
The Use of Play Materials in Early Intervention The Dilemma of Poverty



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Play is a major component of early intervention for infants and toddlers with special needs. Many of these children are from low-income families with limited resources. The authors investigate the attitudes, practices, and concerns of early-intervention providers (professionals whose services support young children with developmental disabilities and delay) concerning their use of toys in their work and their worries about poor youngsters without such playthings. The authors' survey of 320 early-intervention providers revealed that nearly all took play materials with them into the homes of some children but most of them also used items already present there. More than 80 percent of providers gave toys to their clients because of their concern that the family's poverty made toys scarce. As a group, physical therapists and occupational therapists were significantly less likely to use play materials they took into the homes. Most significantly, perhaps, all providers found that poverty increased the need for related therapist services, for educating parents about play, and for using play materials in therapy. **Key words:** developmental delays; early intervention; natural environment; play materials, poverty, provider attitudes

PLAY IS INTEGRAL to children's routines and activities, and it serves an important role in their cognitive, social-emotional, and self-regulatory development (Beeghly 1993; Fromberg and Bergen 1998). Through play, infants and toddlers learn about objects and develop interactive skills (Bundy 1997; Mistrett, Lane, and Goetz 2000). Early play is closely linked to the development of language and social skills (Fewell and Rich 1987), and it may be involved in many other forms of learning. For example, children begin social-emotional game playing and recursive—or practice—play that involves repetition and elaboration of actions, such as peek-a-boo, in the middle of their first year when their lower brain centers first connect with their frontal lobes. Not only do the rapid changes in the kinds of play in which children engage relate to early brain development, but different types of play can have an impact on the development of the brain

especially the frontal and temporal areas of the brain (Bergen 2012; Voos et al. 2012). Developmental delay, disability, and other mental and physical handicaps affect how a child learns to play and how play enhances his or her learning (Fewell and Kaminski 1988; Lifter 2008). For such a population of children, the quality of the play environment, the availability of toys (or other play materials), and the social support for play prove particularly important. Although children with these challenges often have difficulty learning how to play, they still do play, and they benefit from playing with objects (Humphrey and Wakeford 2006; Malone and Landers 2001; Pierce 1997). In addition to developmental difficulties, environmental challenges—like poverty—may prevent or interfere with opportunities for children’s play (Bartlett and Minujin 2009; Milteer, Ginsburg, and Mulligan 2012).

Poverty, Play Materials, and Play Environments

According to the United States Census Bureau (November 2012), 20 percent or over fifteen million children under the age of eighteen currently live in poverty. The census defines the poverty threshold as the minimal income necessary to pay for food, shelter, and clothing that meet the basic needs for healthy living. At least 20 percent to 30 percent of families below the poverty threshold do not have the minimal financial, material, or social resources to meet their children’s needs (Halpern 2000). In addition to income poverty, there is also human poverty. Persons living in high-poverty areas are often geographically and socially isolated from mainstream society and may be exposed to crime, drug abuse, and substandard education (Burd-Sharps, Lewis, and Martins 2010; Iceland 2012). Income and human poverty place children at high risk for physical and mental-health problems and make their continued living below the poverty line more likely (Ratcliffe and McKernan 2010). Focusing on the impact of poverty on the health, cognitive abilities, and the emotional life of children, most research rarely considers its impact on play (Brooks-Gunn and Duncan 1997; Evans 2004). We know little about how a lack of toys and other play materials affects these children.

Much evidence suggests that children (except those suffering the extreme neglect of institutionalized settings [Brown and Webb 2005]) use and adapt natural and manmade items in their living environment without the need for commercial toys (Brown 2012; Nwokah 2009a; Nwokah and Ikekeonwu 1998,

2007). However, a disproportionate number (70 percent) of children receiving early-intervention services in the United States live in poverty, including 27 percent living in families with incomes of less than \$15,000 a year (Spiker, Hebbler, and Mallik 2005). These children are often kept indoors for their own safety. Household items they could use as playthings are scarce or breakable. Professionals working with young children in impoverished homes find few if any toys available to their young clients. This situation occurs in the homes of many recent refugee and immigrant families, of single-parent families (many with teen mothers), of children fostered by relatives, multiple families in one apartment with limited resources, families who cannot meet basic needs, and homeless families or those who move repeatedly (Landy and Menna 2006). The home visitors who provide early-intervention services to families and their children with developmental disabilities or delay in the developmental skills are unlikely to have poverty-related mental-health training, and they often feel ill equipped to work with such vulnerable families (Halpern 2000). Our study explores the concerns, attitudes, and practices related to play of early-intervention providers with particular emphasis on the challenges they face with families living in poverty.

Home-Visiting Programs and Early-Intervention Services

Home visits improve child development and school readiness, reduce child abuse and neglect, and help parents respond to their children's physical, cognitive, and emotional needs (Avellar and Paulsell 2011). Historically, the increase in recognition and resources for home-visiting and early-intervention programs emerged from President John F. Kennedy's interest in children with intellectual disabilities and President Lyndon Johnson's concern for families in poverty (Meisels and Shonkoff 2000; United States Census Bureau 2010). Home visits garnered more attention and support in 2010 when President Barack Obama's Affordable Care Act provided \$1.5 billion in federal support over five years to the Maternal Infant and Early Childhood Home Visiting Program.

In the 1960s, home-visiting programs operated on the realization that the first three years were critical for a child's learning and development and on the belief that poor parents needed to be taught how to play games and interact with their children. Experts saw education as the key to breaking the cycle of

poverty and what they viewed as cultural deprivation (i.e., the lack of exposure to materials and experiences of middle-class families) (Meisels and Shonkoff 2000). Many home-visiting programs currently serve such low income, high-risk families, including the Early Head Start Home Visiting Program, Parents as Teachers, and The Parent-Child Home Program (formerly called The Mother-Child Home Program) (Powell 1993; The Parent-Child Home Program 2012).

