

# Everyday Activity Settings, Natural Learning Environments, and Early Intervention Practices

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**Abstract** Findings from two studies examining the parent and child outcomes associated with different ways of conceptualizing natural learning environment early intervention practices are presented. One sample in each study was asked to indicate the extent to which early intervention practitioners implemented their interventions in everyday family or community activities, and one sample in each study was asked to indicate the extent to which everyday family or community activities were used as sources of child learning opportunities. Results from both studies showed that using everyday activities as sources of children's learning opportunities were associated with positive benefits, whereas practitioners' implementing their interventions in everyday activities showed little or no positive benefits, and in several cases, had negative consequences. Results are discussed in terms of the need to carefully consider how and in what manner natural learning environment practices are operationalized by early intervention practitioners.

**Keywords:** activity settings, child functioning, everyday learning, natural environments, parent functioning

## INTRODUCTION

Children's lives throughout the world are made up of everyday activities that provide the contexts for learning culturally meaningful behavior (e.g., Briggs, 1998; Clark, 1998; Gauvain, 1999; Lamb, Leyendecker, Schölermerich, & Fracasso, 1998; Lancy, 1996; Rogoff, Mistry, Göncü, & Mosier, 1993; Tudge et al., 2000). These activities include, but are not limited to, meal times, bath times, caring for pets, dressing and undressing, parent/child strolls or walks, playing in a puddle of water, planting flowers, harvesting vegetables, shopping for food, bedtime stories, play groups and child "get togethers," climbing on playground equipment, listening to storytellers, etc. Dunst, Hamby, Trivette, Raab, and Bruder (2000) found in national surveys of parents in the United States that family and community life is made up of some 22 different categories of life events providing young children everyday learning opportunities.

The proposition that participation in everyday activities is important for children's learning is a central feature of *development-in-context* perspectives of human growth and development (Alvarez, 1994; Bronfenbrenner, 1999; Dent-Read & Zukow-Goldring, 1997; Wozniak & Fischer, 1993). According to this perspective, the everyday activity settings (Farver, 1999) making up the fabric of child and family life provides children experiences

and opportunities that enhance learning and development, which in turn promotes increased participation in other activities, that further shapes children's developmental courses. Dunst et al. (2001a) defined an activity setting as a "situation-specific experience, opportunity, or event that involves a child's interaction with people, the physical environment, or both, that provides a context for a child to learn about his or her own abilities and capabilities as well as the propensities and proclivities of others" (p. 70). According to Gallimore and Goldenberg (1993), "Children's activity settings are the architecture of their everyday life and the context of their development" (p. 315).

Findings from research on the learning opportunities afforded young children in everyday activity setting indicate that they are a combination of planned and unplanned, structured and unstructured, and intentional and incidental life experiences (see Dunst et al., 2000; Dunst, Hamby, Trivette, Raab, & Bruder, 2002a, for descriptions and discussions of these various everyday learning activities). Mead (1954) noted a half century ago that variations in young children's *ordinary life situations* account for differences in learning opportunities between and within cultural groups and that contrasting kinds of learning opportunities are what account for differences in children's skill development and use.

The rich database on ordinary child learning opportunities was used by Dunst et al. (2000; 2001a; 2002a) to contend that everyday activity settings may be conceptualized as the natural (learning) environments of young children as required by the U.S. Individuals with Disabilities Education Act (IDEA) (Walsh, Rous, & Lutzer, 2000). As stated in the regulations to the Act,

Received November 15, 2004; accepted November 25, 2005  
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“early intervention services must be provided in natural environments, including the home and community settings in which children without disabilities participate” (Early Intervention Program, Sec. 303.12 [b], 2002). The ways in which the natural environment provision have been interpreted, however, has muddled rather than clarified the meaning of the term (e.g., Bricker, 2001; Childress, 2004; Hanft & Pilkington, 2000; Walsh et al., 2000).

An extensive review of the natural environment literature finds that natural environment proponents differ considerably in how this provision has been conceptualized and operationalized. Dunst, Trivette, Humphries, Raab, and Roper (2001b) proposed a three-dimensional framework for organizing the natural learning environment literature and practices as a way of bringing clarity to the meaning and scope of the term *natural learning environments*. The three dimensions include the settings in which interventions are implemented (contextualized vs. non-contextualized), the type of child learning opportunity afforded in the settings (child initiated vs. adult directed), and the agent of provision of the learning opportunities (practitioner vs. parent). Dunst et al. (2001b) concluded from their review of the literature that despite a rich research base for using everyday activity as sources of child learning opportunities, the delivery of early intervention services (special instruction and physical, occupational, and speech therapy) in natural environments has been increasingly emphasized as “best practice” to the exclusion of other natural learning environment interventions. And this has occurred in the absence of evidence indicating that implementing early intervention services in natural environments is effective.

