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DEPARTMENT OF HEALTH AND HUMAN SERVICES

ASSISTANT SECRETARY FOR PLANNING AND EVALUATION

FAX: (202) 690-6562

Date 11/25/97

From: Ann Segal
To: Jen Klein

Division:
Agency:

Phone Number: 690-8410
Phone Number: 456-2599

Fax Number: 690-6562
Fax Number: 456-2878

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REMARKS Here is one quality/research paper. Martha Moorehouse is bringing a longer, perhaps better one tomorrow for the 8:30 meeting. Please let me know if you need more or different.

Ann

RESEARCH MONOGRAPHS OF THE NATIONAL ASSOCIATION FOR THE EDUCATION OF YOUNG CHILDREN, VOLUME 1

Quality in Child Care: What Does Research Tell Us?

Deborah A. Phillips, Editor

National Association for the Education of Young Children
Washington, D.C.

Chapter 1

Indicators of Quality in Child Care: Review of Research

Deborah A. Phillips and Carollee Howes

As of 1986, the majority of children younger than age 6, including more than half of those younger than 1 year of age, were in need of child care while their mothers worked. This demographic fact had a profound effect on the major issues addressed in child care research. The question of whether or not children should be in child care has become obsolete. We have also been able to move beyond this question because 20 years of research on child care allayed our worst fears that nonmaternal care was inevitably harmful to children. To the contrary, the overwhelming message was that children in good quality child care show no signs of harm, and children from low-income families may actually show improved cognitive development (Clarke-Stewart & Fein, 1983; Rutter, 1981; Zigler & Gordon, 1982).

The key to this basic conclusion lies in the term *good quality*. Most of the supporting research involved high quality, often university-based child care centers, which are not representative of the child care options available to most parents. Just as homes vary in the experiences they afford children, so do child care arrangements. Accordingly, researchers moved on to capture this diversity.

The National Day Care Study

The National Day Care Study launched this next phase of empirical research (Ruopp, Travers, Glantz, & Coelen, 1979). The federal government initiated the study to guide the construction of national child care standards. The task was to identify key provisions that best predict good outcomes for children and to develop cost estimates for offering these provisions.

The major results both contradicted and confirmed the intuitive wisdom of the field. Staff-child ratios, long heralded as a significant quality indicator, contributed only minimally to developmental effects for preschoolers in center-based care. Group size and specialized caregiver training emerged as the most potent predictors of positive classroom dynamics and child outcomes. In classrooms with smaller groups, lead teachers engaged in more social interaction with children; children were more cooperative, innovative and involved in tasks, and talkative; and children made greater gains on cognitive tests. Lead teachers with child-related education spent more time in social interaction with the children; the children in their classes showed more cooperation and greater task persistence; and, in centers with higher proportions of trained caregivers, preschoolers made greater cognitive test score gains.

Additionally, preschoolers made more rapid gains on cognitive tests in centers whose staff and directors voiced concern about cognitive development and emphasized individual development rather than group experiences. The investigators interpreted this finding as buttressing the hypothesis that cognitive outcomes in child care are particularly responsive to children's interactions with their caregivers, rather than with materials and other children.

The results of the National Day Care Study were a little different for center-based infant and toddler care. Both staff-child ratios and group size emerged as significant influences on caregiver behavior and child development. Infants in programs with fewer caregivers per child and larger groups showed more overt distress and apathy than infants in programs with high ratios and small groups. Low ratios were also associated, as were large groups, with increased staff time spent in management or control situations and less social interaction and cognitive/language stimulation with children.

So few of the infant caregivers had received specialized training that the effects of this factor could not be determined. However, overall years of education were positively related to the amount of social interaction and cognitive/language stimulation in toddler groups and to lower ratings of child apathy and potential danger in infant groups.

In sum, the National Day Care Study identified group size and specialized caregiver training as significant elements of child care quality in center-based programs for preschoolers and added staff-child ratios to these elements for infant and toddler care. This study also proposed that the association between these regulatable variables and children's development in child care is largely a function of their facilitating effect on

caregivers' efforts to interact in positive, stimulating ways with the children in their care.

Contemporary research on child care quality

Has subsequent research confirmed these broad conclusions of the National Day Care Study, called them into question, or extended them to other settings, other elements of quality, or other outcomes? The answer to each of these questions is "yes." Since 1979, research that has attempted to reproduce the results of the National Day Care Study has confirmed some of the results, contradicted others, and forged new areas of inquiry.

During the last 10 years, researchers have increasingly acknowledged the complexity of defining quality in child care. In response, they have adopted multiple methods to assess quality, examined a wider range of child care arrangements, and placed these questions about quality in a broader context that considers the interdependence of child care and family environments.

Quality, by its nature, is a fuzzy concept. Nowhere is this felt more acutely than by parents who ask, "How can I know what's right for my child?" In research, quality has been viewed in several ways. First, global assessments of quality have been used to capture the overall climate of a program. Second, efforts to extract the specific dimensions of child care quality have emphasized (a) structural aspects of child care, such as group composition and staff qualifications, (b) dynamic aspects of child care that capture children's daily experiences, and (c) contextual aspects of child care, such as type of setting and staff stability. A third, and relatively new, perspective encompasses the joint effects of child care quality and children's family environments.

Global assessments of child care quality

Most observers of child care will readily acknowledge that good things go together. Vandell and Powers (1983), for example, found that high quality university-run centers had high levels of teacher training, large amounts of space per child, and good staff-child ratios. This inevitable confounding of individual quality measures led some researchers to treat quality as a global construct.

Three approaches have been used. The first combined discrete indicators of quality into a composite measure by which programs are evaluated as either high or low in quality. Howes and Olenick (1986), for example,

divided child care centers into high and low quality groups using as criteria for high quality (a) adult-child ratios no lower than 1:4 for children 2 years old or younger and 1:7 for children aged 30 months or older, (b) the presence of caregivers with formal training in child development, and (c) staff turnover that did not exceed two teachers per year. They found that toddlers in high quality centers were significantly more compliant in child care and were better able to resist the temptation to play with forbidden toys and to eat forbidden food in a laboratory session.

Using a similar method that relied on ratios, staff training, and space as quality criteria, Vandell and Powers (1983) found that children in high quality centers were more likely to engage in positive social interactions and behaviors than children enrolled in moderate and low quality centers, who displayed more solitary and unoccupied behavior.

A second approach to obtaining a global assessment of quality relies on a rating scale that taps multiple areas of program quality. Using observations of centers, the Early Childhood Environment Rating Scale, commonly called ECERS, (Harms & Clifford, 1980) leads to scores on seven dimensions of quality: (1) personal care, (2) creative activities, (3) language/reasoning activities, (4) furnishings/display, (5) fine/gross motor activities, (6) social development, and (7) adult facilities/opportunities. Summing scores across these seven dimensions generates an overall quality assessment.

This is the approach taken by the Bermuda Study (see Chapter 3). After the researchers eliminated the adult facilities subscale, the other six dimensions were found to be highly interrelated and were thus used to create a summary score. This score predicted children's intellectual, language, and social development, such that children in higher quality centers showed more advanced communication skills and verbal intelligence (McCartney, 1984) and more positive social behavior and task orientations (Phillips, McCartney, & Scarr, 1987).

Finally, important policy questions have been raised about whether good quality child care can achieve the effects that have been demonstrated for early childhood intervention programs. Efforts to answer these questions also require that programs be evaluated using global assessments of quality. The Bermuda data, for example, were reanalyzed to address the question of whether child care can serve as an effective intervention for low-income children (McCartney, Scarr, Phillips, & Grajek, 1985). One of the child care centers examined in Bermuda was substantially higher in quality than the other centers. It was run by the government and served primarily low-income families. In comparisons with both a subgroup of

Good quality child care can serve as an effective intervention for children from low-income families.

low-income children and the entire sample of children attending the nongovernment, lower quality centers, the low-income children attending the government-run center were found to have significantly better language skills and to be more considerate and sociable. Apparently good quality child care can serve as an effective intervention for children from low-income families (see also Ramey & Haskins, 1981).

In sum, global assessments of quality have confirmed common sense knowledge that better child care is better for children. This conclusion is not insignificant, however, in light of the telling qualification it places on questions of *whether* child care is detrimental, neutral, or beneficial for children's development. Without attention to the quality of the child care in which children spend their days, answers to the either/or question of sheer enrollment in child care are not only obsolete, but also uninformative.

Structural dimensions of quality

While it is true that good things co-occur in child care, global assessments of quality are of little use to practitioners and policymakers who seek to influence specific program features that predict positive outcomes for children. Moreover, some of the good things may have a more powerful impact on children's development than others.

These issues were addressed in research that examined specific structural dimensions of child care quality. The greatest attention has been paid to the dimensions identified by the National Day Care Study — adult-child ratio, group size, and caregiver training and experience. This review thus focuses on these dimensions.

