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Familial and Extrafamilial Correlates of Children's Child-Care Perceptions

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FAMILIAL AND EXTRAFAMILIAL CORRELATES OF CHILDREN'S CHILD-CARE PERCEPTIONS

by

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ABSTRACT

Familial and Extrafamilial Correlates of Children's

Child-Care Perceptions

by

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The purpose of this study was to identify the individual, familial, and child-care characteristics related to children's perceptions of their nonparental child-care environments. One-hundred seventy-five children, their families, and child-care providers participated in this study. Children attended one of three forms of child care: large center-based child-care settings, home-based child-care settings, and a preschool. Correlates of children's perceptions of their child-care experiences came from variables classified into six categories: individual child characteristics, family structure, family processes, previous child-care experiences, child-care structure, and child-care processes.

Children's perceptions were elicited through the Child Care Game Assessment (CCGA), a role-playing game-like experience for 4- and 5-year-old-children. The CCGA's 59 items were divided into four subscales: discipline, negative provider behaviors, the quality of time spent at child care, and the suitability of the setting.

Theoretically, interactions between children and their care providers (including parents and nonparental care providers) laid the foundation for children's developing

personal premise system, or what they believe others think of them and what they expect from others. The CCGA, while not a direct measure of the personal premise system, was a valuable resource in defining what children need to develop a confident personal premise system. It accomplished this by defining the variables that have the most influence on their child-care perceptions.

Results indicated that children attending the different forms of child care did not differ in their perceptions of child care, nor did their previous child-care experiences make a difference. Individual characteristics, family structure, family processes, child-care structure, and child-care processes did correlate with children's perceptions.

Variables measuring aspects of the child-care settings accounted for more variance in children's perceptions than variables classified in the family categories. The child-care variables also provided evidence that children's personal premise system is influenced by the child-care setting and provider.

The theoretical implications of the results are discussed and a rationale for the significant and nonsignificant results is proposed. Implications of the study for child-care providers, parents, researchers, and policy makers are also discussed.

(163 pages)

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A big turtle sat on the end of a log,
Watching a tadpole turn into a frog.
Anonymous

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CHAPTER I

INTRODUCTION

Research assessing what children think of child care is scarce (Armstrong & Sugawara, 1989; Austin, Schvaneveldt, & Lindauer, 1989; Godfrey, 1992b; Klien, Kantor, & Fernie, 1988; Weinstein, 1983). Many researchers focus on the delivery of child care and its quality but dismiss children's views as unattainable, unreliable, or irrelevant. Children's views, or their perceptions, shape their expectations for subsequent interactions among themselves, with others, and with the environment. These interactions are the foundation for their developing personal premise system, or personal theory of the way the interpersonal world operates (Austin, Godfrey, Weber, Martin, & Holmes, 1991). Most theorists acknowledge that children's interactions play a significant role in the development of a personal premise system, and many children spend a large portion of their day in those interactions, particularly at a child-care setting (West, Wright, & Hausken, 1995).

The purpose of this study was to investigate the individual, familial, and child-care variables related to children's perceptions about their nonparental child care. Knowledge of these variables is important because of the lasting impression each variable has on children's personal premise system and their subsequent development (Behrman, 1995). To explore these variables, data from three studies were combined. Each study administered the Child Care Game Assessment (CCGA; Godfrey, 1992), the dependent measure used in this study.

Problem Statement

The benefits and disadvantages of having children attend nonparental child care have been the topic of multiple studies (see Belsky, 1991; Phillips, 1987, for reviews). The consequences of alternative child care on children's cognitive, language, social, and general development have been the focus of numerous studies and legislative debates (Hayes, Palmer, & Zaslow, 1990). As a result of these activities, there are multiple standards governing child care.

These adult-defined levels of quality attempt to clarify child-care components that enhance development but may not focus on the features that concern children. Children's ideas (or perceptions) about their child-care arrangements have received relatively little research attention (Armstrong & Sugawara, 1989; Austin et al., 1989; Godfrey, 1992; Klien et al., 1988; Weinstein, 1983; Wiltz & Klien, 1995). Because children are the primary consumers of child care, their experiences and expertise should be consulted. Information regarding children's insights into child care will add valuable criteria to current definitions of quality child care, help define appropriate provider practices, provide information about interactions that promote positive development, and help further our knowledge regarding the development of a personal premise system.