The purpose of the two studies described in this article was to determine whether the different ways of conceptualizing natural learning environment early intervention practices had like or unlike effects on parent and child functioning. The participants in each study completed a survey asking them to rate either the extent to which early intervention practitioners implemented services in activity settings (Early Intervention in Activity Settings (EI→AS)) or the extent to which everyday activity settings were used as sources of learning opportunities (Activity Settings as Early Intervention (AS→EI)). Engaging a child in range of motion exercises during the child’s bath time is an example of implementing early intervention in an activity setting, whereas a child watering flowers or vegetables with a garden hose is an example of using an activity setting as an everyday learning opportunity.

Study 1 involved parents of infants and toddlers participating in the U.S. IDEA Part C early intervention programs in two northeastern states. Study 2 involved parents of infants and toddlers involved in the IDEA Part C early intervention programs in 45 states. The extent to which the contrasting approaches to natural learning environment practices were differentially related to selected outcomes was ascertained by relating variations in parents’ reported use of the practices to variations in the outcomes constituting the focus of investigation.

## METHOD

### Participants

Parents and other caregivers were recruited by early intervention providers and programs using mailing lists obtained from State Early Intervention Program Coordinators. Invitations were sent to randomly selected programs in all states in the national studies and sent to all early intervention programs in the state studies. Interested providers distributed surveys to program participants who returned the surveys to the investigators in postage-paid envelopes.

Study 1 (state surveys) included 815 parents and other primary caregivers and Study 2 (national surveys) included 801 parents and other primary caregivers of IDEA early intervention program participants. Based on information provided by the parents, the largest majority (97%) of the children had identified disabilities or developmental delays as defined by state eligibility definitions.

Table 1 shows the background characteristics of the study participants. The children, on average, were about 2 years of age at the time the respondents completed the surveys. The parents were, on average, about 32 years of age, and had completed an average of about 13–14 years of formal schooling. The majority of the parents were either married or living with a partner, and about half of the survey respondents reported that they worked outside the home either full or part time. The parents’ demographic characteristics were very similar to those involved in early intervention programs throughout the United States (Hebbeler, Spiker, Mallik, Scarborough, & Simeonsson, 2003). Approximately 14% of the study participants reported their ethnicity or race was other than White or Caucasian, which is almost exactly the percentage of nonwhite persons in the general population (Grieco & Cassidy, 2001).

### Natural Environment Measures

The surveys included either community activity items (state study) or both family and community activity items (national study) that were used to construct natural learning environment practices measures. The survey question asking respondents to indicate the extent to which early intervention was implemented in activity settings was stated as follows: “How often do the early intervention staff working with your child do their work in the following settings or locations?” The survey question asking respondents to indicate the extent to which activity settings were used as sources of child learning opportunities was stated as follows: “How often is each of the following activities a setting where your child’s learning takes place?”

The ways in which the survey questions were framed were dictated by the purposes of the different studies. On the surveys asking respondents to indicate how often early intervention was implemented in activity settings, the purpose was to obtain a

TABLE 1  
Background characteristics of the study participants

Participant characteristics	State surveys				National surveys			
	AS→EI		EI→AS		AS→EI		EI→AS	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sample size	N = 364		N = 451		N = 482		N = 319	
Child age (months)	25.38	8.28	26.47	7.62	24.36	8.10	24.67	7.90
Parent age (years)	31.83	6.93	33.25	6.40	30.81	6.93	33.43	6.60
Parent education (years) <sup>a</sup>	13.03	2.11	14.47	2.22	13.17	2.18	14.52	2.52
Married/living with partner	75%		89%		80%		92%	
Working outside the home	54%		56%		46%		44%	
Ethnicity (non-Caucasian) <sup>b</sup>	11%		15%		19%		13%	

AS→EI indicates that everyday activity settings were used as sources of early childhood learning, and EI →AS indicates that early intervention was implemented in everyday activity settings.