The Parent-Child Home Program began in the 1960s and includes a home visitor or “toy demonstrator.” Usually paid paraprofessionals, most of these home visitors are former program participants—parents or community residents—trained in an initial sixteen-hour workshop and in weekly home-visit supervisory meetings throughout the program year. The Parent-Child Home Program home visitors take toys and books into homes to present the program curriculum, book sharing, and play activities to the families. These toy demonstrators show parents how to use the materials to build language and literacy skills (singing, telling stories, becoming aware of sounds, and so on) and to promote school readiness. The child’s primary care giver can join in and practice with the child in these home-demonstration play activities. Over the course of two years, program families acquire a library of children’s books and a large collection of educational and stimulating toys (Powell 1993; The Parent-Child Home Program 2012). The Home Instruction for Parents of Preschool Youngsters program for preschoolers also provides families with books and materials for play and learning (Stoltzfus and Lynch 2009).

Part C of the Individuals with Disabilities Education Improvement Act (IDEA), reauthorized in 2004, offers federal and state funds for services and support for children with developmental delay or disabilities. Essentially a variety of services coordinated by public and private agencies and designed for children up to age three (and their families), the program seeks to reduce the impact of the disabilities on the children’s growth and development. The percentage of all children under age two who receive early-intervention services in the United States has increased from 1.18 percent in 1992 to 2.67 percent in 2009 (Danaher, Goode, and Zahara 2011; Feinberg et al. 2011). IDEA makes available a wide array of professional services from audiology to nutrition, but the most common services are those provided by developmental therapists (DTs), occupational therapists (OTs), physical therapists (PTs), and speech-language pathologists (SLPs). DTs (also known as early-intervention specialists) give instructions on modifying the environment and maximizing a child’s development and learning. They provide the family with support, information, and

suggestions for developmentally appropriate activities. OTs offer services that include adaptive behavior and play; support for feeding, sensory, motor, and posture-related skills; and self-help training. PTs address the techniques and resources that reduce difficulties with movement and locomotion. And SLPs help children with communication-delay problems, disorders in speech or language comprehension or expression, and swallowing.

Early Intervention and Play Materials

In all early-intervention disciplines, play becomes a major focus of professional services for children with developmental delay and special needs. Play serves as a process for learning, a process for assessing developmental skill sets, and a process for delivering intervention procedures to improve a child's developmental and learning abilities (Casby 2003; Lifter 2008; Linder 1993; Nwokah 2009b; Pierce 1997). In other words, early intervention may involve establishing developmentally appropriate play skills themselves as a goal and using play as a means of achieving other goals (Lifter et al. 2011), as when, for example, enticing a child to swipe at bubbles extends the range of motion in his arms or when coaxing a child to crawl toward a toy improves her mobility. The introduction of miniature lifelike toys, in another example, may encourage pretend play and cooperative play. In a case study, Humphrey and Wakeford (2006) showed that block play helped children improve motor skills (by picking up blocks), overcome their mild sensory difficulties (by learning to tolerate the texture of the blocks), and increase their social interaction (by learning to take turns playing with the blocks).

Providers select play materials suited to their intervention strategies (Nwokah 2009b; Nwokah and Gulker 2006a, 2006b). Indeed, although the material culture of childhood most commonly involves toys (Brookshaw 2009), the material culture of early intervention includes many different objects, some already in the home and some brought by the therapists—toys, games, instructional materials, everyday objects, and construction pieces (Johnson, Christie, and Yawkey 1987; Nwokah 2003). Previous studies show that early-intervention professionals spend approximately 69 percent to 72 percent of their therapy sessions using toys. Although most professionals used toys already in their clients' homes, they also brought their own play materials (Campbell and Sawyer 2007). Selecting and preparing play materials forms a major component of the

service professionals provide because these materials affect most of the stages in the intervention process including planning, budgeting, interacting with the children and their families, and teaching parents how to continue the therapeutic play after the visits. The way professionals use play materials in consultation with families reflects their philosophy and favored methods of child and family intervention (Peterson et al. 2007). Although we know that play materials are essential in early intervention and there is much evidence that providers help many families in poverty, we know little about the actual practices and preferences of different types of early-intervention service providers—DTs, OTs, PTs and SLPs.

Home Visiting and Play Materials

Since 1989 federal regulations for IDEA, Part C services to children have required that, to the extent appropriate, early interventions take place in settings in which children without disabilities participate. The 1991 amendments to IDEA, Part C added the language of “natural environments” (Blough 2003), both as a part of the definition of early-intervention services and as a requirement of the Individualized Family Service Plan—the written plan for providing early-intervention and other services to children and families that is developed jointly by each family and the appropriate professionals. During the early 1990s, state early-intervention agencies interpreted “natural environment” as the everyday places and times “the child lives, learns, and *plays*” (Blough 2003) and the everyday activities and family routines in which a child participates (Traub et. al. 2001).

Therapists and intervention professionals have developed numerous models and approaches to integrate a child’s individual goals and objectives into routine activities (Bricker and Cripe 1992; Bricker, Pretti-Frontczak, and McComas 1998; Cripe, Hanline, and Daily 1997; Dunst and Bruder 1999; Linder 2003; McWilliam 2010; NECTAC 2008; Roberts, Rule, and Innocenti 1998). Prior to changes in early-intervention laws, parents and care givers brought their children to a center, school, or clinic. Under the traditional child-centered approach, the professionals—using the play materials at the site— “treated” the child while parents sometimes lingered in a waiting room until the therapist finished. Back when providers interpreted “natural environments” to involve just a shift in location, they simply gathered their play materials and took them to the home with little change in the treatment model. There the therapist—the “expert”—

initiated a lesson or therapy plan, and the parents remained passive observers. Although providers could see children in day-care centers and other familiar settings, they more typically visited the children's homes weekly or monthly and stayed about an hour each time. They brought toys to the homes and took them away at the end of a session, leaving the children no opportunities to practice skills (e.g., stacking blocks) throughout the week or integrate the skills learned into everyday routines (e.g., stacking plastic dishes into a low cabinet).

