					2	Sometimes encourages children to look at or read books on their own. Books are only available some of the time
					3	Consistently encourages children to look at or read books on their own. Books are available to children a large portion of the time; reading on own is often suggested
59 Caregiver draws children's attention to **the functions and features of print.**	1	2	3	No children over 2 years	1	Never calls attention to functions/features of print
					2	Sometimes calls attention to functions/features of print through high-quality activities OR only for some children
					3	Consistently calls attention to functions of print (labeling, naming categorizing, describing) or features of print (directionality, capital versus lower case letters, spaces between words) through high-quality activities
60 Caregiver draws children's attention to the **sounds in words,** talks about how letters and letter combinations sound.	1	2	3		1	Never calls attention to sounds of words over the day for any children
					2	Sometimes calls attention to sounds of words over the day using high quality techniques OR only with some children
					3	Consistently provides opportunities for most/all children to learn about sounds of letters/words using high-quality techniques-- text with rhymes/alliteration, songs, games that emphasize rhyming syllables in words (e.g., clapping out syllables)
61 When reading to children, caregiver engages them in **discussion, asks open-ended questions.**	1	2	3		1	Reading aloud: no open-ended questions or extended discussion about book
					2	Reading aloud: some questions but usually closed-ended or only require short/one-word answers
					3	Reading aloud: consistently engages most/all children in discussion, asks open-ended questions*
62 Caregiver engages children in **language games, rhymes, songs.**	1	2	3		1	Never engages children in language games, rhymes, songs
					2	Sometimes engages children in language games, rhymes, songs or only does this with some children
					3	Engages most/all children in multiple language games, rhymes, songs*
63 Caregiver encourages children to **write letters or words.**	1	2	3	No children over 2 years	1	Does not encourage children to write letters/words. Any writing is done by caregiver.
					2	Sometimes encourages children to write letters/words, but activities are lower quality (tracing, copying, stencils—insisting on conventional letter formation or spelling)
					3	Consistently encourages most/all children to write letters/words, including emergent writing, captioning, dictation with caregiver, writing own name on work, bookmaking, journals *

*Note: In setting with 4 or fewer children, code 3 only if caregiver does this with all children;
in setting with 5 children, code 3 if caregiver does this with at least 4 of 5 children;
in setting with 6 children, code 3 if caregiver does this with at least 4 of 6 children;
in setting with 7 or 8 children, code 3 if caregiver does this with at least 5 children.

Relationships and Learning Activities		Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions	
Supporting Language Development and Early Literacy							
64	Caregiver encourages children to use **language to communicate ideas and thoughts.**	1	2	3		1	Rarely/never encourages use of language to communicate ideas/ thoughts in different activities. Most adult/child verbal interactions short, about management issues
						2	Limited encouragement of use of language to communicate ideas/ thoughts in different activities. Many adult/child verbal interactions short, about management .
						3	Consistently encourages use of language to communicate ideas and thoughts over and in different types of high-quality activities--extended discussions; higher-level cognitive operations such as prediction, explanation, developing hypotheses.
65	Caregiver **includes ELL children in activities and conversations** when home is mixed.	1	2	3	All ELL or no ELL children	1	ELLs segregated from non-ELLs; ELLs discouraged from joining conversations with non-ELLs. Does not appear positive about having ELL children in home.
						2	ELLs sometimes segregated from non-ELLs; ELLs sometimes discouraged from joining conversations with non-ELLs. Only sometimes appears positive about having ELL children in home
						3	Intentionally includes ELL children in activities; ELLs encouraged to join conversations with non-ELLs. Consistently positive about having ELL children
66	Caregiver encourages **ELL children to talk to each other in their native language.**	1	2	3	No/only 1 ELL child	1	Discourages ELLs from using native language with each other or shows disapproval when ELLS use their native language
						2	Allows but does not actively encourage children to use their native language with each other.
						3	Consistently encourages ELL children to talk to each other in their native language
67	Caregiver **integrates children's native language and English in language and literacy activities.**	1	2	3	No ELL children over 36 mos	1	Does not use both English/ELL language in literacy activities. No bilingual materials
						2	Sometimes uses ELL language and English in literacy activities. Some materials used in literacy activities are bilingual and age-appropriate
						3	Consistently integrates ELL language/English in literacy activities. Most/all materials used in literacy activities are bilingual and are attractive, age-appropriate