<sup>a</sup>Number of formal years of school completed.

<sup>b</sup>Includes African American, Hispanic/Latino, Native American, Asian, Pacific Islander, biracial, and other.

measure of the degree to which natural environments were used as contexts for practitioner-implemented interventions. On the surveys asking respondents to indicate how often children participated in activity settings, the purpose was to obtain a measure of degree to which everyday activities served as contexts for natural learning opportunities.

The community or family activity settings items on the different surveys used as natural environment indicators were identical or very similar so as to have comparable measures within and between studies. The community activity items included grocery shopping, library or bookstore story hours, playground or recreational activities, neighborhood walks, eating out, running family errands, etc. The family activity items included meal times, children's bath times, dressing and undressing, playing outside around the house, family gatherings or "get togethers," etc. Principal components factor analyses were performed to produce standardized natural learning environment scores for each survey sample. All analyses produced single-factor solutions with coefficient alphas ranging from 0.70 to 0.71 for the family activity items and 0.67 to 0.79 for the community activity items.

#### Outcome Measures

The different surveys included five common outcome measures: perceived parent control appraisals, parenting competence, positive parent well-being, negative parent well-being, and parents' judgments of child progress. Principal components factor analyses of the items on each measure were performed to produce standardized outcome measures for each survey sample (with the one exception noted below). Each factor analysis produced a single-factor solution.

**Perceived control appraisals** Perceived control (Skinner, 1995) was measured in terms of the degree to which survey respondents indicated they had control over the supports, resources, and services provided by the early intervention practitioners working with their children and families. On the state surveys, parents rated perceived control on a 10-point scale ranging from no control at all (1) to control all the time (10). The parents' ratings were standardized so as to have a mean of zero (0) and a standard deviation of one (1). On the national surveys, parents completed a five-item perceived control scale ( $\alpha_s = 0.82-0.89$ ) asking respondents to indicate on a five-point scale the extent to which they had control over who, where, how, and when learning opportunities were provided to their children by early intervention practitioners.

**Parenting competence** Parenting competence was measured in terms of respondents' judgments regarding their sense of efficacy (Teti & Gelfand, 1991) and effort (Bandura, 1997) in carrying out child-rearing responsibilities. The state surveys included four items ( $\alpha_s = 0.70-0.89$ ) asking respondents to indicate on a five-point scale the extent to which they learned new ways of providing their children learning opportunities and developed a better sense of parenting capabilities. The national surveys included six items ( $\alpha_s = 0.77-0.81$ ) asking respondents to indicate on a five-point scale the extent to which they learned new things as a result of early intervention, improved in their ability to provide their children learning opportunities, and required little or considerable effort to engage their children in everyday learning opportunities.

**Positive well-being** Positive well-being (Bradburn, 1969; Diener & Emmons, 1985) was measured by asking respondents to indi-

cate on a five-point scale how often they experienced different positive psychological feelings (excited, pleased, happy, content, enjoyment). The state surveys included three positive well-being items ( $\alpha_s = 0.72\text{--}0.74$ ) and the national surveys included four positive well-being items ( $\alpha_s = 0.70\text{--}0.75$ ).

**Negative well-being** Negative well-being (Bradburn, 1969; Diener & Emmons, 1985) was measured by asking respondents to indicate on a five-point scale how often they experienced negative psychological feelings (lonely, stressed, upset or angry, bothered by "little things"). The state surveys included three negative well-being items ( $\alpha_s = 0.64\text{--}0.66$ ) and the national surveys included four negative well-being items ( $\alpha_s = 0.58\text{--}0.63$ ).

**Child progress** Parents' judgments about their children's progress (Dunst et al., 2001a) were assessed by asking respondents to indicate on a five-point scale whether their children made less than, more than, or about the amount of progress expected in different behavioral domains at the time the scales were completed. Parents' judgments were made in terms of child ambulation (getting around on his/her own), communication (getting people to understand wants), social adaptive capabilities (feeding and dressing), and socialization (getting along with other children). The state surveys included eight indicators ( $\alpha_s = 0.80\text{--}0.91$ ) and the national surveys included five indicators ( $\alpha_s = 0.76\text{--}0.87$ ).