In the 1990s, a family-centered approach emerged, which refined the interpretation of natural environments. This new, participation-based approach called for a parent or care giver to assert the family's priorities, values, and routine activities and for a therapist to devise strategies for a child to learn the family's preferences by using natural materials and toys available at home. Parents and therapists, in this new approach, work together as a team, and all regard the parents as the experts on their own children (Campbell and Sawyer 2009; Dunst 2000, Nwokah 2009b). These family-participant approaches (Bruder 2000; Crais 1991; Hanft, Rush, and Shelden 2004; Roberts, Rule, and Innocenti 1998) emphasize using materials already present in a child's environment. Despite this common or shared approach, few agree whether the professionals should use toys and play materials already available in the home (or neighborhood) or supply some play materials themselves. Recommendations from experts on the importance of materials preparation prior to home visits (Klass 2003; Wasik and Bryant 2001) seem to clash with an emphasis from the same experts on the advantages of using household objects (Klass 2003). Some states leave to the parents the choice between using toys from the home or toys provided by the program's professionals (Brault and Chasen 2001). Health and Human Services's Early Head Start program requires agencies to provide sufficient equipment, toys, materials, and furniture to support parent-child play and learning but at the same time includes home visits. In home visits, therapists are encouraged to use play materials in the home, especially everyday objects. If a therapist brings the play materials, the program requires that her client family have access to similar materials, perhaps through a toy-lending library (Early Head Start 2009).

There is limited research on the use of toys and other objects in early intervention. A few ethnographic studies have documented the delivery of home-based services (Brorson 2005; Campbell and Sawyer 2007; McBride and Peterson 1997; McWilliam, Tocci, and Harbin 1998). Few of these studies, however, elaborate on the materials used or how various professions use them. For example,

one study of occupational therapists revealed no significant difference in play between therapists who used a traditional child-centered approach and those who used a participation-based approach (Colyvas, Sawyer, and Campbell 2010).

In short, the study we describe in this article explored new ground, seeking to understand the attitudes, practices, and concerns of various early-intervention professionals (i.e., DTs, OTs, PTs, and SLPs) about the use of toys and play materials in delivering services to families living in poverty. The following research questions guided this study.

- To what extent do early-intervention professionals use play materials already in homes? How often do they carry play materials into homes and use these only during a session? What are the types of play materials used in early-intervention sessions?
- Is there a relationship between providers' professional backgrounds (type of occupation, training, years of experience, case load) and their attitudes and practices?
- What do early-intervention professionals think about using their own play materials rather than family toys?
- What are the issues related to the use of play materials in early intervention especially as they concern families living in poverty?

Method

Study Design

The authors designed a questionnaire to collect information about early-intervention providers' practices and attitudes toward the use of play materials in delivering their services. We deemed a survey the most efficient method of gathering information from a large sample while still allowing the respondents anonymity.

Participants

We recruited early intervention providers (DTs, OTs, PTs, and SLPs) from a wide range of work settings, including private practice, in Indiana and Missouri. The authors chose these states because they have higher than national average of families living below the poverty level (U.S. percentage: 46 percent; Indiana: 52 percent; Missouri: 50 percent) (Zero to Three 2013). Eva Nwokah and two

research assistants accessed a regularly updated public list of early-intervention providers from the Indiana and Missouri early-intervention websites and offered via email to every provider listed ($n = 860$), except for those listed as service coordinators, the opportunity to participate in the study. Nwokah and Hope Gulker gave hard copies of the survey to an additional thirty-six providers at two local providers' meetings in Indiana. The email response rate was 35 percent for Missouri ($n = 155$) and 39.4 percent ($n = 150$) for Indiana. Given that the range of mean response rates from email surveys is typically 22 percent to 36 percent (Sheehan 2001), the response rate in this study was adequate. The authors excluded any respondents who listed their current workplace as a state other than the two selected states or who were not OTs, PTs, SLPs or DTs, leaving a total of 320 surveys for analysis (Missouri=148 and Indiana=172). However, because of missing values, the sample size varied in different analyses.

Instrument and Data Collection

The survey had a mixed-format design, including both Likert-scale items (statements the respondents were asked to evaluate according to the level of agreement or disagreement), open-ended response options, and forced-choice (yes or no) responses. The content of the items was based on three sources: information on Early Head Start recommendations (2009) for the use of play materials in the home; Nwokah and Gulker's experience with providers' views during several years of mentoring; and information on best practices (Dunst et al. 2006). An expert in survey design consulted with us on the layout of the survey. Nwokah tested a pilot survey for clarity, readability, relevance, and salience. Five early-intervention professionals from the sample population provided us with detailed feedback. These included four professionals with more than fifteen-years experience each in early intervention and one who was both a provider and an administrator. We used their feedback and suggestions to create the final version of our thirty-five-question survey, but we did not include their responses in the final data.

Our initial six questions asked for demographic information—the provider's discipline, educational background, total case load and case load of clients younger than three years old, number of home visits, and type of work settings. The survey asked providers whether they took toys and play materials to homes; what percent of a typical session included using their therapy materials (rather than items from the child's home); whether they used items from the child's home and what these were; whether they loaned or gave toys to families; whether

there were local toy-lending libraries; whether they or their agency had a toy-lending policy and, if so, what those policies were; whether they had attended any presentation or meeting that discussed not taking toys into the home, and if so where, when, and by whom.

The survey assessed attitudes on the use of play materials by providers using thirteen statements rated on four-point Likert scales (1=strongly agree; 2= agree; 3=disagree; and 4=strongly disagree). The thirteen statements included six on the disadvantages of taking play materials into the home: It is difficult for the child to relinquish the providers' toy(s) at the end of a session; The parent may not be able to follow-up and practice during the week; Parents who can't afford such toys may feel inadequate; There is a risk of germs being passed from one client to another; Using the provider's toys focuses the interaction on therapist and child rather than on parent and child; Using only therapist's toys makes watching how a child typically plays with items in his or her environment difficult; It is physically difficult for the therapist to carry toy bags into the home. There were also seven statements on the advantages of taking play materials to the home: The therapist's own toys are novel and holds the child's attention, motivation, and interest; Using toys from the toy bag enables the therapist to plan the visit and select appropriate toys related to therapeutic goals; Using specific toys introduces developmentally appropriate experiences the child has not previously had; The parents see suitable toys to obtain for their child; The parents see how to use different toys; And the therapist can choose easily washable toys and does not have to handle toys that are dirty or may contain germs.