According to Vygotsky (1934/1986), children's learning proceeds on a social or interpersonal level before concepts are incorporated intramentally. Since, according to Vygotsky, learning contains such a strong social element, it is reasonable to assume that when children feel comfortable socially, such as in their child-care setting, it is easier for them to interact and learn toward the top of their zone of proximal development. Vygotsky wrote that children approach adults with "rich but

disorganized spontaneous concepts" and, in turn, they are intellectually supported by the adult's "strengths of scientific logic (p. xxxv)." Similarly, Piaget (1981) made it clear that when children feel uncomfortable, the likelihood of their advanced learning is compromised. Therefore, children's affect and interpretation of events, including events at child care, have a strong developmental influence.

Despite Vygotsky's argument, some might contend that children's perceptions of alternative child care are not important. Even without knowledge of children's perceptions, the current standards of quality help children achieve appropriate development. Children who receive professionally defined quality child care generally show intellectual, social, emotional, and physical advantages over their less-privileged age mates (Ackerman-Ross & Khanna, 1989; Brener, 1980; Burchinal, Ramey, Reid, & Jaccard, 1995; Clarke-Stewart & Gruber, 1984; Howes & Rubenstein, 1981; Kontos & Dunn, 1989). This is particularly true for children in a lower socioeconomic strata (Caughy, DiPietro, & Stobino, 1994). However, to obtain the highest level of child-defined quality, additional dimensions based on children's perceptions are necessary.

These perceptions are also probably based on factors beyond the child-care setting. It is logical to assume that children's perception of what happens in child care is influenced by what they experience at home and by family events. Several researchers, including Burchinal and colleagues (1995), Hestenes, Kontos, and Bryan (1993), and Kontos (1991) have shown that what occurs in the child-care center is partially an extension of what happens at home. Thus, knowledge of familial variables that influence children's perceptions of child care may produce additional insights. Modified interactions based upon these additional insights will contribute to children's positive interpretation of child-care events, help optimize their development, and increase the probability of developing a wholesome personal premise system.

Furthermore, the added dimensions have the potential to differentiate aspects of child care that vary systematically from child to child, from center to center, or from a family constellation to a family constellation.

To understand more fully children's perceptions of child care, this study focused on variables related to children's perceptions of interactions and events at child care. These variables included structural and process variables at home and in the child-care setting, as well as individual variables. This study will help clarify the relation between children's home environments, the quality of their child-care settings, their individual development, and their perceptions of their child-care environments.

Literature Review

Child-care literature has a relatively short, but rich, history. This review will focus on topics that include the theoretical framework for this study, the history of child-care research, the place child-care investigations has in the spectrum of child and family studies, and the differentiation of child-care studies.

Theoretical Framework

Ever since Bronfenbrenner (1977) posited his ecological theory, researchers have been studying children in the context of their larger environments and systems. Indeed, several theories have defined variables that effect children's development and the characteristics of children that effect the environment (Horowitz, 1987; Lerner, 1984). These theories have guided research, inspired intervention, and influenced public policy for children.

As these theories suggest, there is a variety of influences affecting children's development (Ford & Lerner, 1992). Some are biological (Werner, 1957) and some

are environmental (Bandura, 1977). With influences varying among children, development is usually not even across every developmental area (i.e., motor and language development; Gibson, 1969; Horowitz, 1991; Langer, 1969). Both organismic and environmental variables influence each developing system within children (Bronfenbrenner, 1979; Plomin, 1986; Sameroff & Chandler, 1975; Scarr, 1991; Waddington, 1957). There is an ongoing interaction between organismic conditions and the environment (Sameroff & Chandler; 1975) and the environment serves to mediate the effects of genetics to influence subsequent developmental outcomes. Theories such as Waddington's (1957) canalization theory; Horowitz's (1987) three-dimensional model of organism, environment, and developmental outcome; and Lerner's (1984) theory of human plasticity address the interplay between the environment and children's genetic potential.

Lerner's (1984) developmental systems' model positions children and their families within a larger network. Each piece of the network is interdependent with the rest of the network. As a result of these interdependencies, parents and children influence and are influenced by school, social networks, the family, and employment contexts. Each context and network is embedded within a community, society, and culture. Time and history also influence each of these inter- and overlapping systems.