Adult-child ratio. Ratio is considered an important quality indicator on the basis of assumptions that adult caregivers mediate children's contact with the social and physical world. Through social games, verbal interaction, and physical contact, caregivers offer children opportunities to practice and enjoy social exchanges, learn about the properties of objects, and acquire a sense of security and self-worth.

The number of children with whom each caregiver can engage in a stimulating and sensitive fashion is obviously limited. With too many children to care for, the caregiver's interactions with each child are likely to become brief and cursory. What does research tell us?

The majority of studies have found that the ratio has a significant effect on adult and child behavior in child care. Among the outcomes affected are the amount of adult-child imitation (Francis & Self, 1982), children's verbal interaction (Field, 1980; Howes & Rubenstein, 1985; Smith &

Staff-child ratios have a significant effect on adult and child behavior in child care.

Connolly, 1981), children's engagement in play (Bruner, 1980; Field, 1980; Howes & Rubenstein, 1985), and nurturant, nonrestrictive caregiver behavior (Howes, 1983; Howes & Rubenstein, 1985; Smith & Connolly, 1981). These results are from research studying infant and toddler as well as preschool-age child care in centers and family day care homes.

Group size. As with ratio, interest in group size derives from both developmental considerations about the critical socializing function of child care providers and practical considerations about the demands on caregivers' time. The results of the National Day Care Study also spurred interest in group size as a critical structural feature of child care.

The research evidence is quite clear. Smaller groups appear to facilitate constructive caregiver behavior and positive developmental outcomes for children. Howes (1983) found that larger groups were associated with less social stimulation and responsiveness in both center and family day care settings and more negative affect and restriction on the part of family day care providers. Howes and Rubenstein (1985) further found that children in small groups were more talkative. Stith and Davis (1984) studied family day care homes and also found that larger groups were associated with less positive affect and less responsiveness to infant distress on the part of caregivers.

In studies of center-based care, similar results emerge. Bruner (1980) viewed more pretend play and more elaborate play by children in smaller centers (fewer than 26 children). Similarly, Cummings and Beagles-Ross (1983) found that children in small centers (8 to 12 children) showed more positive affect and less avoidance upon entering their child care centers than children in larger centers (20 to 25 children).

Clarke-Stewart and Gruber (1984) present a more complex picture of the effects of group size. Consistent with the negative associations observed in other studies, children in family day care homes, centers, and classes with large enrollments were less sociable and cooperative with strangers, especially unfamiliar peers, than children in child care settings with small enrollments. But children in large classes were also more knowledgeable about the stranger's social perspective and less likely to behave negatively with the unfamiliar peer. Large enrollments may have positive as well as negative consequences.

Caregiver training, education, and experience. The skills and experience that child care providers bring to their jobs, as in any profession, are presumed to affect the quality of their performance. Accordingly, experience, education, and training are often used as indicators of caregiver competence. A central controversy in this area is whether

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the sheer amount of education or the substance of the education is the more potent predictor of good quality care. The value of experience, as opposed to education and training, has also been a topic of debate.

With respect to the question of the amount versus the content of education and training, the picture is mixed. Unlike the conclusions of the National Day Care Study that clearly implicated caregivers' child-related education, and not total years of education, as a determinant of preschoolers' social and cognitive development in child care, subsequent research points to both dimensions as contributing to quality child care.

There is ample evidence that specialized training is associated with good quality care. Howes (1983) found that caregivers in centers and family day care homes with more child-related training engaged in more social stimulation and responsiveness than other caregivers. In centers, trained caregivers also showed less negative affect. A national study of family day care homes (Stallings & Porter, 1980) reported similar results for caregiver training. Training was associated with more teaching, helping, dramatic play, and activity that involved interaction with children. Trained family day care providers also showed more comforting behavior and spent less time away from the children than untrained providers. In this study, total years of education showed few relationships with caregiver behavior. Arnett (1987) found associations between specialized caregiver training and more positive interactions with children, lower levels of detachment, and less punitiveness.

Other evidence (Berk, 1985; Clarke-Stewart & Gruber, 1984) suggests that more education is better than less and that the amount and nature of a caregiver's preparation may augment each other such that more highly educated adults who have also received specialized training may be among the most proficient caregivers.

Berk (1985), for example, found that caregivers with at least 2 years of college were more likely than less educated caregivers to display encouragement, teacher direction, and promotion of verbal skills. They were also lower in restrictive behavior. She also found, however, that college-educated caregivers *with a child-related major* showed more indirect guidance, less restriction, and more encouragement of children's self-initiations and verbal expression.

Clarke-Stewart and Gruber (1984) similarly report that the caregiver's formal education and knowledge of child development are associated with higher social and cognitive competence in children attending family day care homes. No significant effects were found for specialized training in child development. Moreover, children in centers with more highly trained

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staff were found to be less independent and socially competent than children in centers with less highly trained staff.

The evidence on the contribution of experience is also mixed. Caregivers with more years of experience have been found to engage in less social interaction and cognitive stimulation with infants and toddlers (Ruopp et al., 1979). On the other hand, Howes (1983) found that experienced caregivers were more responsive to children's bids for attention. Stallings and Porter (1980) found no effects for caregiver experience.

Experience is a multifaceted construct. More sensitive measures that are capable of deciphering beneficial features of experience and exploring their relation to competent caregiving are needed, as is substantial refinement of measures of education and training. For example, whereas most studies find a relation between training of caregivers and child outcomes, the content and extent of the training that produces these outcomes are virtually unexplored. This research has also not distinguished the value of education, training, and experience for different levels of child care staff, such as the director of a center, the classroom teachers, and the teacher assistants.

Dynamic measures of classroom quality

While evidence about structural indicators of quality that can be addressed in child care regulations is directly pertinent to licensing authorities and program directors who establish child care policies, these indicators offer few insights into children's actual experiences in child care. Why do more-staff-per-child ratios and small groups promote positive social and cognitive development? What beneficial processes in child care are set in motion in well-structured programs?

The results of the National Day Care Study suggest that structural predictors of quality serve to facilitate constructive interactions between caregivers and children. Several of the studies summarized above imply this as well. What other evidence exists on this issue?

Rubenstein, Howes, and Boyle (1979) followed a sample of 10 children who attended infant care centers. At age 3½, those who had attended centers characterized by high frequencies of social play with caregivers responded more favorably to their mothers following a brief separation than those who were in centers with highly directive caregivers.

Similarly, Carew (1980) followed 23 children who attended child care centers that varied in quality and found that language mastery experiences provided by their caregivers predicted children's performance on IQ and receptive language tests. Golden and his colleagues (1978) also found

that 2-year-olds who experienced high levels of cognitive and social stimulation from their child care providers scored higher on measures of social competence and language comprehension when they were 3.

These results are corroborated by those reported by McCartney (1984) in her study of center-based child care in Bermuda. The degree of verbal stimulation provided to the children by their caregivers predicted children's test performance on three measures of language development. In contrast, conversations initiated with peers had a negative influence on language development, leading McCartney to hypothesize that peer talk replaces the more important caregiver talk when fewer adults are on the staff.

In sum, given associations between structural features of child care and caregiver behaviors, the results that link caregivers' social, cognitive, and language interactions with children to child outcomes suggest that the influence of regulatable variables such as ratios and group size is mediated by their effects on caregivers. Structural features of child care appear to affect the dynamic environment that captures children's actual experiences in child care, which in turn predicts children's development in child care.

Contextual features of child care

A relatively recent emphasis in the research on child care quality has expanded the empirical lens to include a variety of child care settings and aspects of quality such as staff stability that are not reflected when observations are restricted to single points in time.

The child care setting. Whereas center-based care was studied almost exclusively in the early research on child care, family day care homes are now beginning to be studied, as are in-home care arrangements. This expansion of the child care settings selected as sites for research is highly important. As of 1982, center-based child care constituted 15% of all arrangements used by employed mothers. Family day care, in contrast, constituted 40% of child care arrangements (split about evenly between that provided by a relative and by a nonrelative) and in-home care provided by a nonrelative added another 5.5% (U.S. Bureau of the Census, 1983). It is important to note, however, that center-based care is the most rapidly growing form of care for children of all ages (Hofferth & Phillips, 1987).

Comparing the results of research conducted in different types of care is treacherous given that the measures, the ages and characteristics of the children, and the goals of the research may differ along with the child care setting. Only a few studies have integrated different types of care into a

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single research effort (e.g., Benn, 1986; Clarke-Stewart & Gruber, 1984; Howes, 1983; Howes & Rubenstein, 1985). These studies offer the most valid sources of comparison across types of care.