We also allowed respondents to write open-ended comments related to the questions in the survey.

Data Analysis

The researchers first combined the quantitative data across all respondents in both states for an overall analysis. We followed with a comparative analysis of respondents in different occupations and different states. According to J. Cohen's definition (Cohen 1992), power analysis of our sample size could detect small- and medium-population effect size (i.e., the strength of a phenomenon) for between-occupation and between-state differences, respectively. Additionally, to control for inflation in Type I error, our analysis included a Bonferroni correction applied to the cut-off value of multiple comparisons.

Nwokah conducted a qualitative content analysis of all the open-ended survey responses and comments using NVivo 9 (2011). NVivo is a software

program first developed in 1999 that organizes and analyzes nonnumerical or unstructured data. The software user can identify trends and cross-examine information in several ways using the software's search engine and query functions. Nwokah examined all the comments by the providers and generated the nodes (subthemes) as they emerged from different topics raised by the providers. The nodes consisted of discrete groups or subthemes determined by immersion in the data through reading and rereading the text for conceptually similar information and sorting all the responses into a comprehensive list of key issues and concerns. If a respondent addressed several topics in his or her comments, we assigned different nodes. For example, given the comment "I give parents toys and books regularly. I model for them how they can buy used old toys and find great things to do with them," she coded the first sentence under the node "therapist gives toys and books" and the second under "demonstrate and teach how to use toys." Following node analysis, Nwokah read all comments again for accuracy of the original nodes. She excluded from the coding miscellaneous comments about cleanliness or where providers obtained play materials because these tended to repeat information already provided. A graduate research assistant read all the comments several times through and held two meetings with Nwokah to discuss the nodes that emerged from the text (Hill et al. 2005). Together, they discussed and refined the node descriptions and resolved any discrepancies (Baylor et al. 2011; Corcoran and Stewart 1998). They grouped the nodes into major overall themes. For the next phase, Nwokah combined nodes with similar elements that reflected the most frequent aspects of participants' opinions she judged meaningful (Glaser and Strauss 1967). A second graduate research assistant, blind to the Nwokah's coding, independently matched all nodes to the three major themes. Using Cohen's Kappa, interrater reliability was .78, which the two judged to be satisfactory even allowing for a few minor disagreements. They, for example, argued whether to count the provision of homemade materials as support for poverty or for types of play materials. They resolved such disagreements through discussion (in this case agreeing to count the materials as support for poverty).

Results

Providers' Demographic and Professional Backgrounds

Respondents reported their professional occupation and related information as

shown in figure 1. The majority of respondents were females (96 percent; only twelve were males) and 73 percent of them had less than ten years of experience in early intervention. A relatively high percentage of providers in Indiana (60 percent) and Missouri (47 percent) had their own private practice. In contrast, very few of them (8 percent in Indiana and 18.5 percent in Missouri) worked for a private practice they did not own. Some provided services at different sites such as private practice and school or private practice and hospital. A comparison of providers in the two states revealed similarities and differences in some aspects of their professional backgrounds. For example, the providers in Indiana ($M = 8.73$, $SD = 6.21$) and Missouri ($M = 8.51$, $SD = 6.39$) were similar in the number of years of their work experience. But, providers in Missouri (72.3 percent) were more likely to have a graduate degree than were providers in Indiana (56.8 percent), $\chi^2(1, N = 317) = 8.22, p < .003$.

Across both states, speech-language pathologists (99 percent) were more likely to have a graduate degree than DTs (54 percent), OTs (29 percent) or PTs (61%), $\chi^2(3, N = 317) = 92.46, p < .001$. The providers of all four disciplines (DT: $M = 11.84$, $SD = 8.8$; OT: $M = 10.69$, $SD = 8.0$; PT: $M = 12.16$, $SD = 6.9$; SLP: $M = 12.23$; $SD = 8.28$) in the two states (Missouri: $M = 11.86$, $SD = 9.03$; Indiana: $M = 11.87$, $SD = 7.21$) had similar case loads of children under the age of three. Although individual case loads varied, there was no significant difference in the total number of visits per week in each state (Indiana: $M = 14.06$, $SD = 7.21$; Missouri: $M = 13.31$, $SD = 9.09$) to provide services for the children served. The mean number of total visits per week for children under the age of three was also similar between disciplines (DT: $M = 12.97$, $SD = 7.99$; OT: $M = 12.56$, $SD = 9.52$; PT: $M = 15.77$, $SD = 12.02$; SLP: $M = 14.07$, $SD = 8.89$).

Current Practices in the Use of Play Materials by Providers

We asked providers if they had attended any workshops, presentations, or meetings that discussed not taking or reducing play materials taken into the home. Over half had attended such a workshop or training session (DT = 51.1 percent, OT = 56.5 percent, PT = 62.3 percent, and SLP = 53.4 percent). The majority of these training sessions had been provided (and required) by their state. Other places they reported obtaining such training included, for example, sensory-integration workshops, speech and hearing sessions, and natural-environment seminars at conferences of the National Association for the Education of Young Children; at state conventions; at graduate school in deaf education; and during online training programs.

Variables	DT		OT		PT		SLP		n
	IN M (SD)	MO M (SD)	IN M (SD)	MO M (SD)	IN M (SD)	MO M (SD)	IN M (SD)	MO M (SD)	
Education (master's)	26 (43%)	26 (43%)	5 (18%)	14 (37%)	21 (58%)	13 (65%)	44 (100%)	54 (98%)	317
Gender (females)	62 (100%)	35 (100%)	25 (89%)	37 (97%)	30 (81%)	20 (100%)	44 (98%)	55 (100%)	320
Work Experience (years)	7.4 (5.2)	8.0 (6.1)	10.1 (7.7)	9.7 (7.0)	9.2 (6.0)	9.0 (6.1)	9.3 (6.5)	7.8 (6.3)	320
Case load (ages 0-3)	11.8 (6.8)	11.8 (11.7)	10.5 (7.6)	10.8 (8.5)	11.7 (6.4)	13.1 (8.0)	12.8 (8.4)	11.8 (8.2)	320
Total visits (wkly)	13.3 (7.8)	12.3 (8.4)	12.4 (8.6)	12.6 (10.2)	16.2 (13.6)	14.8 (8.0)	14.3 (8.6)	13.9 (9.2)	296
Total home visits (wkly)	10.5 (6.0)	9.8 (7.8)	10.3 (7.4)	8.8 (6.9)	13.0 (12.5)	9.7 (5.7)	11.5 (7.5)	9.5 (6.9)	296

Notes. IN= Indiana, MO= Missouri; DT= developmental therapist, early-intervention specialist, special instructor; OT= occupational therapist; PT= physical therapist; SLP= speech-language pathologist, wky=weekly.