Developmental context includes an element of time. Time encompasses each individual's history, past learning, and current perceptions and conditions. Bronfenbrenner (1977) defined the past influences on current contextual influences in his overarching, three-dimensional chronosystem. The chronosystem depicted the patterning of environmental events and transitions over the life course.

It is obvious that children's development is embedded within a time and place. Because environmental circumstances change, developmental trajectories also

change (Katz & Shatz, 1996; Scarr, 1991; Waddington, 1957). Each new developmental trajectory is based on the current circumstances and the cumulative effect of the preceding circumstances (Nelson & Bloom, 1997; Shatz, 1997).

Because of this, children who attend nonparental child care are likely being influenced by a larger network than children reared exclusively at home. Their child-care history, as part of that broad influence, has the potential to adjust their developmental trajectory, including their perceptions of current circumstances. Their perceptions of previous circumstances, including child care, impact their current interactions, perceptions, and their developing personal premise system. It is reasonable that their perceptions of child care have evolved from previous child-care experiences as well as familial and personal variables.

From this theoretical and applied literature, as well as from common sense, it is obvious that families, the functioning within families, and larger networks have a profound and long-lasting effect upon developing children. To illustrate, Goelman and Pence (1987) reviewed literature that examined the effect child care had on language development. Using a contextual model, they viewed child development as a product of family structure, family processes, child-care structure, and child-care processes. They found statistically significant predictors of child language development in all four categories, particularly embedded within the family environment. The results of their study strongly suggest a dynamic interaction of family and child-care structure and process variables that profoundly influence child development. However, few studies have examined how structure and process variables in children's family and child-care setting influence their interpretation of events. This study is a step toward filling that void.

Children's interpretation of events also influences their developmental trajectory by governing what they believe others think of them and what they can expect from the environment. These beliefs regulate how children interact with different people in various circumstances, control what they expect from those interactions, and function as an indicator of how children anticipate others will react to them. The expectations are established through interactions with others and the environment; they comprise a personal premise system (Austin et al., 1991; Block, 1984). The personal premise system governs how children view themselves and what they presume others think of them.

Block formulated the notion of a personal premise system in her book on sex role differentiation and confined its constructs within those tenets; however, this view may be extended to include more global interactions and developmental outcomes. It is clear that the personal premise system is a global concept that influences people throughout their lives (Austin et al., 1991). Because of its pervasive influence, the development of a personal premise system is a primary outcome of childhood.

The personal premise system, similar to the attachment bond, is formed through ongoing interactions between children and their care provider(s), including nonparental care providers. Specifically, the personal premise system is grounded in three foundations (see Barnes & Austin, 1994; Block, 1984): (a) how much the care provider is available to care for the child in relation to the care provider's unavailability (warmth); (b) how much the care provider exerts control in the relationship in contrast to the care provider's willingness to allow independence and exploration (control); and (c) the care provider's responsiveness, taking into account the latency and quality of the response (reciprocity).

Since the formation of a personal premise system is guided by children's perceptions about their interactions with the world, knowledge about these perceptions will add another dimension regarding optimal development. For example, do children who perceive their providers as smiling more (warmth), allowing more choices (control), or playing more (availability) fare better developmentally than children who have less optimistic perceptions? If so, knowledge of the variables related to children's perceptions may aid in improving those perceptions by providing information that enhances the environment.

As care providers (both parental and nonparental) control a large portion of the environment children are exposed to, application of the knowledge gained from children's views should aid in improving their environment. Furthermore, children's perspectives of their interpersonal interactions could assist parents and educators learn which environmental and interpersonal features are the most influential as children develop personal premise systems. Specifically, nonparental child-care providers could use such information to improve the quality of child care.

The current study is a first step in understanding the developing personal premise system, or what children believe others think of them and what they can expect from others, as examined in the context of extrafamilial care. It underscores the role children's perceptions play in their development (particularly perceptions of child care) and the role of families and child care in those perceptions.

To elicit children's perceptions of child care, the Child Care Game Assessment (CCGA) was developed. The CCGA was produced as a measure of warmth, control, and reciprocity as perceived by children in their child-care setting. It was presented to the children as a role-playing, game-like experience where they told the examiner their

perceptions of what happened in their child-care setting in a developmentally appropriate manner.