#### Method of Analysis

The extent to which variations in the types of natural learning environment practices reported by the survey respondents (AS→EI vs. EI→AS) were associated with variations in the parent and child outcomes was determined using least squares linear regression analysis (Cohen, Cohen, West, & Aiken, 2003). All analyses were performed using either the principal components factor analysis results or standardized scores described above where each independent and dependent variable had a mean of zero (0) and a standard deviation equal to one (1). This had the effect of centering the data so as to prevent errors in statistical inference (Cohen et al., 2003; Jaccard, Turrisi, & Wan, 1990; Kraemer & Blasey, 2004).

Three analyses were performed on each set of data. First, we assessed whether the standardized regression coefficients (slopes of the regression lines) for the contrasting approaches to natural learning environment practices in each study differed significantly from one another. These analyses provide a test of whether the relationship between the independent and dependent variables is the same or different for the two types of natural learning environment practices. This is a test of the null hypothesis that  $\beta_1 - \beta_2 = 0$ .

Second, we assessed whether type of natural environment practices (EI→AS vs. AS→EI) interacted with the degree to which study participants reported experiencing the practices to deter-

mine whether a conditional relationship existed between the independent and the dependent measures. Tests for interactions were performed following procedures described by Cohen et al. (2003) for determining whether *type* and *amount* of practice had equivalent influences on the outcome measures. The presence of an interaction provides a test of a conditional relationship between the type of practice and its consequences.

Third, we ascertained the relationship between the degree of natural learning environment practices experienced by the children and variations in the different outcomes by computing the standardized regression coefficients (Betas) for each study sample. The Betas, or slopes of the regression lines, were tested using *t*-tests to determine whether there was a statistically significant relationship between the independent and dependent variables. This is a test of the null hypothesis that the regression coefficient is zero.

## RESULTS

### Study 1

The extent to which variations in the community activity-setting scores were related to differences in parent and child outcomes was the focus of the state-survey data analyses. Results from these analyses are presented in Table 2. Both the between-slope comparisons and group  $\times$  degree of natural environment interaction results showed that the two types of intervention practices were differentially related to all five outcome measures.

In the study sample where activity settings were rated as sources of everyday learning opportunities (AS→EI), the more everyday learning opportunities were afforded the children, the more positive the consequences in terms of perceived control appraisals, parenting competence, positive parent well-being, and parents' judgments regarding child progress. In contrast, the more early intervention was rated as implemented in everyday activity settings (EI→AS), the more it attenuated positive well-being and the more it heightened negative well-being.

### Study 2

Table 3 shows the results of the analyses for the national-survey data. Findings are shown separately for the family and community activity-setting measures of natural learning environment practices.

**Family activity settings** Findings showed that the between-slope comparisons differed in four of the five analyses and that the group  $\times$  degree of intervention practices interactions were significant in all five analyses. In four cases, the strength of the relationship between the activity-setting practices measures and the outcomes (Betas) was stronger for the AS→EI compared with the EI→AS interventions (perceived control, parenting competence,

TABLE 2  
Regression results for the analyses of the state early intervention survey data

Outcome measure	Between-slope comparison <i>F</i> -test	Group × degree of intervention interaction <i>F</i> -test	Type of intervention			
			AS→EI		EI→AS	
			Beta	<i>t</i> -test	Beta	<i>t</i> -test
Perceived control appraisals	7.35***	14.68****	0.39	7.76****	0.08	1.60
Parenting competence	19.58****	39.17****	0.46	9.76****	0.00	0.05
Positive parent well-being	4.59**	8.97**	0.11	2.08*	-0.11	2.16*
Negative parent well-being	3.84*	7.60**	-0.05	0.86	0.15	2.96**
Child progress	8.21***	16.37****	0.31	6.12****	0.06	1.26

AS→EI indicates that everyday activity settings were used as the sources of early childhood learning, and EI →AS indicates that early intervention was implemented in everyday activity settings.

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ ; \*\*\*\* $P < 0.0001$ .