Figure 1. Providers' demographics and work-related information

When asked if they took some play materials on visits to the homes of some children, almost all providers replied in the affirmative even if they did not use them. There was no significant difference between Indiana (90.7 percent) and Missouri (90.6 percent) or between provider occupations (DT = 93 percent; OT = 94 percent; PT = 89 percent; SLP = 89 percent). However, a significant difference was found between disciplines in percent of time providers used the materials they brought, $\chi^2(9, N = 296) = 53.43, p < .001$. Forty-two percent of PTs used their own materials less than 25 percent of the session time compared to the other disciplines (DT = 26 percent, OT = 19 percent, SLP = 15 percent), whereas 43 percent of DTs and 37 percent of SLPs used the materials they took to the home more than 75 percent of the time compared to PTs (4 percent) and OTs (15 percent).

They also reported that they used toys and other items from the child's home during a session (Missouri = 98 percent, Indiana = 100 percent). There were no significant differences between the providers' use of outdoor play equipment (85 percent vs. 86 percent), children's games (55 percent vs. 46 percent), or kitchen items (68 percent vs. 61 percent). Although there was no difference in disciplines between the number of providers who reported using the child's toys (DT = 95.7 percent, OT = 100 percent, PT = 98.1 percent, and SLP = 98.9 percent), games (DT = 43 percent, OT = 50 percent, PT = 45.3 percent, and SLP = 60.2 percent), and outdoor play equipment (DT = 81.7 percent, OT = 91.9 percent, PT = 90.6 percent, and SLP = 80.7 percent), OTs (83.9 percent) were significantly more likely to use items from the kitchen than SLPs (67 percent), DTs (59.1 percent), or PTs (47.2 percent), $\chi^2(3, N = 296) = 18.54, p < .001$. Figure 2 lists all the play materials providers reportedly used, in addition to toys, games, kitchen items, and outdoor equipment.

Providers obtained their play materials from many sources, including their own children who had outgrown their playthings. The same proved true for providers across disciplines. Over 72 percent purchased toys from garage sales. More than 50 percent used donated toys, and more than 18 percent obtained toys on eBay. Family and friends also gave them toys to donate to the families they served. DTs (48 percent) were more likely than SLPs (30 percent), OTs (29 percent), or PTs (25 percent) to obtain their toys from relatives, $\chi^2(3, N = 306) = 12.55, p < .01$.

Providers' Attitudes to Play Materials and Correlates

Positive and negative attitudes towards using a provider's play materials or a child's home play materials were not significantly related to discipline, state,

Animate: bugs, pets, animals, horses, barn animals

Bulk: TV, furniture, steps, trampoline, drawers, radio, stairs, stools, child's bed, couch cushions, crate

Cleaning implements: broom, vacuum, mop, liquid soap, bar soap

Clothes: socks, dress-up clothes

Craft and emergent literacy supplies: books, crayons, drawing boards, paper, flash cards, markers, finger paints, glue, scissors, art supplies

Family: siblings, parent's body

Flora: flowers, plants

Food: walnuts, cookies, making recipes, dry rice

Household: boxes, toilet paper rolls, feeding utensils, cups, cans, pop cans, coolers, squirt bottle, mirrors, water bottle, empty cartons, food wrappers, brushes, combs, spoons, band-aids, toothbrushes, shaving cream, ice cubes, cotton balls, clothes basket, diapers

Linen: towel (for peekaboo), pillows, blankets, washcloth

Outdoors: ramp, gravel, grass, sideways and sidewalk cracks, curbs, rocks, water hose, mud puddles, surface changes (e.g. rock to grass), park, pool, car, truck, bike paths, swings

Toys: chewy toys, teething toys, balls, electronic learning toys, sit n' spin, puzzles, play figurines, basketball, manipulatives, Play-doh, stuffed animals, toy kitchen sets, train sets, puppets, tricycles, riding toys

Other items: movies, family photos, photo albums, CD player, musical instruments

Figure 2. Play materials used in early intervention (in addition to toys, games, kitchen items, and outdoor-play equipment)

education, years of experience, case-load size, or mean number of visits per week. However, a significant inverse correlation was found between positive and negative attitudes for all disciplines (DTs = $-.28$, PTs = $-.44$, SLPs = $-.43$; p 's $< .01$), except OTs ($r = -.24$, ns). Overall, providers from all four disciplines saw more advantages than disadvantages to bringing some provider toys and materials (positive, $M = 3.23-3.43$, $SD = .47-.53$, negative, $M = 2.24-2.43$, $SD = .47-.57$); Wilks' $\Lambda = .411$, $F(1, 290) = 416.15$, $p < .001$, partial $\eta^2 = .59$.

Providers' reported time spent using their own toys and materials related significantly to their attitudes concerning the use of provider taking materials to

the home, Wilks' $\Lambda = .715$, $F(6, 578) = 17.6$, $p < .001$, partial $\eta^2 = .155$. Providers who reported using their own play materials for a larger portion of the sessions more strongly supported the positive aspects of using provider-supplied materials, $F(3, 290) = 20.62$, $p < .001$, partial $\eta^2 = .18$. By contrast, providers who most strongly agreed to the negative aspects of using their own materials reported spending the least time in sessions engaging with what they brought with them, $F(3, 290) = 24.92$, $p < .001$, partial $\eta^2 = .21$. The opposite was also true: as providers reported spending more time in using their own play materials, they more avidly supported positive than negative attitudes about such practices, Wilks' $\Lambda = .721$, $F(3, 290) = 37.37$, $p < .001$, partial $\eta^2 = .28$.