Benn (1986) compared the quality of mother-son attachment for children in family day care homes and in-home arrangements. No differences were found for type of child care setting. Howes (1983) and Howes and Rubenstein (1985) compared children in center and family day care. Both similarities and differences were found. In both types of care smaller groups, higher staff-child ratios, and trained caregivers were associated with better caregiving and child development. Clarke-Stewart and her colleagues (Clarke-Stewart & Gruber, 1984) examined four types of care in Chicago: centers, nursery schools, family day care homes, and in-home care. The results from this study are described fully in Chapter 2, but briefly, Clarke-Stewart concludes that the various types of care present children with qualitatively distinct environments, ranging from home-like to institutional settings with varying degrees of exposure to other children and to educational programs. Very few results were uniform across the four different types of care examined in the Chicago Study.

Staff stability. Developing secure attachment relationships is among the most important developmental tasks for young children. Evidence is clear that children in child care do not replace their attachments to their parents with attachments to their child care providers (Ainslie & Anderson, 1984; Farran, Burchinal, Hutaff, & Ramey, 1984; Kagan, Kearsley, & Zelazo, 1978). At the same time, however, children do get attached to their caregivers (Ainslie & Anderson, 1984; Cummings, 1980; Ricciuti, 1974) and use them as a secure base during the day.

Attachment formation is based in part on the availability and predictability of the caregiver. The loss of an attachment figure can be very painful to a young child. When these observations are juxtaposed with the 40% annual turnover among center-based child care providers and 60% turnover among home-based providers (NAEYC, 1985), there is tremendous cause for concern.

Research on infant and toddler care suggests that very young children differentiate between stable and nonstable caregivers. Rubenstein and Howes (1979) found that twice as much interaction took place in center care between infants and head teachers as between infants and less stable volunteers. Cummings (1980) observed infants during their morning entry into center-based child care. Infants were less resistant to transference from the mother to a stable caregiver and exhibited more positive affect when the mother left, as compared to infants who were transferred to

nonstable caregivers.

Howes and Stewart (1987) found that infants and toddlers (age range 11 to 30 months) who had experienced more changes (number of changes ranged from none to five) in child care arrangements were less likely to engage in competent play with peers and objects when observed in their current family day care homes. Moreover, in a study of first-grade children's school adjustment, the stability of prior child care arrangements predicted academic progress (Howes, 1988).

Two studies, however, failed to find effects for caregiver stability. Benn (1986) examined caregiver stability in family day care homes and in-home arrangements. No association was found between the number of caregiver changes (ranging from one to eight for boys aged 17 to 21 months) and the quality of the mother-son attachment relationship. Everson, Sarnat, and Ambron (1984) also examined stability in center and family day care home arrangements and found no effects on a broad range of child competence measures.

In sum, when stability is examined within center-based care, there appears to be an association between the consistent presence of an adult caregiver and infants' development in child care. In two studies in which stability was defined as the total number of changes in child care, no association was found. Changes in arrangements and changes in caregivers are quite distinct measures of stability, the first being far more extensive in the degree of change involved. Clearly, this is a very new area of research with much need of further study and clarification.

Joint effects of child care and family environments

Home-rearing (no regular use of other supplemental child care arrangements) has often been used as an implicit standard against which the use of child care has been compared (McCartney & Phillips, 1988). Alternatively, child care has frequently been studied as a separate socialization environment apart from children's homes. In reality, childrearing has become a collaborative endeavor with children moving back and forth — many on a daily basis — between their homes and child care. The effects of these two environments may be additive; they may compensate for each other; or some aspects of one may override aspects of the other in positive or negative ways. A full understanding of child development thus requires that both environments be examined.

In addition, there is an important methodological reason to assess the joint effects of child care and family environments. Parents select their

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children's child care arrangements. It is likely that parents with different values, finances, and family structures choose child care that varies in form and quality.

Howes and Olenick (1986), for example, found that families enrolling their children in low quality child care had more complex and presumably more stressful lives than the families using higher quality care. Moreover, both parents and caregivers of the children in low quality centers were less involved and invested in assuring that their children complied with their requests. This evidence demonstrates that family and child care environments are not independent, making it difficult to attribute child outcomes exclusively to child care or exclusively to family factors. Efforts to tease apart these two realms of influence require, of course, that measures of each be included in research designs. In the absence of this approach the effects of child care on child development may be overestimated (Howes & Olenick, 1986).

Clarke-Stewart and Gruber (1984), for example, report that associations found between children's competence and features of their child care settings, such as group composition and caregiver characteristics, were substantially weakened when variance due to family socioeconomic status (SES) was removed. Kontos's work relating regulatable characteristics of child care centers to quality and children's development similarly revealed that family background variables (SES and family values) significantly predicted developmental outcomes, while structural characteristics of the centers made virtually no contribution to development outcomes (Kontos, 1987; Kontos & Fiene, this volume, pp. 57–80). Goelman and Pence (1987) have also reported that family variables superseded center quality variables in predicting child language outcomes in a large study of child care in Canada, whereas quality variation in family day care homes was a significant predictor of children's language development. Alternatively, substantial effects of the quality of children's child care centers remained in the Bermuda Study (McCartney, 1984; Phillips, McCartney, & Scarr, 1987) after the influence of the parents' childrearing values was statistically removed.

One possible explanation for this disparate pattern of results concerns the relative range of variation in the family variables versus program quality variables. When the range of families included in the research is more extreme than the range of quality represented by the child care programs, family factors emerge as the more salient influence, whereas the opposite pattern of results appears to emerge when an ample range of child care quality arrangements is included (see subsequent chapters and

especially Chapter 7 by Clarke-Stewart for further discussion). This finding has led several investigators to recognize the importance of examining the interrelations between family and quality measures rather than treating them as independent influences on child development.

The Chicago Study provides an example of examining interactive effects. Clarke-Stewart (1984) presents evidence that a combined measure of toys in the home and in child care was more predictive of child development than measures that reflected only the home or child care environments. Howes and Olenick (1986) also found that analyses that incorporated both child care and family influences were more predictive of several child outcomes (e.g., compliance in girls, task resistance in boys) than analyses that took into account only one set of factors.

In a longitudinal study of children in home care, family day care, and center care in Sweden, Cochran (1977), Gunnarsson (1978), and Cochran and Robinson (1983) examined the interaction of structure and process variables in both in-home and out-of-home child care settings. Children's scores on the *Griffiths Scale of Mental Development* were strongly influenced by the interaction of child care structure variables (type of care), child care process and family process variables (social interactions with caregivers and peers), family structure variables (maternal marital status), and child sex. A factor that somewhat restricts the generalizability of these findings is that the subject pool was characterized by unequal proportions of children from one-parent families in the family day care (8%) and center care groups (33%). Nonetheless, this study represents one of the few attempts to examine systematically the interaction of child care and family variables. The investigators concluded that while previous studies

> have tended to view day care as an independent, causal agent operating on the lives of young children . . . the day care experience is better conceptualized as an *intervening* variable [their emphasis] which mediates certain family types on the one hand (two working parents, single parent) and long-term developmental outcomes on the other. (Cochran & Robinson, 1983, p. 61)

Recently assessments of family influences that relied on broad socioeconomic classifications, childrearing values, and measures of the home environment have been supplemented by more subtle, but perhaps more directly pertinent measures of maternal attitudes toward the use of child care (Everson, Sarnat, & Ambron, 1984; Hock, 1984; Hock, DeMeis, & McBride, 1987). Hock has presented convincing evidence that mothers' attitudes about separation from their children are associated with different patterns of child care use. Employed mothers who have children

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enrolled in child care centers are significantly less concerned about the consequences of maternal separation than are employed mothers who use other forms of care. Hock concludes that it is important to understand parental feelings and attitudes when assessing the effects of different types of care on children (Hock, DeMeis, & McBride, 1988).

This approach was taken by Everson and his colleagues (Everson, 1981; Everson, Sarnat, & Ambron, 1984). They examined the mediating influence of mothers' positive or negative disposition to use child care on children's adjustment to child care in both center and family day care arrangements. After the children — all toddlers — had been enrolled in child care for 5 months, the results suggested that the congruence between maternal attitudes and use of child care was a highly significant predictor of children's adjustment. Mothers who relied on child care but were uncomfortable with it and mothers who felt comfortable with the use of child care but were not using it (called *inconsistent mothers*) had children who were more easily upset by a frustrating task, showed greater distress at maternal separation, and were less compliant with their mothers' requests while playing. The inconsistent mothers were also quicker to become angry and impatient with their children.

After 10 months in child care, a different picture emerged. Attitude-behavior consistency was no longer the issue. Attitudes alone predicted child outcomes. Specifically, mothers who were positively disposed toward the use of child care, compared to those who were negatively disposed, had children who were less cooperative with adults, were less compliant with their mothers, and displayed inferior approaches to a problem-solving task, regardless of whether they were in child care or not. Everson concludes, "The specific effects of day care may depend in large measure on maternal attitudes toward day care and other family characteristics" (Everson, Sarnat, & Ambron, 1984, pp. 90–91).