TABLE 3  
Regression results for the analyses of the national early intervention survey data

Outcome measure	Between-slope comparison <i>F</i> -test	Group × degree of intervention interaction <i>F</i> -test	Type of intervention			
			AS→EI		EI→AS	
			Beta	<i>t</i> -test	Beta	<i>t</i> -test
Family activity settings						
Perceived control appraisals	2.33	4.59*	0.25	5.69****	0.11	1.85
Parenting competence	4.29**	8.58**	0.32	7.31****	0.11	1.96
Positive parent well-being	15.35****	30.41****	0.32	7.39****	-0.07	1.28
Negative parent well-being	13.91****	26.61****	-0.17	3.80***	0.20	3.55***
Child progress	17.85****	34.17****	0.44	10.65****	0.04	0.75
Community activity settings						
Perceived control appraisals	0.45	0.72	0.16	3.58***	0.11	1.95*
Parenting competence	6.44**	12.86****	0.24	5.25****	-0.01	0.24
Positive parent well-being	30.83****	61.34****	0.35	8.21****	-0.19	3.40***
Negative parent well-being	17.19****	33.37****	-0.18	4.03****	0.23	4.14****
Child progress	9.72****	17.85****	0.32	7.36****	0.02	0.42

AS→EI indicates that everyday activity settings were used as the sources of early childhood learning, and EI →AS indicates that early intervention was implemented in everyday activity settings.

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ ; \*\*\*\* $P < 0.0001$ .

positive well-being, and child progress). Additionally, the analyses showed that AS→EI lessened reported negative well-being and that EI→AS heightened reported negative well-being.

**Community activity settings** Both the between-slope comparisons and group × degree of intervention practices interactions were statistically significant for all the outcome measures except perceived control appraisals. In the analyses ascertaining the relationship between the activity-setting practices measures and both

parenting competence and child progress, AS→EI showed a positive relationship with both outcomes, whereas EI→AS had no discernible relationship with either outcome. The analyses of the well-being data showed that the more frequently activity settings were used as sources of everyday community learning opportunities, the more positive and the less negative were the well-being scores. In contrast, the more frequently early intervention services were implemented in everyday community activity settings, the less positive and the more negative were the well-being scores.

## DISCUSSION

Results from both studies demonstrated that the ways in which natural learning environment practices are conceptualized matter a great deal in terms of their influences on parents' judgments about their own capabilities and behavior as well as their children's behavioral and developmental competence. Taken together, the complete sets of analyses indicated that when activity settings were used as sources of everyday learning opportunities, the more positive consequences were reported in different domains of functioning. In contrast, when early intervention services were implemented in activity settings, the higher the probability that they had negative effects (well-being) or no effects on parents' judgments about their own (parenting competence) or their children's (child progress) behavior.

The results demonstrating a positive relationship between AS→EI and the outcomes constituting the focus of study add to a burgeoning body of evidence indicating that this way of operationalizing natural learning environment practices has desirable benefits for both children and their parents (Dunst, 2001a; 2001b; Dunst et al., 2001a; Dunst, Trivette, & Cutspec, 2002b; Trivette, Dunst, & Hamby, 2004). The findings showing that EI→AS had negative consequences in certain areas of functioning are consistent with findings from other studies indicating that in certain instances, early intervention can have unintended negative consequences (Dunst, Brookfield, & Epstein, 1998; Janes & Kermani, 2001).

The reasons why AS→EI has positive effects and EI→AS had negative effects are best understood by considering the fact that everyday activity settings making up the fabric of child and family life are strongly influenced by sociocultural factors (Göncü, Tuermer, Jain, & Johnson, 1999; Martini, 2002; Rogoff, Mistry, Göncü, & Mosier, 1991; Sprunger, Boyce, & Gaines, 1985; Tudge et al., 1999). The cross-cultural literature highlights the fact that the nature of participation in everyday activity is influenced and guided by personal, family, and cultural values and beliefs, rituals and routines, and customs and mores that shape expectations about how everyday activity settings are "played out" as part of daily life.

The seminal work of Gallimore and colleagues (Gallimore, Coots, Weisner, Garnier, & Guthrie, 1996; Gallimore, Goldenberg, & Weisner, 1993; Gallimore, Weisner, Bernheimer, Guthrie, & Nihira, 1993; Gallimore, Weisner, Kaufman, & Bernheimer, 1989) best illustrates this context/behavior relationship. These researchers found that parents of children with disabilities expend considerable effort ensuring that the nature of their children's participation in activity settings occurs in ways mirroring expectations. Consequently, it can easily be seen how implementing early intervention services in activity settings can be disruptive or even meddling, resulting in negative reactions, because this practice is likely to run counter to parents' beliefs about *how* and *what* child participation should look. In contrast, encouraging the use of everyday activity as sources of child learning opportunities would seem to better match parents' beliefs (Savage & Gauvain, 1998), explaining the positive effects of this practice.