Donating and Lending Toys to Families

The majority of providers from all four disciplines reported that they lent (63 percent to 78 percent) and gave (78 percent to 88 percent) toys to families (see figure 3). Some providers had a toy-lending policy if they were in private practice or their agency had a toy-lending policy. About a third of the families they served had a toy-lending library nearby.

Finally, providers' toy-lending practices were related to their attitudes

Survey item	Response choices	n (%)
Professional lends toys to families	Yes, sometimes	50 (17.1%)
	Yes, often	159 (54.3%)
	No	84 (28.7%)
Professional gives toys to needy families	Yes, sometimes	63 (21.5%)
	Yes, often	179 (61.1%)
	No	51 (17.4%)
Toy-lending policy	Yes	37 (12.6%)
	No	257 (87.4%)
Toy-lending library near families served	Yes	98 (35.8%)
	No	176 (64.2%)

Figure 3. Supporting the use of toys by families

regarding the use of provider materials in the home, Wilks' $\Lambda = .968$, $F(2, 288) = 4.82$, $p < .01$, partial $\eta^2 = .03$. Specifically, follow-up tests revealed that providers who did not lend toys were more likely to support the disadvantages of using their own toys, $F(1, 289) = 0.32$, $p < .01$, partial $\eta^2 = .03$. As the effect size (the strength of phenomenon) was extremely small, the relationship between attitudes and toy-lending practices could only be regarded as a trend with limited generalization. No difference existed in attitudes among providers who did or did not donate toys to families. The majority of providers said there was no toy-lending policy in their practice or workplace (Indiana = 89.9 percent and Missouri = 84.4 percent) and less than half of the providers (Indiana = 29.5 percent and Missouri = 42.2 percent) indicated that a toy-lending library existed near the families. There was no significant difference between disciplines on their knowledge of the existence of such policy or facilities.

Provider Comments on the Use of Play Materials

On open-ended questions, 165 (52 percent) respondents offered written comments in and at the end of the survey. The list of comments ranged up to eight sentences in length, but most were less than three sentences. The major themes and subthemes emerging from all comments are presented in figure 4. Providers' comments revealed that they were most concerned about their effectiveness in individualized intervention with children. This included the option to take materials if needed; the impoverished environments of many children they served; the importance of supporting parent education; and the desire to do whatever they could to support the child's needs and goals. Three seem to emerge here—poverty and therapist support, parent education, and play materials.

POVERTY AND THERAPIST SUPPORT. Many of the children served in both states came from poor homes, a worry for providers. Homes with limited resources often had toys that were broken or missing parts. As a physical therapist in Indiana noted, "I have been to some homes where there are no toys or there are no appropriate toys" (S.116). A speech-language pathologist in Indiana also noted, "Some children have very few toys in their home, or the toys are broken or are not age appropriate" (S. 36). Another difficulty was the lack of appropriate toys for a child's developmental age or toys adapted for his or her special needs. These included soft toys that were dirty or mechanical toys that were dangerous for younger children.

Most providers reported training using only play materials in the home and integrating developmental goals into a child's everyday learning activities.

Themes	Subthemes (nodes)	References
Poverty and related therapist support	No appropriate toys	23
	Family has no toys	22
	Family has no money	6
	Toys are broken, missing parts	4
	Therapist gives toys and books	11
	Therapist lends toys	13
	Therapist finds sources for parents to obtain toys	2
Play materials	Use of child's toys	44
	Types of play materials therapists bring (homemade etc.)	44
	Novel play materials hold attention	30
	Therapeutic play materials	14
	Trying out toys to know what child likes and needs	9
	Play materials differ based on individual needs	8
	Specific toys needed for evaluations	6
	Play materials allow for previsit planning	5
	Cost of therapist play materials	5
	Many toys in some homes	4
Parent education	Demonstrate and teach how to use toys	23
	Show parents toys to purchase	20
	Parents included in play activities	9
	Teaching parents about play	8

Figure 4. Provider comments: themes and subthemes

Although they did use household items to demonstrate how to adapt and use available materials, many providers said they felt obliged to help a child “be on an even playing field” with other children and that it was part of their responsibility to find what they needed to offer a child the experiences he or she lacked. Such comments seemed to reflect worry about the impact of poverty on child development. Two providers elaborated, saying they addressed this issue by finding

resources for the parents to obtain toys at minimal or no cost. One occupational therapist in Indiana wrote, “I often treat children in impoverished environments where frequently what I need is not available. When I find out what is needed or what works within these environments, I work with the parents and coordinators to get what is needed within the home” (S. 9). A developmental therapist in Indiana wrote, “We have been encouraged to use what is available in the home. I interpret that to mean if what you find does not meet the child’s needs, then you have to work to see that it is provided somehow” (S. 7).

The providers met the challenge of working with children from toyless homes by giving play materials—or lending them—for various lengths of time. Most providers took play materials with them, and many often gave toys and other materials to the children they served. A developmental therapist in Indiana made an exception to her policy of not taking play materials for a child who had no toys. “I only take the toys to the one home. This mom can barely get food for the table. She has no books in her home other than what I have given her for her baby. She had no ‘appropriate’ toys. I consider providing her, not every visit but once or twice a month, with a toy that is appropriate and a way to play with her child as part of educating her on parenting” (S.12).

PARENT EDUCATION. Some providers worried that the children they served lacked an understanding of the value of play or even how to play. A speech-language pathologist in Indiana indicated that he tried to work with families so that “parents can see it isn’t the kind of toy that can be used to facilitate communication but the manner in which it is used” (S. 56). The need for family involvement with play routines and play materials during a visit found strong voice in another speech-language pathologist in Indiana. “I require that my parents, even if I bring toys, participate in the session. If that is not for them, then I am not their therapist” (S. 128).

Providers would show parents that everyday objects can be used for play and that play materials do not have to be expensive. A developmental therapist in Indiana wrote, “Many of the toys I take, I have made out of household or very inexpensive items. This is what I help/encourage families to do” (S. 27). Providers explained that if they did bring toys, they often did so to demonstrate how to use the toy before a parent purchased it (or before they lent it to the family) and to show a parent how to adapt the toy for a child with special needs. An occupational therapist in Missouri who did take some toys to her sessions to provide a variety of play materials, described her rationale, “Very often I like

to show parents how to make/adopt their own toys to mimic the toys I bring so they learn to generalize what I am teaching them as well” (S. 42).