In sum, the combined effects of child care quality and type, the children's child care experience, and their family context need to be considered in future studies of child care. It is entirely possible that family factors (such as parental attitudes about the use of child care) mediate child care choices that, in turn, have differing effects on children. At the very least, inclusion of family-related measures in the study of child care drives home the complexity of identifying where, when, and how quality of care makes a difference in the lives of children.

Conclusions

Research on child care quality has accumulated a vast collection of results during the last 10 years. More than any other aspect of child development research, this literature has driven home the true complexity of child care and the real challenges faced by those who seek to assess its effects on children.

The first challenge for researchers involves selecting a measure of quality — global or discrete, regulatable or more dynamic, a static snapshot measure or one that captures children's and caregivers' movement in and out of child care. The second challenge involves measuring other factors, particularly aspects of the family environment, that affect child development and may interact with, compensate for, or operate completely independently of the influence of child care quality.

In the chapters that follow, five groups of researchers present their efforts to confront these challenges and the results their work has yielded. They have examined different types of child care, in different locations in and out of the United States, and with different populations of children and families. The measures of quality used in these collective studies encompass the full range of options described in this review. Each study placed the developmental consequences of variation in the quality of child care environments in the context of children's home environments. Alison Clarke-Stewart then addresses the central question of how the results of these recent studies confirm, contradict, and extend those of the research reviewed here.

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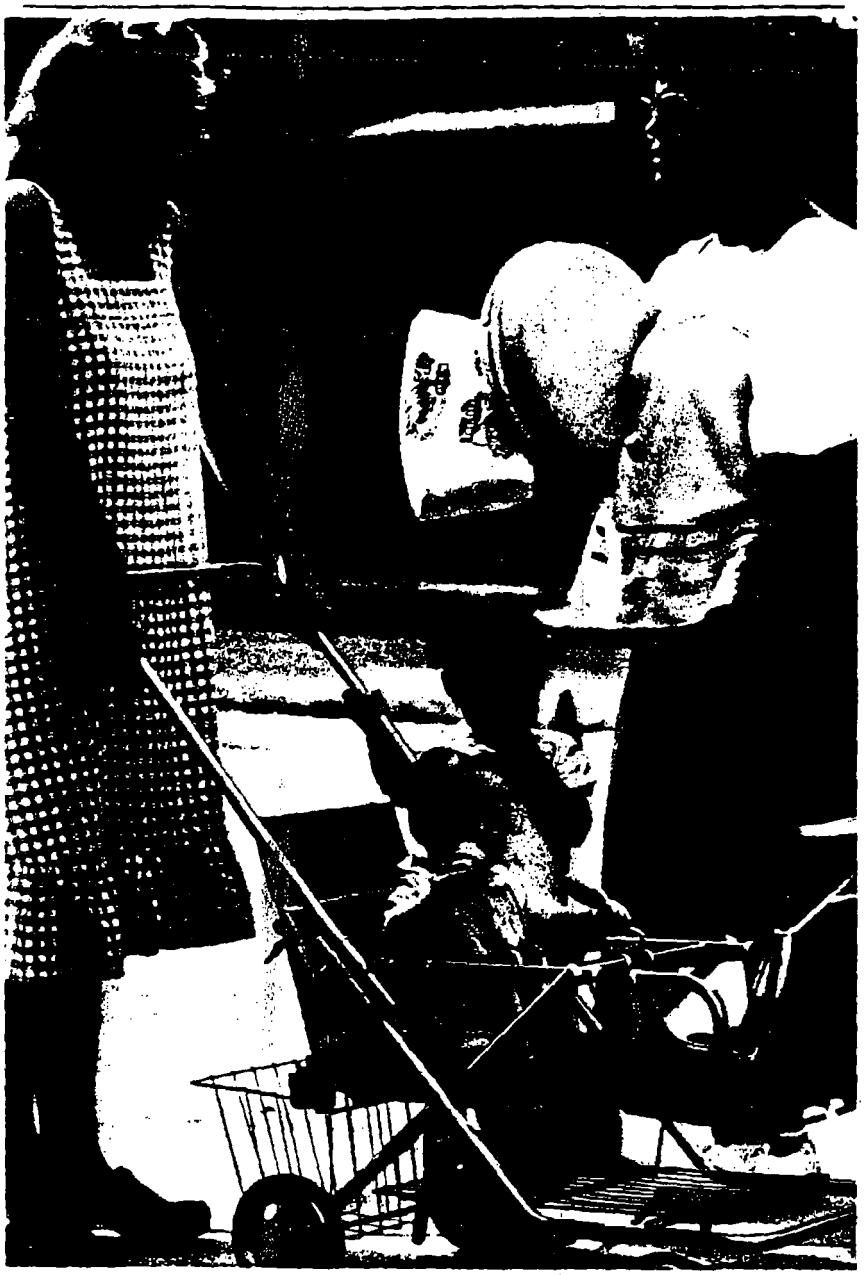
Childrearing has become a collaborative endeavor with children moving back and forth between their homes and child care.



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Children whose development was advanced not only had the advantage of being in high quality child care programs but also came from families who gave them support, stimulation, and education.

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Quality in Child Care: What Does Research Tell Us?

Deborah A. Phillips, Editor

National Association for the Education of Young Children
Washington, D.C.

Chapter 1

Indicators of Quality in Child Care: Review of Research

Deborah A. Phillips and Carollee Howes

As of 1986, the majority of children younger than age 6, including more than half of those younger than 1 year of age, were in need of child care while their mothers worked. This demographic fact had a profound effect on the major issues addressed in child care research. The question of whether or not children should be in child care has become obsolete. We have also been able to move beyond this question because 20 years of research on child care allayed our worst fears that nonmaternal care was inevitably harmful to children. To the contrary, the overwhelming message was that children in good quality child care show no signs of harm, and children from low-income families may actually show improved cognitive development (Clarke-Stewart & Fein, 1983; Rutter, 1981; Zigler & Gordon, 1982).

The key to this basic conclusion lies in the term *good quality*. Most of the supporting research involved high quality, often university-based child care centers, which are not representative of the child care options available to most parents. Just as homes vary in the experiences they afford children, so do child care arrangements. Accordingly, researchers moved on to capture this diversity.

The National Day Care Study

The National Day Care Study launched this next phase of empirical research (Ruopp, Travers, Glantz, & Coelen, 1979). The federal government initiated the study to guide the construction of national child care standards. The task was to identify key provisions that best predict good outcomes for children and to develop cost estimates for offering these provisions.

The major results both contradicted and confirmed the intuitive wisdom of the field. Staff-child ratios, long heralded as a significant quality indicator, contributed only minimally to developmental effects for preschoolers in center-based care. Group size and specialized caregiver training emerged as the most potent predictors of positive classroom dynamics and child outcomes. In classrooms with smaller groups, lead teachers engaged in more social interaction with children; children were more cooperative, innovative and involved in tasks, and talkative; and children made greater gains on cognitive tests. Lead teachers with child-related education spent more time in social interaction with the children; the children in their classes showed more cooperation and greater task persistence; and, in centers with higher proportions of trained caregivers, preschoolers made greater cognitive test score gains.

Additionally, preschoolers made more rapid gains on cognitive tests in centers whose staff and directors voiced concern about cognitive development and emphasized individual development rather than group experiences. The investigators interpreted this finding as buttressing the hypothesis that cognitive outcomes in child care are particularly responsive to children's interactions with their caregivers, rather than with materials and other children.

The results of the National Day Care Study were a little different for center-based infant and toddler care. Both staff-child ratios and group size emerged as significant influences on caregiver behavior and child development. Infants in programs with fewer caregivers per child and larger groups showed more overt distress and apathy than infants in programs with high ratios and small groups. Low ratios were also associated, as were large groups, with increased staff time spent in management or control situations and less social interaction and cognitive/language stimulation with children.

So few of the infant caregivers had received specialized training that the effects of this factor could not be determined. However, overall years of education were positively related to the amount of social interaction and cognitive/language stimulation in toddler groups and to lower ratings of child apathy and potential danger in infant groups.

In sum, the National Day Care Study identified group size and specialized caregiver training as significant elements of child care quality in center-based programs for preschoolers and added staff-child ratios to these elements for infant and toddler care. This study also proposed that the association between these regulatable variables and children's development in child care is largely a function of their facilitating effect on

caregivers' efforts to interact in positive, stimulating ways with the children in their care.

Contemporary research on child care quality

Has subsequent research confirmed these broad conclusions of the National Day Care Study, called them into question, or extended them to other settings, other elements of quality, or other outcomes? The answer to each of these questions is "yes." Since 1979, research that has attempted to reproduce the results of the National Day Care Study has confirmed some of the results, contradicted others, and forged new areas of inquiry.