Relationships and Learning Activities	Not True/Rarely True Little/No Evidence	Sometimes True Some Evidence	Usually/Always True Consistent Evidence	Not Applicable/ Not Observed	Definitions	
Television and Computers						
68 If children **watch television or videos** or use a computer, the time is limited to no more than 1/2 hour per child. Alternate activities are available for children not watching TV each day.	1	2	3		1	One or more children watch TV or videos for more than ½ hour, or use computers for more than 20 minutes AND no alternative activities available for non-watchers/users.
					2	Either one or more children watch TVs or videos more than ½ hour (or 1 full length movie) or use computer more than 20 minutes OR watching is less than 1 hour but no alternative activities available for non-watchers/users.
					3	TV or video watching is less than 1/2 hour (or one full-length movie) or computer use is less than 20 minutes for all children and alternate activities are available for non-watchers/users.
69 If children **watch television or videos** or use a computer, the content is appropriate for children in terms of violence, sex, treatment of minorities, women, etc.	1	2	3		1	One or more TV programs, movies, computer/video games are violent, stereotyped, sexually explicit
					2	One TV program, movie, computer/video game is not appropriate for the age of children watching it, but not violent
					3	No TV program, movie, computer/video game is inappropriate for the age of children watching it--violent, stereotyped, sexually explicit OR no TV, videos, computer, video games observed.

Summary Rating of Caregiver

	For each set of characteristics, circle one number that best represents your overall impression of caregiver.				
1	**Relaxed/comfortable**				**Tense**
	1	**2**	**3**	**4**	**5**
2	**Harsh/threatening**				**Gentle**
	1	**2**	**3**	**4**	**5**
3	**In control of children**				**Children out of control**
	1	**2**	**3**	**4**	**5**
4	**Tired or weak**				**Physically robust**
	1	**2**	**3**	**4**	**5**
5	**Enjoys children**				**Does not enjoy children**
	1	**2**	**3**	**4**	**5**
6	**Inattentive**				**Alert**
	1	**2**	**3**	**4**	**5**
7	**Patient**				**Impatient**
	1	**2**	**3**	**4**	**5**
8	**Rigid**				**Flexible**
	1	**2**	**3**	**4**	**5**
9	**Involved**				**Uninvolved**
	1	**2**	**3**	**4**	**5**

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:					
1 **Speaks warmly to children** (e.g., positive tone of voice, body language).	1	2	3	4 [warm]	1 Rarely speaks warmly to children; neutral or negative 2 Sometimes speaks warmly to children or only speaks warmly to some children 3 Speaks warmly to children much of the time or to some children 4 Consistently speaks warmly to children
2 **Seems critical of children** (e.g., puts children down, uses sarcasm).	1	2	3	4 [critical	1 Never seems critical of children, verbally or non-verbally 2 Rarely seems critical of children, verbally or non-verbally 3 Often seems critical of children, verbally or non-verbally 4 Consistently Is critical of or sarcastic with children, verbally or non-verbally
3 **Listens attentively when children speak to her** (e.g., looks at children, nods, rephrases their comments, engages in conversations).	1	2	3	4 [listens]	1 Does not listen attentively when children speak 2 Rarely listens attentively when children speak 3 Usually listens attentively when children speak 4 Consistently listens attentively when children speak—looks at children, talks with them
4 **Places high value on obedience** (e.g., expects children to follow adult agenda, fails to respond to daily events in a flexible way**).**	1	2	3	4 [obey]	1 Does not seem to place a high value on obedience Responds to daily events flexibly 2 Sometimes expects children to follow rules/ conventions but allows some flexibility 3 Usually emphasizes following rules or conventions rather than responding flexibly 4 Consistently expects children to follow adult rules/conventions Does not respond to daily events flexibly
5 **Seems distant or detached from children** (e.g., sits apart, does not touch children, does not greet children).	1	2	3	4 [distant]	1 Consistently is involved with, watches children with interest 2 3 Is usually involved with children, but in some instances is distant or detached 4 Is usually distant or detached but not always Is consistently distant or detached Sits apart, does not touch /talk to children
6 **Seems to enjoy children** (e.g., conveys warmth by smiling, touching, taking children's conversations seriously).	1	2	3	4 [enjoys]	1 Consistently fails to show enjoyment of/warmth toward children--may be harsh or distant 2 Usually fails to show enjoyment of/warmth toward children 3 Usually seems to enjoy children but sometimes is distant or harsh 4 Consistently seems to enjoy children—warm, smiling, touching, listening seriously
7 **Reasons with children when they misbehave** (e.g., explains rule they are breaking, discusses consequences, redirects behavior, discusses alternatives).	1	2	3	4 [reasons]	1 Rarely explains rules/discusses consequences when children break them 2 Usually does not explain rules, discuss consequences 3 Usually explains the reasons for rules and consequences for breaking them 4 Consistently explains the reasons for rules, explains consequences, redirects behavior
8 **Encourages children to try new experiences** (e.g., suggests children do it together, helps children start, introduces new materials).	1	2	3	4 [try]	1 Does not encourage children to try new experiences 2 Rarely encourages children to try new experiences 3 Often encourages children to try new experiences 4 Consistently encourages children to try new experiences--provides opportunities/support
9 **Exercises too much control over children** (e.g., doesn't seek child input, rigidly adheres to rules and schedules).	1	2	3	4 [control]	1 Consistently seeks child input, does not rigidly adhere to rules and schedules 2 Imposes some control over children's behavior but usually allows children flexibility 3 Keeps children in control most of the time--imposes rules and manages children's behavior closely 4 Exercises too much control over children Adheres rigidly to rules/schedules with no child input
10 **Speaks with irritation or hostility to children** (e.g., sharp tone, raises voice).	1	2	3	4 [irritated]	1 Does not speak with irritation or hostility to children; does not uses sharp tone or raise voice 2 Rarely speaks with irritation or hostility to children 3 Often speaks with irritation or hostility to children 4 Consistently speaks with irritation and/or hostility to children; uses sharp tone, raises voice