PLAY MATERIALS USED. Providers described in detail the items they used during service delivery. Figure 2 shows all materials used by providers, which included a wide range of indoor and outdoor items and craft, emergent-literacy, and musical materials. Providers also held various opinions about taking toys with them to home visits. Many providers took very few play materials with them, like one developmental therapist in Missouri who said, “The only ‘toys’ I use are bubbles made from baby shampoo to get the child’s attention if needed and one small board book that I wipe down with antibacterial wipes each time it is used. Beyond that, it just requires some ingenuity and creativity on the part of the therapist and communication with the parent” (S. 288). Most providers tried to use materials in the home whenever they could, as discussed by an occupational therapist in Indiana. “As an OT, especially, I use what I can in the home for sensory integration (i.e. office chair for spinning, pillows for proprio sandwiching, blankets to pull the child around on, laundry basket to rock the child) but this is not always a possibility as these things are not available in every home. As an OT, I feel it is my responsibility to provide the best therapy I can and sometimes that means, bringing in outside toys or equipment” (S. 115). This view was confirmed by an occupational therapist in Missouri. “In my practice it varies from child to child whether or not I take in toys. It also varies visit to visit. Sometimes it is more for the motivation factor rather than how the child plays with the toy as some kids get more excited with new toys. . . . I follow the parents’ request if they want toys brought in or not” (S. 287). A developmental therapist in Indiana agreed:

I often bring in toys that are adapted to meet specific needs so that families can see how to adapt toys. I also utilize the toys and equipment that are available to the child in his environment and expand on the typical use of that toy or equipment. I demonstrate the more creative or novel uses of everyday equipment, and I often bring toys that are publicized on the TV or other places, so that parents and caregivers can actually see and play with it. We often play the game of “What would I change about this toy?” and then the discussion centers around how engaging the toy is, what else it can be used for, how annoying it might be on a long term basis . . . how good of a

value it presents, can other children in the family use it . . . those kinds of discussions help families determine how to use their toy budget wisely. (S. 45)

An Indiana physical therapist says, “I rarely use my own toys as I prefer to use the toys in the home. If I take a toy, I am prepared to leave it with the family for their use until my next session or for as long as it is appropriate” (S. 50). Several providers pointed out that the focus of their intervention was on the family and that the play materials served simply to support the child’s developmental goals, as emphasized by an occupational therapist in Missouri. “The focus of the session is not on the toys, but on the child and family/care giver. The toy is used as a facilitator, a means to an end if you will. . . . The objective of the toy play can usually be accomplished with items available in the home” (S. 220).

Some providers justified bringing play materials into a home because of their novelty and their motivational potential. Many children with special needs such as autism have a short attention span and limited social skills. They are easily distracted by visual or auditory stimuli in their environment. Providers used such challenges as an argument for providing novel items to gain children’s attention and increase their motivation for learning new language or motor skills. Some respondents argued that the therapy-specific materials they prepared for a session improved the quality of the intervention. They either designed these specifically to meet a child’s current needs and goals, took them from standardized evaluation kits, or acquired some of the special toys commercially available. They might include printed pictures and symbols from software, a switch-activated toy, or oral-motor items. In some cases providers used their own materials for only the first few visits until they discovered what was available at a child’s home. A physical therapist in Indiana explained the initial use of her own materials as having a motivational function. “I tend to use my toys when getting to know the child, in order to get their interest. I use my own less as the child becomes comfortable with me. I also point out to the parent/caregiver the features of the toys which make them appropriate for a given activity, and ask about what toys they have with those features. I encourage them to find those toys and have the parent return a demonstration with the child’s own toys, if appropriate” (S. 99).

Some providers said they took their own items because doing so gave them the ability to plan ahead before reaching the home. As an occupational therapist in private practice in Indiana argued, “The biggest factor to bringing items to treatment sessions is the ability to plan ahead” (S. 37). Siblings often limited the

providers' abilities to focus on parents and the child with special needs, so several providers brought toys to occupy the other kids. One occupational therapist in Missouri mentioned, "I always bring a 'sibling' toy just for them to include them and keep them busy" (S. 318).

These comments show that the providers' attitudes about the use of their own materials may be affected by the barriers they perceive to such use, which include the lack of reasonable substitutes within the environment, the families' expectations of the provider as a "teacher with tools," and the desire to use any and everything necessary to provide individualized services.

Discussion

Play is integral to early intervention. In response to the federal mandate to embed therapy in natural environments, the therapists' use of toys during early-intervention home visits for impoverished children with developmental delay or special needs has generated much controversy. While the interpretation of natural-environment practice remains part of an ongoing discussion (Chai, Zhang, and Bisberg 2006), practices related to the integration of early-intervention principles into family routines differ radically in various communities and regions (Gulranick 2005; Pletcher 2011). Clearly we are shifting the way we train early-intervention providers and moving them toward an approach that no longer depends on the therapist as a teacher-visitor lugging along a "treatment kit" (NECTAC 2008; Nwokah 2009b). Today, we consider the best practices in early intervention to include enhancing the self-confidence and skills of parents in their abilities to nurture and teach their own children. Our study explored how the attitudes and practices of early-intervention providers related to the play materials they used and to their concerns about play in therapeutic intervention and their clients' daily routines and lives.

The Material Culture of Play and the Challenges of Poverty

Early-intervention therapists have one special worry related to impoverished families: the poor often do not buy toys (Gregg, Harkness, and Machin 1999). Impoverished youngsters with special needs often do not have the toys owned by average American children. Not infrequently, these youngsters have parents with disabilities, addictions, or limited educations, each of which may lead to inadequate parenting.

Results from our study showed that more than 80 percent of providers gave toys to families in need. They cited poverty as a major rationale for taking play materials into the home. They considered helping provide toys to families a way to compensate for what they perceived as the children's lack of experiences needed to prepare them for school. This view mirrors a more general social concern in the United States about children having no toys, a worry that led several nonprofit organizations to support programs like Toys for Tots and Second Chance Toys.