During the last 10 years, researchers have increasingly acknowledged the complexity of defining quality in child care. In response, they have adopted multiple methods to assess quality, examined a wider range of child care arrangements, and placed these questions about quality in a broader context that considers the interdependence of child care and family environments.

Quality, by its nature, is a fuzzy concept. Nowhere is this felt more acutely than by parents who ask, "How can I know what's right for my child?" In research, quality has been viewed in several ways. First, global assessments of quality have been used to capture the overall climate of a program. Second, efforts to extract the specific dimensions of child care quality have emphasized (a) structural aspects of child care, such as group composition and staff qualifications, (b) dynamic aspects of child care that capture children's daily experiences, and (c) contextual aspects of child care, such as type of setting and staff stability. A third, and relatively new, perspective encompasses the joint effects of child care quality and children's family environments.

Global assessments of child care quality

Most observers of child care will readily acknowledge that good things go together. Vandell and Powers (1983), for example, found that high quality, university-run centers had high levels of teacher training, large amounts of space per child, and good staff-child ratios. This inevitable confounding of individual quality measures led some researchers to treat quality as a global construct.

Three approaches have been used. The first combined discrete indicators of quality into a composite measure by which programs are evaluated as either high or low in quality. Howes and Olenick (1986), for example,

divided child care centers into high and low quality groups using as criteria for high quality (a) adult-child ratios no lower than 1:4 for children 2 years old or younger and 1:7 for children aged 30 months or older, (b) the presence of caregivers with formal training in child development, and (c) staff turnover that did not exceed two teachers per year. They found that toddlers in high quality centers were significantly more compliant in child care and were better able to resist the temptation to play with forbidden toys and to eat forbidden food in a laboratory session.

Using a similar method that relied on ratios, staff training, and space as quality criteria, Vandell and Powers (1983) found that children in high quality centers were more likely to engage in positive social interactions and behaviors than children enrolled in moderate and low quality centers, who displayed more solitary and unoccupied behavior.

A second approach to obtaining a global assessment of quality relies on a rating scale that taps multiple areas of program quality. Using observations of centers, the Early Childhood Environment Rating Scale, commonly called ECERS, (Harms & Clifford, 1980) leads to scores on seven dimensions of quality: (1) personal care, (2) creative activities, (3) language/reasoning activities, (4) furnishings/display, (5) fine/gross motor activities, (6) social development, and (7) adult facilities/opportunities. Summing scores across these seven dimensions generates an overall quality assessment.

This is the approach taken by the Bermuda Study (see Chapter 3). After the researchers eliminated the adult facilities subscale, the other six dimensions were found to be highly interrelated and were thus used to create a summary score. This score predicted children's intellectual, language, and social development, such that children in higher quality centers showed more advanced communication skills and verbal intelligence (McCartney, 1984) and more positive social behavior and task orientations (Phillips, McCartney, & Scarr, 1987).

Finally, important policy questions have been raised about whether good quality child care can achieve the effects that have been demonstrated for early childhood intervention programs. Efforts to answer these questions also require that programs be evaluated using global assessments of quality. The Bermuda data, for example, were reanalyzed to address the question of whether child care can serve as an effective intervention for low-income children (McCartney, Scarr, Phillips, & Grajek, 1985). One of the child care centers examined in Bermuda was substantially higher in quality than the other centers. It was run by the government and served primarily low-income families. In comparisons with both a subgroup of

Good quality child care can serve as an effective intervention for children from low-income families.

low-income children and the entire sample of children attending the nongovernment, lower quality centers, the low-income children attending the government-run center were found to have significantly better language skills and to be more considerate and sociable. Apparently good quality child care can serve as an effective intervention for children from low-income families (see also Ramey & Haskins, 1981).

In sum, global assessments of quality have confirmed common sense knowledge that better child care is better for children. This conclusion is not insignificant, however, in light of the telling qualification it places on questions of *whether* child care is detrimental, neutral, or beneficial for children's development. Without attention to the quality of the child care in which children spend their days, answers to the either/or question of sheer enrollment in child care are not only obsolete, but also uninformative.

Structural dimensions of quality

While it is true that good things co-occur in child care, global assessments of quality are of little use to practitioners and policymakers who seek to influence specific program features that predict positive outcomes for children. Moreover, some of the good things may have a more powerful impact on children's development than others.

These issues were addressed in research that examined specific structural dimensions of child care quality. The greatest attention has been paid to the dimensions identified by the National Day Care Study — adult-child ratio, group size, and caregiver training and experience. This review thus focuses on these dimensions.

Adult-child ratio. Ratio is considered an important quality indicator on the basis of assumptions that adult caregivers mediate children's contact with the social and physical world. Through social games, verbal interaction, and physical contact, caregivers offer children opportunities to practice and enjoy social exchanges, learn about the properties of objects, and acquire a sense of security and self-worth.

The number of children with whom each caregiver can engage in a stimulating and sensitive fashion is obviously limited. With too many children to care for, the caregiver's interactions with each child are likely to become brief and cursory. What does research tell us?

The majority of studies have found that the ratio has a significant effect on adult and child behavior in child care. Among the outcomes affected are the amount of adult-child imitation (Francis & Self, 1982), children's verbal interaction (Field, 1980; Howes & Rubenstein, 1985; Smith &

Staff-child ratios have a significant effect on adult and child behavior in child care.

Connolly, 1981), children's engagement in play (Bruner, 1980; Field, 1980; Howes & Rubenstein, 1985), and nurturant, nonrestrictive caregiver behavior (Howes, 1983; Howes & Rubenstein, 1985; Smith & Connolly, 1981). These results are from research studying infant and toddler as well as preschool-age child care in centers and family day care homes.

Group size. As with ratio, interest in group size derives from both developmental considerations about the critical socializing function of child care providers and practical considerations about the demands on caregivers' time. The results of the National Day Care Study also spurred interest in group size as a critical structural feature of child care.

The research evidence is quite clear. Smaller groups appear to facilitate constructive caregiver behavior and positive developmental outcomes for children. Howes (1983) found that larger groups were associated with less social stimulation and responsiveness in both center and family day care settings and more negative affect and restriction on the part of family day care providers. Howes and Rubenstein (1985) further found that children in small groups were more talkative. Stith and Davis (1984) studied family day care homes and also found that larger groups were associated with less positive affect and less responsiveness to infant distress on the part of caregivers.

In studies of center-based care, similar results emerge. Bruner (1980) viewed more pretend play and more elaborate play by children in smaller centers (fewer than 26 children). Similarly, Cummings and Beagles-Ross (1983) found that children in small centers (8 to 12 children) showed more positive affect and less avoidance upon entering their child care centers than children in larger centers (20 to 25 children).

Clarke-Stewart and Gruber (1984) present a more complex picture of the effects of group size. Consistent with the negative associations observed in other studies, children in family day care homes, centers, and classes with large enrollments were less sociable and cooperative with strangers, especially unfamiliar peers, than children in child care settings with small enrollments. But children in large classes were also more knowledgeable about the stranger's social perspective and less likely to behave negatively with the unfamiliar peer. Large enrollments may have positive as well as negative consequences.

Caregiver training, education, and experience. The skills and experience that child care providers bring to their jobs, as in any profession, are presumed to affect the quality of their performance. Accordingly, experience, education, and training are often used as indicators of caregiver competence. A central controversy in this area is whether

Smaller groups appear to facilitate constructive caregiver behavior and positive developmental outcomes for children.

the sheer amount of education or the substance of the education is the more potent predictor of good quality care. The value of experience, as opposed to education and training, has also been a topic of debate.

With respect to the question of the amount versus the content of education and training, the picture is mixed. Unlike the conclusions of the National Day Care Study that clearly implicated caregivers' child-related education, and not total years of education, as a determinant of preschoolers' social and cognitive development in child care, subsequent research points to both dimensions as contributing to quality child care.

There is ample evidence that specialized training is associated with good quality care. Howes (1983) found that caregivers in centers and family day care homes with more child-related training engaged in more social stimulation and responsiveness than other caregivers. In centers, trained caregivers also showed less negative affect. A national study of family day care homes (Stallings & Porter, 1980) reported similar results for caregiver training. Training was associated with more teaching, helping, dramatic play, and activity that involved interaction with children. Trained family day care providers also showed more comforting behavior and spent less time away from the children than untrained providers. In this study, total years of education showed few relationships with caregiver behavior. Arnett (1987) found associations between specialized caregiver training and more positive interactions with children, lower levels of detachment, and less punitiveness.

Other evidence (Berk, 1985; Clarke-Stewart & Gruber, 1984) suggests that more education is better than less and that the amount and nature of a caregiver's preparation may augment each other such that more highly educated adults who have also received specialized training may be among the most proficient caregivers.