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:					
11 **Seems enthusiastic about children's activities and efforts** (e.g., congratulates children, states appreciation for efforts).	1	2	3	4 [enthuse]	1 Does not seems enthusiastic about children's activities/efforts 2 Rarely seems enthusiastic about children's activities/efforts 3 Usually seems enthusiastic about children's activities/efforts 4 Consistently seems enthusiastic about children's activities/efforts; congratulates them, recognizes their efforts
12 **Threatens children in trying to control them** (e.g., uses bribes and threats of punishment).	1	2	3	4 [threats]	1 Does not threaten punishment/bribe children to control/manage them 2 Usually does not bribe/threaten punishment to control children 3 Often uses bribes/threats of punishment to control children 4 Consistently uses bribes/threats of punishment to control children
13 **Spends considerable time in activity not involving interaction with children** (e.g., does adult tasks during child activity periods).	1	2	3	4 [apart]	1 Rare spends time in activities that do not involve children 2 Usually remains involved with children during 3 Frequently spends time in activities that do not include children 4 Spends substantial time in activities that do not include children
14 **Pays positive attention to children as individuals** (speaks to individual children, uses names, calls attention to prosocial behaviors, comments on their strengths).	1	2	3	4 [attends]	1 Does not pay positive attention to children as individuals; does not single out children 2 Rarely pays positive attention to children as individuals 3 Often pays positive attention to children as individuals or pays attention to some but not all children 4 Consistently pays positive attention to most/all children as individuals
15 **Reprimands children too strongly when they misbehave** (e.g., fails to acknowledge difficulties of learning self-control, fails to redirect behavior).	1	2	3	4 [repri-mands]	1 Rarely/never reprimands children too strongly Always tries to redirect children's behavior without punishing them 2 Sometimes reprimands children too strongly but sometimes deals with misbehavior by talking to children, offering alternatives, asking about reasons 3 Often reprimands children who misbehave too strongly 4 Consistently reprimands children too strongly--uses punishment, reprimands, threats
16 **Talks to children on a level they can understand** (e.g., uses terms familiar to children, checks for clarification).	1	2	3	4 [talks]	1 Consistently talks to children in a way that is inappropriate for their developmental level 2 Usually talks to children on a level they cannot understand 3 Usually talks to children on a level they can understand, altering language for different levels 4 Consistently talks to children at a level they can understand, checks to be sure they understand
17 **Punishes children without explanation** (e.g., does not discuss infraction).	1	2	3	4 [punish]	1 Does not punish children without explanation--discusses misbehavior, reason for rules 2 Usually provides explanation for punishment and discusses misbehavior, rule 3 Usually fails to provide explanations to children for punishment 4 Consistently punishes children without explanation for punishment, discussion
18 **Exercises firmness when necessary** (e.g., provides clear and direct directions, checks for understanding).	1	2	3	4 [firm]	1 Consistently lets misbehavior, conflicts get out of control without exercising firmness--does not provide clear direction 2 Often lets misbehavior, conflicts get out of control without stepping in 3 Usually does not let misbehavior/conflicts get out of control without stepping in, exercising firmness 4 Consistently exercises firmness, direction when necessary—doesn't let things get out of control
19 **Encourages children to exhibit prosocial behavior** (e.g., sharing, cooperating, pairs socially skillful with those children who need practice).	1	2	3	4 [share]	1 Does not encourage prosocial behavior (sharing, cooperation) 2 Rarely encourages prosocial behavior 3 Usually encourages prosocial behavior 4 Consistently takes advantage of opportunities to encourage prosocial behavior; encourages children to work together, help each other