The CCGA obtained information about children's interactions with their care provider, other children, and the environment (Godfrey, 1992b). Combined with quantitative information about the child-care setting and information provided from home, the CCGA was a valuable resource in defining what children need in order to develop a confident personal premise system. Information like this may, in time, help us understand how children's personal premise systems, as reflected by their feelings and affect toward care providers and others, help them prepare for interactions with peers and adults in schools and other institutions.

As stated earlier, a primary purpose of this study was to determine whether children's perceptions of child care were related to current measures of child-care quality or elements beyond those measures. Other studies have examined similar issues by relating various child behaviors at school and child care to the family. For example, Hock, Schirtzinger, and Lutz (1992) found that children's adjustment to kindergarten was related to their mother's anxiety. Howes and Olenick (1986) found that child care and family predictors together account for children's compliance and self-regulation. Most studies rely on mother and teacher reports, however, and bypass the children's perceptions.

In summary, this study asked children what they thought about their child-care settings. Most of their thoughts were related to other measurable characteristics of their family and child-care setting. Children's CCGA responses, which may be an indication of their developing personal premise system, have a broad foundation that seems to extend beyond the child-care setting to familial structures and processes. As Austin et al. (1991) showed, children's CCGA scores in center-based care are

closely tied to the family environment. This study will extend those findings to determine if the same is true of children in home-based child care. In addition, data from a high-quality preschool are included to further explore our contention that, regardless of the quality of the nonparental child care or the number of hours spent in alternative settings, children's CCGA scores, and subsequent personal premise system, are driven by home, familial, and individual characteristics.

The next section, History of Child-Care Research, will review literature relating to child development, child care, and family context. It will provide a context for the current study and allow an estimation of value.

History of Child-Care Research

Belsky (1984, 1991) and Scarr and Eisenberg (1993) have each divided child-care research into three specific phases. The first phase investigated the development of children who attended nonparental child care in contrast to those reared exclusively by their parents. The next wave moved beyond attending and nonattending group comparisons to child-care within-group comparisons. These comparisons described the differences within and between the various forms of child care and differentiated the levels of quality in child care. The current wave deals with the contextual aspects of child care and the factors that influence children's development.

The first phase of child-care studies were driven by the hypothesis that nonmaternal child care was a threat to the family (Belsky & Steinberg, 1978; Caldwell, Wright, Honig, & Tannenbaum, 1970; Kagan, 1980). This wave of research was developed concurrently with Bowlby's (1969, 1973, 1980) theory of attachment and Ainsworth and colleagues' (Ainsworth, 1972; Ainsworth, Bell, & Stayton, 1971;

Ainsworth, Blehar, Waters, & Wall, 1978; Ainsworth & Wittig, 1969) landmark studies on the development of attachment. These studies focused primarily on the threat to the child-mother attachment relationship posed by nonparental child care. As a group, the results showed the attachment relationship did not necessarily suffer from time spent in a child-care setting (Belsky, 1991).

Nonmaternal child care was also seen as a threat to children's cognitive, social, and language development. However, a large number of studies failed to show statistically significant differences between children reared exclusively at home and those who attended nonmaternal child care on measures of cognitive, social, or language development (Belsky & Steinberg, 1978; Phillips, 1987). Nevertheless, this wave of research used subjects attending high-quality child-care centers and subjects whose families were at the upper end of the SES continuum. Consequently, because of the nonrandom nature of the samples and the tendency to study high-quality child care, these results may not generalize to the forms of child care utilized by the typical family in the United States (Belsky & Steinberg, 1978).

Throughout this phase, slightly over one third of the mothers who had children under age six were employed outside their home (U.S. Department of Labor, 1995). Since then, the number and percentage of children attending child care has increased. Currently over 64% of children will spend time in child care before their fifth birthday (Ahlburg & Devita, 1993; Scarr & Eisenberg, 1993). Because of the high percentage of children attending child care, and the knowledge that it did not have to be harmful, the second wave of research investigated child-care structures and processes that were beneficial to children's development, or at least not harmful. This group of studies led to legislative control and quantified measures of child-care quality directed at the child-care setting (Kagan, 1991).