Results from the studies presented in this article have implications for policy and practice both in the United States and in other countries. As previously noted, the IDEA natural environment provision stipulates that "early intervention services must be provided in natural environments" (Early Intervention Program, Sec. 303.12 [b], 2002). Findings reported in this article, as well as elsewhere (Dunst et al., 2001a; 2002a; 2002b), indicate that there is a need to modify existing policy to reduce the likelihood that this provision is interpreted literally and to encourage the use of natural environments (activity settings) as contexts for everyday learning opportunities having both development-instigating and development-enhancing characteristics (Dunst et al., 2001a; 2002b), rather than as settings where services are implemented. This is especially indicated given the fact that one goal of the IDEA Part C early intervention program is to strengthen parents' capacity to enhance their children's development (Early Intervention Program, Sec. 303.12 [a] [1], 2002) and that increasing parents' use of activity settings as sources of children's learning opportunities was related to parents' positive judgments about their parenting competence. In contrast, implementing early intervention in activity settings had no discernible influence on parenting competence (Tables 2 and 3).

Program developers throughout the world often look to the United States for guidance regarding how early intervention is conceptualized and practiced (e.g., Brambring, Rauh, & Beelman, 1996; Marfo, 1991; Odom, Hanson, Blackman, & Kaul, 2003). Caution is warranted in terms of adoption and use of natural environments practices where this is interpreted as meaning the delivery of early intervention services in natural environments. This seems especially true in countries where everyday cultural activity is a primary source of learning opportunities for very young children, where participation in the activities carries with it implicit or explicit expectations regarding desired and expected behavior (Chaiklin & Lave, 1996; Rogoff, Paradize, Arauz, Correa-Chávez, & Angelillo, 2003). As the results from the studies in this article indicate, disruptions in the nature of learning in everyday activity settings can backfire and have negative consequences.

Advances in our understanding of the characteristics and consequences of everyday natural learning opportunities increasingly make clear what works and what does not work. We now know that how and in what manner natural learning environment practices are operationalized matters in terms of the benefits that occur from different approaches to this aspect of early intervention. Policy and practice that reflect this knowledge base are most certainly in the best interest of the children and families involved in early intervention programs in any and all parts of the world.

## ACKNOWLEDGMENT

This research was supported by funding from the U.S. Department of Education, Office of Special Education Programs (H159A3005, H024S960008, H324L990002).