Berk (1985), for example, found that caregivers with at least 2 years of college were more likely than less educated caregivers to display encouragement, teacher direction, and promotion of verbal skills. They were also lower in restrictive behavior. She also found, however, that college-educated caregivers *with a child-related major* showed more indirect guidance, less restriction, and more encouragement of children's self-initiations and verbal expression.

Clarke-Stewart and Gruber (1984) similarly report that the caregiver's formal education and knowledge of child development are associated with higher social and cognitive competence in children attending family day care homes. No significant effects were found for specialized training in child development. Moreover, children in centers with more highly trained

There is ample evidence that specialized training is associated with good quality care.

staff were found to be less independent and socially competent than children in centers with less highly trained staff.

The evidence on the contribution of experience is also mixed. Caregivers with more years of experience have been found to engage in less social interaction and cognitive stimulation with infants and toddlers (Ruopp et al., 1979). On the other hand, Howes (1983) found that experienced caregivers were more responsive to children's bids for attention. Stallings and Porter (1980) found no effects for caregiver experience.

Experience is a multifaceted construct. More sensitive measures that are capable of deciphering beneficial features of experience and exploring their relation to competent caregiving are needed, as is substantial refinement of measures of education and training. For example, whereas most studies find a relation between training of caregivers and child outcomes, the content and extent of the training that produces these outcomes are virtually unexplored. This research has also not distinguished the value of education, training, and experience for different levels of child care staff, such as the director of a center, the classroom teachers, and the teacher assistants.

Dynamic measures of classroom quality

While evidence about structural indicators of quality that can be addressed in child care regulations is directly pertinent to licensing authorities and program directors who establish child care policies, these indicators offer few insights into children's actual experiences in child care. Why do more-staff-per-child ratios and small groups promote positive social and cognitive development? What beneficial processes in child care are set in motion in well-structured programs?

The results of the National Day Care Study suggest that structural predictors of quality serve to facilitate constructive interactions between caregivers and children. Several of the studies summarized above imply this as well. What other evidence exists on this issue?

Rubenstein, Howes, and Boyle (1979) followed a sample of 10 children who attended infant care centers. At age 3½, those who had attended centers characterized by high frequencies of social play with caregivers responded more favorably to their mothers following a brief separation than those who were in centers with highly directive caregivers.

Similarly, Carew (1980) followed 23 children who attended child care centers that varied in quality and found that language mastery experiences provided by their caregivers predicted children's performance on IQ and receptive language tests. Golden and his colleagues (1978) also found

that 2-year-olds who experienced high levels of cognitive and social stimulation from their child care providers scored higher on measures of social competence and language comprehension when they were 3.

These results are corroborated by those reported by McCartney (1984) in her study of center-based child care in Bermuda. The degree of verbal stimulation provided to the children by their caregivers predicted children's test performance on three measures of language development. In contrast, conversations initiated with peers had a negative influence on language development, leading McCartney to hypothesize that peer talk replaces the more important caregiver talk when fewer adults are on the staff.

In sum, given associations between structural features of child care and caregiver behaviors, the results that link caregivers' social, cognitive, and language interactions with children to child outcomes suggest that the influence of regulatable variables such as ratios and group size is mediated by their effects on caregivers. Structural features of child care appear to affect the dynamic environment that captures children's actual experiences in child care, which in turn predicts children's development in child care.

Contextual features of child care

A relatively recent emphasis in the research on child care quality has expanded the empirical lens to include a variety of child care settings and aspects of quality such as staff stability that are not reflected when observations are restricted to single points in time.

The child care setting. Whereas center-based care was studied almost exclusively in the early research on child care, family day care homes are now beginning to be studied, as are in-home care arrangements. This expansion of the child care settings selected as sites for research is highly important. As of 1982, center-based child care constituted 15% of all arrangements used by employed mothers. Family day care, in contrast, constituted 40% of child care arrangements (split about evenly between that provided by a relative and by a nonrelative) and in-home care provided by a nonrelative added another 5.5% (U.S. Bureau of the Census, 1983). It is important to note, however, that center-based care is the most rapidly growing form of care for children of all ages (Hofferth & Phillips, 1987).

Comparing the results of research conducted in different types of care is treacherous given that the measures, the ages and characteristics of the children, and the goals of the research may differ along with the child care setting. Only a few studies have integrated different types of care into a

The loss of an attachment figure can be very painful to a young child.

single research effort (e.g., Benn, 1986; Clarke-Stewart & Gruber, 1984; Howes, 1983; Howes & Rubenstein, 1985). These studies offer the most valid sources of comparison across types of care.

Benn (1986) compared the quality of mother-son attachment for children in family day care homes and in-home arrangements. No differences were found for type of child care setting. Howes (1983) and Howes and Rubenstein (1985) compared children in center and family day care. Both similarities and differences were found. In both types of care smaller groups, higher staff-child ratios, and trained caregivers were associated with better caregiving and child development. Clarke-Stewart and her colleagues (Clarke-Stewart & Gruber, 1984) examined four types of care in Chicago: centers, nursery schools, family day care homes, and in-home care. The results from this study are described fully in Chapter 2, but briefly, Clarke-Stewart concludes that the various types of care present children with qualitatively distinct environments, ranging from home-like to institutional settings with varying degrees of exposure to other children and to educational programs. Very few results were uniform across the four different types of care examined in the Chicago Study.

Staff stability. Developing secure attachment relationships is among the most important developmental tasks for young children. Evidence is clear that children in child care do not replace their attachments to their parents with attachments to their child care providers (Ainslie & Anderson, 1984; Farran, Burchinal, Hutaff, & Ramey, 1984; Kagan, Kearsley, & Zelazo, 1978). At the same time, however, children do get attached to their caregivers (Ainslie & Anderson, 1984; Cummings, 1980; Ricciuti, 1974) and use them as a secure base during the day.

Attachment formation is based in part on the availability and predictability of the caregiver. The loss of an attachment figure can be very painful to a young child. When these observations are juxtaposed with the 40% annual turnover among center-based child care providers and 60% turnover among home-based providers (NAEYC, 1985), there is tremendous cause for concern.

Research on infant and toddler care suggests that very young children differentiate between stable and nonstable caregivers. Rubenstein and Howes (1979) found that twice as much interaction took place in center care between infants and head teachers as between infants and less stable volunteers. Cummings (1980) observed infants during their morning entry into center-based child care. Infants were less resistant to transference from the mother to a stable caregiver and exhibited more positive affect when the mother left, as compared to infants who were transferred to

nonstable caregivers.

Howes and Stewart (1987) found that infants and toddlers (age range 11 to 30 months) who had experienced more changes (number of changes ranged from none to five) in child care arrangements were less likely to engage in competent play with peers and objects when observed in their current family day care homes. Moreover, in a study of first-grade children's school adjustment, the stability of prior child care arrangements predicted academic progress (Howes, 1988).

Two studies, however, failed to find effects for caregiver stability. Benn (1986) examined caregiver stability in family day care homes and in-home arrangements. No association was found between the number of caregiver changes (ranging from one to eight for boys aged 17 to 21 months) and the quality of the mother-son attachment relationship. Everson, Sarnat, and Ambron (1984) also examined stability in center and family day care home arrangements and found no effects on a broad range of child competence measures.

In sum, when stability is examined within center-based care, there appears to be an association between the consistent presence of an adult caregiver and infants' development in child care. In two studies in which stability was defined as the total number of changes in child care, no association was found. Changes in arrangements and changes in caregivers are quite distinct measures of stability, the first being far more extensive in the degree of change involved. Clearly, this is a very new area of research with much need of further study and clarification.

Joint effects of child care and family environments

Home-rearing (no regular use of other supplemental child care arrangements) has often been used as an implicit standard against which the use of child care has been compared (McCartney & Phillips, 1988). Alternatively, child care has frequently been studied as a separate socialization environment apart from children's homes. In reality, childrearing has become a collaborative endeavor with children moving back and forth — many on a daily basis — between their homes and child care. The effects of these two environments may be additive; they may compensate for each other; or some aspects of one may override aspects of the other in positive or negative ways. A full understanding of child development thus requires that both environments be examined.

In addition, there is an important methodological reason to assess the joint effects of child care and family environments. Parents select their

It is likely that parents with different values, finances, and family structures choose child care that varies in form and quality.

children's child care arrangements. It is likely that parents with different values, finances, and family structures choose child care that varies in form and quality.

Howes and Olenick (1986), for example, found that families enrolling their children in low quality child care had more complex and presumably more stressful lives than the families using higher quality care. Moreover, both parents and caregivers of the children in low quality centers were less involved and invested in assuring that their children complied with their requests. This evidence demonstrates that family and child care environments are not independent, making it difficult to attribute child outcomes exclusively to child care or exclusively to family factors. Efforts to tease apart these two realms of influence require, of course, that measures of each be included in research designs. In the absence of this approach the effects of child care on child development may be overestimated (Howes & Olenick, 1986).