The third, and current, wave of research investigates factors that influence children who attend child care. The research branches from single variable designs to complex designs examining interactions among multiple variables across several forms of child care. The designs routinely account for structure and process variables in the child-care context that affected children. The proposed study fits into the third wave of research–child care in the spectrum of child and family studies.

Child Care and Family Studies

Goelman and Pence (1987) delineated a model of child development that was influenced by family structure and processes in collaboration with the structures and processes at child care (see Figure 1). Their Victoria Day Care Research Project focused on children's language development, but the model is appropriate to the third wave of child-care research, tying together the effects of child care and family. The current study furthered the model by adding a personal premise system filter.

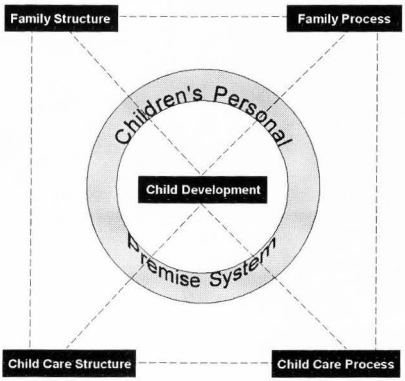

Figure 1. Structure and process variables in child-care settings. (Adapted from Goelman & Pence, 1987)

The new model draws upon the theoretical literature reviewed previously where the environment influences children's developmental trajectory. More importantly, children's perceptions of their interactions with the environment and what they can expect from future interactions influence their development. These perceptions act as a filter that modifies their trajectory and expectations for future interactions.

Several researchers (Berardo, 1991; Broderick & Pulliam-Krager, 1979; Goelman & Pence, 1987; Parish & Nunn, 1981) have reported that differentiation between structure and process variables is an important distinction when studying development. Structure is the arrangement of elements in a definite pattern of organization. It includes each element and how they relate to one another. Processes are the actions or routines of the elements in the structure (Merriam-Webster's Collegiate Dictionary, 1994). Structure variables in this study include the materials present in the child-care setting, the teacher-child ratio, group size, and personnel hierarchy in the child-care settings. Processes variables include the established routines at the child-care setting, the procedural operations, the patterns of interaction, the functions of the various people present in the setting, and the behaviors people exhibit.

In child-care research, structures and processes of both the home and child-care settings have been studied separately. Few, if any, single studies have related the elements in both settings, nor have they included children's perceptions of child care as a variable. This study relates children's family structure and process and their child-care setting's structure and process to their perceptions of the child-care setting.

Differentiation of Child-care Studies

The form (i.e., center-based care, home-based care) of child care is a structure variable that affects children and their families. Steinberg and Green (1979) found mothers using home-based care centers felt they obtained different benefits than mothers who used center-based care. Others (including O'Connell & Farran, 1982; Ramey, Dorval, & Ward, 1983) have found various effects on children's behavior.

Child care may be in a variety of forms ranging from a few hours of in-home relative care to a full-time center with many teachers and multiple classrooms. The majority of studies investigating aspects of child care carefully distinguish the form of child care in the sample description. While the separation minimizes potential error variance, many children and families use a variety of settings (Baydar & Brooks-Gunn, 1991; Hoffereth, 1996, 1997; Kisker & Piper, 1992), creating a false sense of differentiation in the bodies of literature (Clarke-Stewart, 1984). Even in studies that have the potential to combine various forms of child care, data from different settings are frequently analyzed separately (e.g., Kisker, Hoffereth, Phillips, & Farquhar, 1990) and reviewed as separate, although related, literatures (National Academy of Science, 1990).

Caughy and her colleagues (1994) represent one of the few studies that combined different forms of child care for analysis. Their study compared children from impoverished environments who were cared for in their own home, those who attended child care in another home, and those in center-based care. Using regression analysis, they found the higher the ratings of the children's home environment, the more the children benefitted from high-quality child-care participation. While the study was limited to children from lower SES families and

high-quality child-care settings, the variety of settings provided a model rarely duplicated.

Several other studies have compared children attending different forms of child care but have reported few, if any differences between children in different forms of child care. The differences were generally attributed to demographic characteristics differentially experienced by various subpopulations (Baydar & Brooks-Gunn, 1991; Burchinal et al., 1995; Howes, Rodning, Galluzzo, & Meyers, 1988). In one example, Lamb, Hwang, Broberg, and Bookstein (1988) reported no difference between child-care settings in their Swedish sample, but did report differences based on the quality of child care.