## REFERENCES

- Alvarez, A. (1994). Child's everyday life: An ecological approach to the study of activity systems. In A. Alvarez, & P. del Río (Eds.), *Educations as cultural construction* (pp. 23–38). Madrid, Spain: Fundación Infancia y Aprendizaje.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bradburn, N. M. (1969). *The structure of psychological well-being*. Chicago, IL: Aldine.
- Brambring, M., Rauh, H., & Beelman, A. (Eds.) (1996). *Early childhood intervention: Theory, evaluation and practice*. Berlin, Germany: de Gruyter.
- Bricker, D. (2001). The natural environment: A useful construct? *Infants and Young Children*, 13, 21–31.
- Briggs, J. L. (1998). *Inuit morality play: The emotional education of a three-year-old*. New Haven, CT: Yale University Press.
- Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S. L. Friedman, & T. D. Wachs (Eds.), *Measuring environment across the life span: Emerging methods and concepts* (pp. 3–28). Washington, DC: American Psychological Association.
- Chaiklin, S., & Lave, J. (Eds.) (1996). *Understanding practice: Perspectives on activity and context*. Cambridge: Cambridge University Press.
- Childress, D. C. (2004). Special instruction and natural environments: Best practices in early intervention. *Infants and Young Children*, 17, 162–170.
- Clark, S. (1998). Learning at the public bathhouse. In J. Singleton (Ed.), *Learning in likely places: Varieties of apprenticeship in Japan* (pp. 239–252). Cambridge: Cambridge University Press.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Erlbaum.
- Dent-Read, C., & Zukow-Goldring, P. (Eds.) (1997). *Evolving explanations of development: Ecological approaches to organism-environment systems*. Washington, DC: American Psychological Association.
- Diener, E., & Emmons, R. A. (1985). The independence of positive and negative affect. *Journal of Personality Social Psychology*, 47, 1105–1117.
- Dunst, C. J. (2001a). *Parent and community assets as sources of young children's learning opportunities*. Asheville, NC: Winterberry Press.
- Dunst, C. J. (2001b). Participation of young children with disabilities in community learning activities. In M. J. Guralnick (Ed.), *Early childhood inclusion: Focus on change* (pp. 307–333). Baltimore, MD: Brookes.
- Dunst, C. J., Brookfield, J., & Epstein, J. (1998). *Family-centered early intervention and child, parent and family benefits: Final report*. Asheville, NC: Orelena Hawks Puckett Institute.
- Dunst, C. J., Bruder, M. B., Trivette, C. M., Hamby, D., Raab, M., & McLean, M. (2001a). Characteristics and consequences of everyday natural learning opportunities. *Topics in Early Childhood Special Education*, 21, 68–92.
- Dunst, C. J., Hamby, D., Trivette, C. M., Raab, M., & Bruder, M. B. (2000). Everyday family and community life and children's naturally occurring learning opportunities. *Journal of Early Intervention*, 23, 151–164.
- Dunst, C. J., Hamby, D., Trivette, C. M., Raab, M., & Bruder, M. B. (2002a). Young children's participation in everyday family and community activity. *Psychological Reports*, 91, 875–897.
- Dunst, C. J., Trivette, C. M., & Cutspec, P. A. (2002b). An evidence-based approach to documenting the characteristics and consequences of early intervention practices. *Centerscope*, 1, 1–6, from <http://www.evidencebasedpractices.org/centerscope/centerscopevol1no2.pdf>
- Dunst, C. J., Trivette, C. M., Humphries, T., Raab, M., & Roper, N. (2001b). Contrasting approaches to natural learning environment interventions. *Infants and Young Children*, 14, 48–63. Early Intervention Program for Infants and Toddlers with Disabilities, 34 C.F.R. § 303 (2002).
- Farver, J. A. M. (1999). Activity setting analysis: A model for examining the role of culture in development. In A. Göncü (Ed.), *Children's engagement in the world: Sociocultural perspectives* (pp. 99–127). Cambridge: Cambridge University Press.
- Gallimore, R., Coots, J., Weisner, T., Garnier, H., & Guthrie, D. (1996). Family responses to children with developmental delays II: Accommodation intensity and activity in early and middle childhood. *American Journal on Mental Retardation*, 101, 215–232.
- Gallimore, R., & Goldenberg, C. (1993). Activity settings of early literacy: Home and school factors in children's emergent literacy. In E. A. Forman, N. Minick, & C. A. Stone (Eds.), *Contexts for learning: Sociocultural dynamics in children's development* (pp. 315–335). New York: Oxford University Press.
- Gallimore, R., Goldenberg, C. N., & Weisner, T. S. (1993). The social construction and subjective reality of activity settings: Implications for community psychology. *American Journal of Community Psychology*, 21, 537–559.
- Gallimore, R., Weisner, T. S., Bernheimer, L. P., Guthrie, D., & Nihira, K. (1993). Family responses to young children with developmental delays: Accommodation activity in ecological and cultural context. *American Journal of Mental Retardation*, 98, 185–206.
- Gallimore, R., Weisner, T. S., Kaufman, S. Z., & Bernheimer, L. P. (1989). The social construction of ecocultural niches: Family accommodation of developmentally delayed children. *American Journal of Mental Retardation*, 94, 216–230.
- Gauvain, M. (1999). Everyday opportunities for the development of planning skills: Sociocultural and family influences. In A. Göncü (Ed.), *Children's engagement in the world: Sociocultural perspectives* (pp. 173–201). Cambridge: Cambridge University Press.