Many of the early-intervention providers surveyed already follow our recommendations for the practice of therapy in natural environments for children living in poverty: Therapists need to get involved, help identify families in need, find play materials (e.g., pots, pans, and empty containers) currently available to the children of such families, support the parents in ways that maximize the beneficial use of toys in their play with their children, and help these families obtain the play objects they need (Rush and Sheldon 2011). There are many challenges for children living in poverty, however, some seem particularly overwhelming—unsafe environments, limited household materials, and overcrowded space that prevent access to everyday play objects and environments (Milteer, Ginsburg and Mulligan 2012). Homes without toys and parents without nurturing skills have long-term, negative effects on children (Bradley et al. 1989). So, in addition to offering play materials to families in need, as recommended by many of those we surveyed, providers may need to offer parenting education as well.

Play Materials Used by Providers

More than 50 percent of the providers in our study reported that they had received professional training and information from state agencies or professional associations on daily learning routines, including the use of materials available in a child's home. Nevertheless, almost all providers reported that they carry play materials into the various settings where they provide services even if they did not use them or rarely used them. Years of experience, discipline, and size of case load did not influence the likelihood or time spent using their own materials. Providers surveyed emphasized that they take not only toys but also household items, emergent-literacy materials (e.g., picture books), craft supplies, food items, and therapeutic adaptive materials such as special cups and spoons to their clients. Providers also reported that they often lend or give these materials to the families they serve. They tended to use whatever exists in a child's environment for therapy, including toys, household items, and outdoor

equipment. Providers also used these materials in providing parent education and encouraging family interaction.

Although most providers supported the option to take materials to an impoverished home if needed, significantly different attitudes arose among different disciplines concerning the use of providers' materials and concerning the type of in-home materials they used. These differences may simply reflect the focus of a particular discipline, so this finding may not be very surprising. In any case, DTs and SLPs were more likely to use their own materials for significantly more time each session than OTs and PTs. This finding makes some sense because PTs focus on large motor skills, respiration, balance, and posture and OTs routinely use eating utensils and other items already in homes to encourage adaptive skills.

Parent Education and Play

Some providers worried that many parents did not seem to appreciate the role of play in child development, nor did they seem to know how to play with their children, especially when it came to shared-object play and pretend play. Many parents living in poverty and those without much education do not understand the benefits of age-appropriate play for child development. Adolescent parents in particular may not know what is developmentally appropriate because they themselves never had role models to demonstrate positive and culturally appropriate play between a parent and child. Often parents give to their children toys to encourage the children to play independently (Sutton-Smith 1986). And parents of children with severe delay and disabilities such as visual impairment or physical limitations rarely know how to adapt toys and play materials for their youngsters. Providers in our study saw their role as promoting parent education through discussion and explanation, modeling parent practice, and involving the parent in the play of the child and therapist.

Limitations of the Study

We acknowledge several major limitations in this study. One limitation involved recruiting participants. We limited the convenience sample in the study to two midwestern states. We made participation optional, so less than half the providers we contacted responded. If our study had included providers in states with a higher cost of living and more homelessness, they might have had even greater

concerns about poverty. Although the survey did not request information on participants' race or ethnicity, most providers in Indiana and Missouri were Caucasian. Interestingly, the providers did not raise the issue of multicultural or language differences as a challenge; they cited only poverty. Although the survey included the opportunity for comments, this method does not yield as much information as individual, face-to-face interviews. Also, we did not gather data from the families these providers serve, which would have told us more about the services they used. Finally, we chose the survey as a tool for gathering information. Direct observation during home visits would have rendered more precise information about the use of play materials and might have revealed differences in home visits to families of different social class and financial status.

Conclusions, Recommendations, and Future Directions

Everyday routines and family activities frequently include play as part of early-childhood experiences. We should not trivialize the use of play and of play materials by early-intervention professionals. It is endemic to their work with young children and families. We need detailed analyses on variations in current practices (such as the patterns of the "home-visit culture" that providers have created and to which families quickly adjust) and on the set of principles that inform their practices (Brorson 2005).

Of major importance to Part C of IDEA, early-intervention services for children with disabilities are based on the principle of best practices, which currently emphasizes embedding services in existing settings and using everyday routines and common materials. But even providers operating outside of Part C programs offer different opinions about providing materials: Is it a distraction? Does it fail to meet the goal of preparing parents to be advocates for their child and to provide all the child needs? (Golden, Hawkins, and Beardslee 2011). The recommendations we suggest here focus on expanding personnel training needs, on maximizing local resources, and on conducting additional research into poverty and play within the United States.

1. We urge the instructors of preprofessional and professional training to emphasize the importance of play and low-cost play materials and, especially, the challenges of working with families facing dire poverty. Professional training should involve learning

to help families understand how even one toy can provide multiple opportunities for child development.

2. We recommend provider training encourage mental-health and sociocultural awareness related to poverty and play, including such issues as guilt, depression, embarrassment, mistrust, and fear of professionals. Sociocultural issues could include, for example, beliefs about the unacceptability of disposable household items as play materials and beliefs about the cultural inappropriateness of adult play with children.
3. We propose more research on the impact poverty has on play in the everyday experiences and routines of very young children in rural and urban settings. Questions remain concerning toddlers who lack exposure to commercial and educational toys, especially technologically sophisticated toys, and whether this lack places them at a disadvantage later in school and in life.
4. We suggest more research on enhancing parents' capacity for identifying strategies that best assist the family in supporting the child's play without frequent recourse to toys or play materials as "handouts," and more research on learning how to budget for inexpensive play materials.

In summary, the knowledge of play and the use of play materials by child, family, and provider reflect the beliefs, skills, and practices of early interventionists in their day-to-day professional lives. Play embedded in caring and responsive relationships proves critical to a child's healthy development, especially when a child is developmentally challenged. Yet, a lack of play materials and the negative impact such a lack can have on child development poses a real challenge for early-intervention providers. We need more research to address these concerns about the use of play materials by children in families living in poverty.

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