It is difficult to directly compare one form of child care with another, but based on this research, the form of child care--whether home-based, center-based, a preschool, or some other form--should not make a difference on the developing child; however, the quality of the child care, and the home environment, have the potential to make a difference on children's developmental outcome (Children's Defense Fund, 1996; Galinsky, Howes, Kontos, & Shinn, 1994) and personal premise system. This study tested that hypothesis by comparing the perceptions of children attending several forms of child care that varied in quality.

Summary

Besides the direct comparison between children attending various forms of child care, the results of this study will help answer the questions raised in this review of child-care literature. Theoretically, this study is a first step toward understanding the developing personal premise system as it relates to child care. Children's CCGA responses, which we assume are a partial indicator of their developing personal

premise system, reflect their perceptions of the relationship they have with their nonparental care provider and the environment at the child-care setting, including the warmth exhibited, control exerted, and reciprocity present. These perceptions are not isolated ideas without a history, but have broad foundations in previous experiences (e.g., child care, family, and interpersonal events).

For this study, familial and current child-care experiences were each divided into two, interdependent components--the structure of the home and child-care setting, and the processes in the home and child-care setting. Few studies have examined how structure and process variables influence children's perceptions of events or how they effect subsequent development. This study partially fills that void by correlating family and child-care structure and process variables to children's perception of child care.

Knowledge about these relationships will hopefully provide insights that will increase the probability of children interpreting their child-care events positively, thereby increasing the probability of developing a worthwhile personal premise system which will help optimize their development. To gain their insights, children were interviewed about their experiences. Their views are important because they can assist parents and child-care providers in knowing which environmental and interpersonal features are most influential to children's sense of satisfaction in nonparental child care. Information regarding children's insights should add valuable insights to current definitions of quality care by helping define appropriate provider practices and providing information about interactions that promote positive development, including the development of a personal premise system.

As very few studies have related all these elements into a single, comprehensive study, this research will help clarify the relationship between children's perceptions of

their nonparental child-care experiences, their home environment, and their personal characteristics. It will do this by combining the responses of children who attended preschool, home-based child care, and center-based child care. The study will help define the variables that influence children's perceptions of child care, which may vary from child to child, from setting to setting, or from family to family.

To accomplish these goals, and answer the questions raised in previous research, the null hypotheses that guided this study were:

H_{01}: Children attending the three different forms of child care do not differ in their perceptions of their child care.

H_{02}: Child-care history, as reported by parents, is not related to children's current perceptions of their child care.

H_{03}: Individual child characteristics are not related to children's perceptions of their child-care placement.

H_{04}: Current family structure is not related to children's perceptions of their child-care placement.

H_{05}: Current family processes are not related to children's perceptions of their child-care placement.

H_{06}: Current child-care structure is not related to children's perceptions of their child-care placement.

H_{07}: Current child-care processes are not related to children's perceptions of their child-care placement.

CHAPTER II

METHODS AND PROCEDURES

The purpose of this study was to identify the individual, familial, and child-care characteristics related to children's perceptions of their nonparental child-care environments. A broad range of child-care forms was included to capture the full range of environments to which children are exposed. Hoffereth (1996) indicated that many families use multiple forms of child care, including preschools, to fulfill their needs and the needs of their children. Following this practice, preschool was included as a child-care setting in this study.

Data from three similar studies were combined to accomplish this goal. The three studies are complementary and form a single, logical database ($\underline{n}$ = 175). However, because the three studies were independent, an explanation about their initial sampling fame is appropriate. To avoid confusion with the current study, the three studies will be labeled as substudies. Substudy #1 used a sampling frame that compared three different forms of child care: center-based care, home-based care, and preschool. Substudy #2 sampled children in center-based programs that admitted different percentages of state-funded children. Substudy #3 sampled children attending home-based child care whose care providers were involved in a care-provider training program. Only pretest data were used from the third substudy.

Substudy #1

During substudy #1, the Child Care Game Assessment (CCGA; Godfrey, 1992a) was initially developed. It compared the perceptions of children who attended three forms of nonparental child care. These fifty-seven 4- and 5-year-old children were

cared for in a half-day preschool, one of two full-day center-based child-care facilities, or one of seven full-day home-based care settings.