Clarke-Stewart and Gruber (1984), for example, report that associations found between children's competence and features of their child care settings, such as group composition and caregiver characteristics, were substantially weakened when variance due to family socioeconomic status (SES) was removed. Kontos's work relating regulatable characteristics of child care centers to quality and children's development similarly revealed that family background variables (SES and family values) significantly predicted developmental outcomes, while structural characteristics of the centers made virtually no contribution to development outcomes (Kontos, 1987; Kontos & Fiene, this volume, pp. 57–80). Goelman and Pence (1987) have also reported that family variables superseded center quality variables in predicting child language outcomes in a large study of child care in Canada, whereas quality variation in family day care homes was a significant predictor of children's language development. Alternatively, substantial effects of the quality of children's child care centers remained in the Bermuda Study (McCartney, 1984; Phillips, McCartney, & Scarr, 1987) after the influence of the parents' childrearing values was statistically removed.

One possible explanation for this disparate pattern of results concerns the relative range of variation in the family variables versus program quality variables. When the range of families included in the research is more extreme than the range of quality represented by the child care programs, family factors emerge as the more salient influence, whereas the opposite pattern of results appears to emerge when an ample range of child care quality arrangements is included (see subsequent chapters and

especially Chapter 7 by Clarke-Stewart for further discussion). This finding has led several investigators to recognize the importance of examining the interrelations between family and quality measures rather than treating them as independent influences on child development.

The Chicago Study provides an example of examining interactive effects. Clarke-Stewart (1984) presents evidence that a combined measure of toys in the home and in child care was more predictive of child development than measures that reflected only the home or child care environments. Howes and Olenick (1986) also found that analyses that incorporated both child care and family influences were more predictive of several child outcomes (e.g., compliance in girls, task resistance in boys) than analyses that took into account only one set of factors.

In a longitudinal study of children in home care, family day care, and center care in Sweden, Cochran (1977), Gunnarsson (1978), and Cochran and Robinson (1983) examined the interaction of structure and process variables in both in-home and out-of-home child care settings. Children's scores on the *Griffiths Scale of Mental Development* were strongly influenced by the interaction of child care structure variables (type of care), child care process and family process variables (social interactions with caregivers and peers), family structure variables (maternal marital status), and child sex. A factor that somewhat restricts the generalizability of these findings is that the subject pool was characterized by unequal proportions of children from one-parent families in the family day care (8%) and center care groups (33%). Nonetheless, this study represents one of the few attempts to examine systematically the interaction of child care and family variables. The investigators concluded that while previous studies

> have tended to view day care as an independent, causal agent operating on the lives of young children . . . the day care experience is better conceptualized as an *intervening* variable [their emphasis] which mediates certain family types on the one hand (two working parents, single parent) and long-term developmental outcomes on the other. (Cochran & Robinson, 1983, p. 61)

Recently, assessments of family influences that relied on broad socioeconomic classifications, childrearing values, and measures of the home environment have been supplemented by more subtle, but perhaps more directly pertinent measures of maternal attitudes toward the use of child care (Everson, Sarnat, & Ambron, 1984; Hock, 1984; Hock, DeMeis, & McBride, 1987). Hock has presented convincing evidence that mothers' attitudes about separation from their children are associated with different patterns of child care use. Employed mothers who have children

It is important to understand parental feelings and attitudes when assessing the effects of different types of care on children.

enrolled in child care centers are significantly less concerned about the consequences of maternal separation than are employed mothers who use other forms of care. Hock concludes that it is important to understand parental feelings and attitudes when assessing the effects of different types of care on children (Hock, DeMeis, & McBride, 1988).

This approach was taken by Everson and his colleagues (Everson, 1981; Everson, Sarnat, & Ambron, 1984). They examined the mediating influence of mothers' positive or negative disposition to use child care on children's adjustment to child care in both center and family day care arrangements. After the children — all toddlers — had been enrolled in child care for 5 months, the results suggested that the congruence between maternal attitudes and use of child care was a highly significant predictor of children's adjustment. Mothers who relied on child care but were uncomfortable with it and mothers who felt comfortable with the use of child care but were not using it (called *inconsistent mothers*) had children who were more easily upset by a frustrating task, showed greater distress at maternal separation, and were less compliant with their mothers' requests while playing. The inconsistent mothers were also quicker to become angry and impatient with their children.

After 10 months in child care, a different picture emerged. Attitude-behavior consistency was no longer the issue. Attitudes alone predicted child outcomes. Specifically, mothers who were positively disposed toward the use of child care, compared to those who were negatively disposed, had children who were less cooperative with adults, were less compliant with their mothers, and displayed inferior approaches to a problem-solving task, regardless of whether they were in child care or not. Everson concludes, "The specific effects of day care may depend in large measure on maternal attitudes toward day care and other family characteristics" (Everson, Sarnat, & Ambron, 1984, pp. 90–91).

In sum, the combined effects of child care quality and type, the children's child care experience, and their family context need to be considered in future studies of child care. It is entirely possible that family factors (such as parental attitudes about the use of child care) mediate child care choices that, in turn, have differing effects on children. At the very least, inclusion of family-related measures in the study of child care drives home the complexity of identifying where, when, and how quality of care makes a difference in the lives of children.

Conclusions

Research on child care quality has accumulated a vast collection of results during the last 10 years. More than any other aspect of child development research, this literature has driven home the true complexity of child care and the real challenges faced by those who seek to assess its effects on children.

The first challenge for researchers involves selecting a measure of quality — global or discrete, regulatable or more dynamic, a static snapshot measure or one that captures children's and caregivers' movement in and out of child care. The second challenge involves measuring other factors, particularly aspects of the family environment, that affect child development and may interact with, compensate for, or operate completely independently of the influence of child care quality.

In the chapters that follow, five groups of researchers present their efforts to confront these challenges and the results their work has yielded. They have examined different types of child care, in different locations in and out of the United States, and with different populations of children and families. The measures of quality used in these collective studies encompass the full range of options described in this review. Each study placed the developmental consequences of variation in the quality of child care environments in the context of children's home environments. Alison Clarke-Stewart then addresses the central question of how the results of these recent studies confirm, contradict, and extend those of the research reviewed here.

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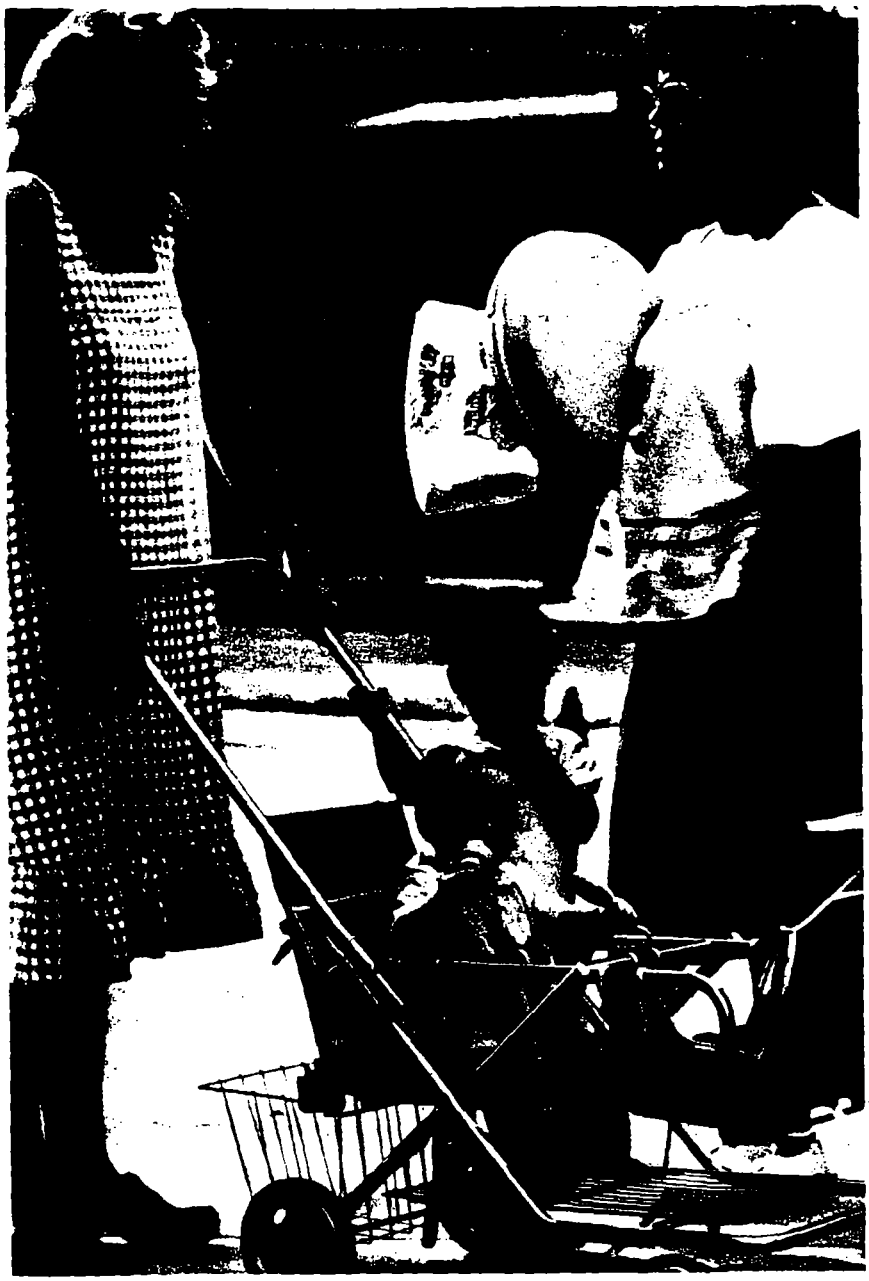
Childrearing has become a collaborative endeavor with children moving back and forth between their homes and child care.