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions	
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:						
20 **Finds fault easily with children** (e.g., uses negative tone, is critical).	1	2	3	4 [fault]	1 2 3 4	Consistently avoids finding fault easily with children; does not blame or criticize needlessly Rarely finds fault easily with children, blames or criticizes needlessly Often finds fault with children too easily, blames or criticizes needlessly Consistently finds fault too easily with children Is quick to criticize, lay blame,
21 **Fails to show interest in children's activities** (e.g., removes self from children's activities, doesn't talk to children or extend their conversations).	1	2	3	4 [no interest]	1 2 3 4	Consistently shows interest in children's activities, talking to/interacting with them Often shows interest in children's activities but sometimes does not or not for some children Often fails to show interest in children's activities or interacts with them in activities, Consistently fails to show interest in children's activities or to interact with them in activities
22 **Seems to prohibit many of the things children want to do** (e.g., adheres to rigid schedule or adult outcomes and agendas).	1	2	3	4 [prohibit]	1 2 3 4	Does not prohibit most things children want to do—consistently lets them decide what to do Rarely prohibits what children want to do; usually lets them decide Often prohibits what children want to do Consistently prohibits what children want to do Follows adult agenda rigidly
23 **Fails to supervise children very closely** (e.g., fails to foresee and forestall mishaps).	1	2	3	4 [not close]	1 2 3 4	Consistently supervises closely, rarely letting children out of sight or hearing; foresees mishaps Usually supervises children closely; usually forestalls and foresees mishaps Often fails to supervise children very closely Often fails to foresee mishaps Consistently fails to supervise very closely, often leaving children out of sight or hearing; fails to foresee mishaps
24 **Expects children to exercise self-control** (expects children to be undisruptive for short group, caregiver-let activities; to be able to stand in line calmly; reminds children of expectations, asks for cooperation in supportive ways).	1	2	3	4 [self-control]	1 2 3 4	Does not expect children to control their own behavior--to be able to stand in line, wait their turn, listen and participate in an orderly way during caregiver-led activities Usually does not expect children to be in control of their own behavior Usually expects children to be in control of their own behavior Expects children to exercise self-control; asks for cooperation in supportive ways
25 **When talking to children, kneels, bends or sits at their level to establish better eye contact** (e.g., e.g., ensures connection when having a conversation).	1	2	3	4 [kneels]	1 2 3 4	Does not kneel, bend when talking to children; does not ensure a connection Rarely kneels, bends when talking to children Usually kneels, bends when talking to children to ensure a connection Consistently moves to child's height when talking to ensure a connection; establishes eye contact
26 **Seems unnecessarily harsh when scolding or prohibiting children** (e.g., angry tone, shakes children, uses physical punishment, uses "time out" without explanation).	1	2	3	4 [harsh]	1 2 3 4	Consistently avoids unnecessary harshness in discipline; does not use angry tone, use physical punishment, use "time out" without explanation Usually avoids unnecessary harshness when disciplining children Often seems unnecessarily harsh when scolding children Consistently seems unnecessarily harsh when scolding or prohibiting; uses angry tone, physical punishment, "time out" without explanation
27 **Does self-help tasks for children** (e.g., dresses them, wipes their noses, selects materials for choice time).	1	2	3	4 [does tasks]	1 2 3 4	Consistently lets children do own self-help tasks--wipe own noises, wash own hands, dress for outdoors, select materials for choice time. Often lets children do own self-help tasks. Often does self-help tasks for children. Consistently does self-help tasks for children

Arnett Global Rating Scale of Caregiver Behavior	Not at all	Somewhat	Quite a bit	Very much	Definitions	
Circle one number for each item that best represents the extent are each of the following statements characteristic of this caregiver:						
28 **Does <u>not</u> get child assistance with tasks (**e.g., watering plants, animal care, putting away toys, cleaning tables and other routine maintenance).	1	2	3	4 [no assist]	1 Consistently gets children to help with tasks 2 Usually gets children to help with tasks 3 Rarely gets children to help with tasks 4 Does not get children to help with tasks--water plans, care for pets, put away toys/materials	
29 **Promotes leadership skills** (e.g., gives assignments for jobs like line leaders, clean-up inspector, talks about children's contributions to the group).	1	2	3	4 [leaders]	1 Does not promote leadership skills in children--does <u>not</u> assign jobs, talk about children's contributions to group. 2 Rarely promotes leadership skills in children 3 Often promotes leadership skills in children. 4 Consistently promotes children's leadership skills through job assignments, talk about contributions to group, asking children's opinions	
30 **Assists children in making productive choices** (e.g., uses a planning process or discussion to outline choices during activity periods, narrows choices when children have difficulty).	1	2	3	4 [choices]	1 Does <u>not</u> assist children in making productive choices by discussing choices, helping narrow choices, redirecting poor choices 2 Usually does <u>not</u> assist children in making productive choice. 3 Usually assists children in making productive choices. 4 Consistently assists children in making productive choices.	