Twenty-one children from Utah State University's Child Development Laboratory were conveniently selected and recruited to form the preschool sample (see Table 1 for sample sizes by substudy, center, and gender). Most of these children were cared for by their parent(s) while not in preschool and most of the children had experienced no previous, long-term, full-day nonparental care.

The 21 children in the center-based child-care centers were conveniently sampled from two licensed, full-day child-care centers. These children had been in the same setting for a mean of 20 months (SD = 9.8 months; range = 6 to 27 months), for a mean of 38 hours a week (SD = 8 hours per week; range = 20 to 50 hours per week).

The 15 children cared for in the state licensed, full-day home child-care settings were conveniently sampled from Utah State University's Child Care Referral Guide (Anderson & Lindauer, 1989) and the Utah State Department of Social Services Day Care Provider List (three issues between May 1990 and November 1990). The

Table 1

Sample Sizes by Substudy, Center, and Gender (N = 175)

	Substudy #1 (n = 57)			Substudy #2 (n = 87)							Substudy #3
				NSF center		MSF center		HSF center			
Gender	Preschool	Center	Home	1	2	1	2	1	2	3	(n = 31)
Male	11	10	12	7	5	6	8	5	7	3	11
Female	10	11	3	7	5	6	6	4	10	6	20

NSF = No State Funded: None of the children received state support.
MSF = Medium State Funded: 40-50% of the children received state support.
HSF = High State Funded: 70-95% of the children received state support.

children in this sample had been in the same alternative care setting most of their lives (length of attendance mean = 34 months; SD = 24.7 months; range = 2 to 60 months) and were currently attending for a mean of 36 hours per week (SD = 18.7 hours per week; range = 12 to 45 hours).

Results from this substudy showed few statistically significant results on CCGA responses between the groups of children. Further sample descriptions and results are reported in Appendix A. Complete results and detailed descriptions are reported in Godfrey (1992).

Substudy #2

Substudy #2 compared the satisfaction of children who attended child-care centers admitting various levels of children who received assistance from the state. The initial sampling frame included all centers in the metropolitan Salt Lake City, Utah, area that served between 50 and 70 children with at least 20% to 25% between 4 and 5 years of age. Only privately owned centers that were not affiliated with a child-care chain or franchise, corporation, business, local or state government, or church or synagogue were included in the sample.

The State Office of Child Care stratified the eligible centers according to the percentage of state-funded children. Using a random-number table, centers were then randomly selected based on the stratification. Seven centers were chosen: three centers admitted between 70% and 95% of their clientele from poverty-level families, two admitted between 40% and 50% of poverty-level children, and two chose not to serve those who received assistance from the state to help pay for child care.

The sample sizes for this substudy are presented in Table 1. Further sample descriptions and results can be found in Austin, Godfrey, Larsen, Lindauer, and Norton (1996).

Substudy #3

Substudy #3 used an experimental design to compare the effects of a training program for providers of home-based child care. Care providers in counties throughout Utah were eligible to receive the training based on where they lived and the randomization procedure. The counties were matched for population, percent poverty, and maternal employment for mothers with children under the age of six. The sample was recruited from all the home-based child-care centers in the target counties. All measures for the current study were administered at pretest, before the training began.

Thirty-one children in Substudy #3 were administered the CCGA. The children were attending home-based child-care centers located in Cache, Box Elder, and Davis counties, Utah. The 4- and 5-year-old children attending those centers, and whose care providers and parents agreed to participate, were included in the study. Further information can be found in Austin, Lindauer, Rodriguez, Norton, and Nelson (1997).

Combined Data Set Sample Description

For the purposes of this study, it was appropriate to join the three substudies into a single database stratified by form of child care rather than study. The sample in substudy #1 matched the samples of substudies #2 and #3 in terms of their child-care forms and demographic characteristics. For example, the center-based sample in substudy #1 did not differ by a statistically significant amount on demographic

characteristics from those children attending center-based care in substudy #2. Likewise the home-based sample of substudy #1 matched the home-based sample of substudy #3 on demographic characteristics. The preschool sample from substudy #1 did not, nor should have, matched the other samples on demographic or child-care history variables but was retained as another form of child care for the current analysis. Including the preschool sample also allowed more range of variability for children's out-of-home experiences (see Hoffereth, 1996). When combined, the studies form a data set that is logical and meaningful. Appendix A contains a detailed description of the procedures and rationale used to join the samples, including a discussion of homogeneity of variance.