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Children whose development was advanced not only had the advantage of being in high quality child care programs but also came from families who gave them support, stimulation, and education.

As a follow-up to the discussion at the meeting on child care quality on November 25, here is information on the research on child care quality and children's development:

- The review by Deborah Phillips and Carollee Howes covers the literature through the 1980's.

- John Love's 1996 review includes more recent studies. It is a very comprehensive review of the developmental literature. However, despite the title, "Are They in Any Real Danger", the implications of basic risks to children's health and safety are not focused on in these developmental studies. Developmental studies have tended to look beyond these basics to focus on how quality can promote children's learning and development.

- The omission of health and safety issues also came up in the development of the CEA report on the economics of child care. There is some research on this topic, but it is not as accessible. ASPE provided the CEA with some information, and a copy of these comments also is enclosed. The comments are best read in conjunction with the revised report which has added the health and safety topic.

ASPE Comments on "The Economics of Child Care: A Draft Report"

We appreciate the opportunity to review this draft report. In a very short time, the CEA has worked hard to synthesize a sizeable and complex literature from multiple disciplines. Though much has been accomplished, we see a number of serious gaps and issues that are important to address before the paper is finalized. Our most serious concern with this report is that it does not address the cost to society of *not* ensuring the health, safety, and development of children in child care. Interestingly, Ron Haskins addressed this issue directly in a 1989 article which is included in the enclosures.

We also recommend that the CEA obtain additional outside review by leading child care researchers. From our efforts to help with the development of the paper, we know that the analysis has relied heavily on reference materials that could be gathered very quickly. We are concerned that important studies and domains of research (health and safety issues for children) may be omitted or not covered adequately. Also, the representation of forth coming work be very selective. We also think that vetting the paper is an important part of the process of developing a report of this kind.

- We believe that there is a stronger case to be made for the importance of investing in our nation's children (see R. Haveman and B. Wolf, 1994, Succeeding Generations: On the Effects of Investment in Children) and for the value of providing quality child care that protects children's health and safety and promotes children's learning and development (see below).

- The issue of harm to children from child care that fails to protect children's health and safety must be given more serious consideration. What is known about the costs of failing to protect children's health and safety is not represented here. The recent news article on D.C. child care programs that expose children to rats, roaches, filth, overcrowding, open windows, and poisons is a vivid illustration of these problems. We think this is a critical omission and have marked places throughout the text where it needs to be added or expanded on. We also are providing reference materials, but believe there is more on this than in the health literature that needs to be considered. Important findings include the following:

  A 1986 study (Bell, Gleiber, Mercer, Phifer, Gunter, Cohen, Epstein, and Narayanan) [AJPH April 1989, Vol 79, No. 4], which is attached, identified characteristics of day care which might be risk factors for infection and described the resulting costs. The following conclusions were derived from this study:
  - Children in day care centers were 4.5 times more likely to be hospitalized than those in other settings.
  - Data indicated that there are certain potentially modifiable characteristics of day care which are risk factors for illness and that excess illnesses result in excess financial costs.

- The mean monthly cost of medical care was $32.94 for children in the highest risk settings, compared with $19.78 for those in other settings.
- Illness of a child accounted for 40% of parental absenteeism from work.

Ron Haskins, in "Acute Illness in Day Care: How Much Does it Cost?" (1989), which is attached, reported that preschool children attending day care have more acute illnesses than children reared at home. This excess illness imposes costs on both families and society.

- Costs were divided into three parts: medical costs of treating excessive acute illness, cost of missed work, and cost of long-term effects that remain after the acute phase of the illness has passed.
- Excess day care illness imposes at least $1.8 billion per year in costs on American families and society. Over two-thirds, or $1.3 billion, is attributed to missed work by parents.
- Only about 70% of the employees of medium and large firms have paid sick leave; small firms, where a disproportionate number of women work, probably have even lower rates of coverage of sick leave. Many mothers, then, lose money when they are forced to care for ill children or when they themselves are ill. We would note that this may also put their jobs at risk.

Note that the review of the child development literature on quality tends to miss these issues because this research has focused primarily on the question of whether higher quality care enhances or optimizes children's development and learning. It is also important to note the methodological issues here. Although there is some representation of the range of quality of care settings, especially in the large-scale studies, there also are indications that the poorest quality settings may be under represented in research studies (from providers refusals and other difficulties in sampling providers-- see the NRC volume, Child Care for Low-Income Families, edited by D. Phillips, which covers this).

- A related issue is the question of whether some children are differentially affected by the quality of care. There is some evidence to suggest children from disadvantaged backgrounds benefit the most from high quality programs. However, children who are most in need of highly supportive care also may be least likely to get it (see the Helbrun and Howes article which is already referenced and also the NRC volume, Child Care for Low-Income Families, edited by D. Phillips which we are enclosing).

- Continuity of care is one of the attributes of care that we know is important for children's development and for mothers' employment. It has a number of implications for costs and benefits. For example, training, wages, and benefits for providers are related to job turnover and disruptions in care relationships for children. Informal care arrangements are also associated with more changes in care arrangements. These

changes in care arrangements are associated with disruption in mothers' work force participation as well as with disruptions in children's relationships with care givers. We noted that the continuity of care issue is omitted in the review of the literature and throughout the policy sections.

- The report does not make the connection to the White House Early Learning and Development Conference and the implications of the brain research. The major message of this conference is that society cannot afford to waste the opportunity of early childhood and that child care is one of the critical settings for acting on this opportunity. The CEA paper developed for that conference does not seem to be referenced.

- We suggest indicating that there are special issues for infants and toddlers. They are especially vulnerable because of their dependence on care givers and susceptibility to harm, and they also are more likely to be receiving substandard care. This also is an area where the child care rates have risen rapidly, and under welfare reform, many states are for the first time implementing policies requiring mothers with very young infants to meet participation requirements.

- We did not see the benefits of enabling mothers to work included in the discussion of external benefits. The NRC volume edited by D. Phillips, Child Care for Low-Income Families, covers this.

- We suggest using more caveats. We've noted that some broad statements are based on a single study. Also, strong causal language is frequently used in summarizing the literature. We are not certain that the referenced studies are able to demonstrate causal effects. One example is page 23, first paragraph in the section "Effects of subsidies..", where results of research by Blau and Hagy are described. The one study we know of which has examined *actual changes* in regulations -- C. Howes, E. Smith, & E. Galinsky, (1995), The Florida Child Care Quality Improvement Study, New York: Families and Work Institute -- does not appear to be considered here. We are enclosing a copy of this report.

- More specific concerns:

  On page 10, the relationship between child care and early education programs is more complex than indicated in the text. Many times they are one in the same; some early childhood intervention programs have included a full-day high quality child care component, and some child care programs deliver high quality child development services. A number of the reference sources you are consulting lay out the close relationship between these kinds of programs and the linkages in the research literature. Note also that economic studies of "child care" subsidies frequently include Head Start.

There are a number of blanket statements about the absence of a literature showing relationships between specific attributes (including the last bullet in the Exec. Summary). In other places, there is a more nuanced discussion, and we encourage this treatment. We think it is important that the treatment be consistent and not overstate the lack of information. Beyond the studies reference here, there is additional research on specific attributes of care, including structural attributes, that show relationships to children's learning and development. Most reviewers of this literature have concluded that structural attributes provide the basic conditions which enable good care giver interactions to take place. However, as noted above, most of the literature focuses on what we know about the attributes that enhance children's learning and development rather than on those that protect basic health and safety. The basic protections for health and safety need to receive specific consideration. Finally, it is somewhat misleading to focus on isolating effects of single attributes of care; characteristics of care are closely interrelated. This is acknowledge in some places, but needs to done more systematically.

We hope these comments are helpful to you. See also the enclosed copy of the report with marginal notes and the additional reference materials.

enclosures