- Göncü, A., Tuermer, U., Jain, J., & Johnson, D. (1999). Children's play as cultural activity. In A. Göncü (Ed.), *Children's engagement in the world: Sociocultural perspectives* (pp. 148–170). Cambridge: Cambridge University Press.
- Grieco, E. M., & Cassidy, R. C. (2001). *Overview of race and Hispanic origin: Census 2000 brief*. Washington, DC: U.S. Census Bureau. Retrieved February 8, 2005, from <http://www.census.gov/prod/2001pubs/cenbr01-1.pdf>
- Hanft, B. E., & Pilkington, K. O. (2000). Therapy in natural environments: The means or end goal for early intervention? *Infants and Young Children, 12*, 1–13.
- Hebbeler, K., Spiker, D., Mallik, S., Scarborough, A., & Simeonsson, R. (2003). *National early intervention longitudinal study: Demographic characteristics of children and families entering early intervention*. Menlo Park, CA: SRI International.
- Jaccard, J., Turrissi, R., & Wan, C. K. (1990). *Interaction effects in multiple regression (Quantitative applications in the social sciences No. 72)*. Newbury Park, CA: Sage.
- Janes, H., & Kermani, H. (2001). Caregivers' story reading to young children in family literacy programs: Pleasure or punishment? *Journal of Adolescent and Adult Literacy, 44*, 458–466.
- Kraemer, H. C., & Blasey, C. M. (2004). Centring in regression analyses: A strategy to prevent errors in statistical inference. *International Journal of Methods in Psychiatric Research, 13*, 141–151.
- Lamb, M. E., Leyendecker, B., Schölmerich, A., & Fracasso, M. P. (1998). Everyday experiences of infants in Euro-American and central American immigrant families. In M. Lewis, & C. Feiring (Eds.), *Families, risk, and competence* (pp. 113–131). Mahwah, NJ: Erlbaum.
- Lancy, D. F. (1996). *Playing on the mother-ground: Cultural routines for children's development*. New York: Guilford Press.
- Marfo, K. (Ed.) (1991). *Early intervention in transition: Current perspectives on programs for handicapped children*. New York: Praeger.
- Martini, M. (2002). How mothers in four American cultural groups shape infant learning during mealtimes. *Zero to Three, 22*, 14–20.
- Mead, M. (1954). Research on primitive children. In L. Carmichael (Ed.), *Manual of child psychology* (2nd ed., pp. 735–780). New York: Wiley.
- Odom, S. L., Hanson, M. J., Blackman, J. A., & Kaul, S. (2003). *Early intervention practices around the world*. Baltimore, MD: Brookes.
- Rogoff, B., Mistry, J., Göncü, A., & Mosier, C. (1991). Cultural variation in the role relations of toddlers and their families. In M. Bornstein (Ed.), *Cultural approaches to parenting* (pp. 173–183). Hillsdale, NJ: Erlbaum.
- Rogoff, B., Mistry, J., Göncü, A., & Mosier, C. (1993). Guided participation in cultural activities by toddlers and caregivers. *Monographs of the Society for Research in Child Development, 58* (8, Serial, 236).
- Rogoff, B., Paradise, R., Arauz, R. M., Correa-Chávez, M., & Angelillo, C. (2003). Firsthand learning through intent participation. *Annual Review of Psychology, 54*, 175–203.
- Savage, S. L., & Gauvain, M. (1998). Parental beliefs and children's everyday planning in European-American and Latino families. *Journal of Applied Developmental Psychology, 19*, 319–340.
- Skinner, E. A. (1995). *Perceived control, motivation, and coping*. Thousand Oaks, CA: Sage.
- Sprunger, L. W., Boyce, W. T., & Gaines, J. A. (1985). Family-infant congruence: Routines and rhythmicity in family adaptations to a young infant. *Child Development, 56*, 564–572.
- Teti, D. M., & Gelfand, D. M. (1991). Behavioral competence among mothers of infants in the first year: The mediational role of maternal self-efficacy. *Child Development, 62*, 918–929.
- Trivette, C. M., Dunst, C. J., & Hamby, D. (2004). Sources of variation in and consequences of everyday activity settings on child and parenting functioning. *Perspectives in Education, 22*, 17–35.
- Tudge, J., Hayes, S., Doucet, F., Otero, D., Kulakova, N., Tammeveski, P., et al. (2000). Parents' participation in cultural practices with their preschoolers. *Psicologia: Teoria e Pesquisa, 16*, 1–11.
- Tudge, J., Hogan, D., Lee, S., Tammeveski, P., Meltsas, M., Kulakova, N., et al. (1999). Cultural heterogeneity: Parental values and beliefs and their preschoolers' activities in the United States, South Korea, Russia, and Estonia. In A. Göncü (Ed.), *Children's engagement in the world: Sociocultural perspectives* (pp. 62–96). Cambridge: Cambridge University Press.
- Walsh, S., Rous, B., & Lutzer, C. (2000). The federal IDEA natural environments provisions. *Young Exceptional Children Monograph Series No. 2: Natural Environments and Inclusion*, 3–15.
- Wozniak, R. H., & Fischer, K. W. (Eds.) (1993). *Development in context: Acting and thinking in specific environments*. Hillsdale, NJ: Erlbaum.