Participants included 175 children aged 45-78 months (mean = 58 months, SD = 7.1 months) from 37 child-care settings. One hundred eight children were enrolled in seven center-based settings located in the metropolitan Salt Lake City area and two centers were located in Logan, Utah. Forty-six children attended 27 home-based child-care settings located in three Utah counties. Twenty-one children attended Utah State University's Child Development Laboratory. Within each setting there were approximately equal numbers of male and female children. Child and experimenter gender were counterbalanced in each study to control for experimenter bias and gender effects. Sample sizes and the number of boys and girls from each sample are presented in Table 2.

The children who attended the center-based programs had been enrolled for an average of 17.9 months (SD = 12.0 months) and were currently attending 38.9 hours per week (SD = 6.9 hour per week). Children in the home-based programs averaged 25.1 months of attendance (SD = 17.2 months) and were currently attending 33.2

Table 2

Sample Sizes by Child-Care Form and Gender

Form/Gender	n	No. centers	N
Center-based			
Male	53		
Female	55	9	108
Preschool			
Male	11		
Female	10	1	21
Home-based			
Male	23		
Female	23	27	46

hours per week (SD = 10.8 hours per week). Children at the preschool were only admitted for 18 weeks at 10 hours per week. Because of the limited length of attendance, and the unique nature of the preschool, further attendance data were not gathered. Most children in this sample did not currently attend another form of nonparental child care, nor had they experienced any form of long-term nonparental care.

Data from the children's families are presented in Table 3. The reported mean, standard deviation, and sample size under each form of child care is based on the number of children participating in the study. However, the reported F-ratios are the result of nested ANOVAs. This was necessary because children attended different centers within a form of child care. This nesting had to be accounted for in the final statistic to obtain an accurate error term and appropriate F-ratio. Furthermore, these are the F-ratios of interest given the need to determine differences between the forms

Table 3

Comparison on Key Demographic Variables Among the Three Forms of Child Care

Characteristic (range)	Center-based $\bar{X}$	(SD)	n	Preschool-based $\bar{X}$	(SD)	n	Home-based $\bar{X}$	(SD)	n	Between form F-ratio[c]
Age of child in months as of CCGA administration (45-78)	58.9	(7.8)	68	55.7	(5.6)	19	57.2	(6.4)	42	.54
Age of mother in years (20-45)	31.2	(5.9)	94	34.2	(4.9)	17	30.9	(5.3)	44	.90
Age of father in years (19-54)	34.6	(7.1)	79	36.5	(5.5)	17	34.0	(5.7)	38	.53
Percent female[a]	51.0		108	48.0		21	50.0		46	.08
Years of education–mother (12-18)	14.2	(1.9)	96	15.6	(1.8)	17	13.6	(1.8)	44	.82
Years of education–father (8-18)	13.8	(2.4)	92	16.1	(2.0)	18	13.7	(2.0)	41	2.08
Percent with two parents living at home[a]	67.0		90	100.0		20	76.0		46	9.57**
Years married (0-23)	6.7	(4.8)	85	6.3	(5.5)	3	8.1	(5.0)	39	1.04
Hours per week mother employed (0-70)	36.2	(11.8)	88	11.6	(18.7)	9	35.7	(9.2)	43	20.52***
Hours per week father employed (0-80)	42.3	(12.8)	74	38.3	(17.6)	3	41.2	(5.8)	34	2.40
Hollingshead score (22-66)	41.9	(12.0)	86	54.8	(9.1)	18	42.5	(11.5)	31	3.01
Total household income[b] (2.5-60.0)	$28.0	(19.4)	73				$32.4	(17.0)	29	.13
Number of siblings (0-6)	1.8	(1.2)	108	1.6	(1.4)	21	1.3	(1.2)	46	1.69
Birth order of child (1-7)	1.7	(1.1)	85	2.1	(1.3)	18	2.0	(1.3)	44	.42

[a] Statistical analyses for these variables were based on a χ^2 test where those children or families possessing the trait or characteristic were scored "1," and those not possessing the trait were score "0."

[b] Income is reported in thousands of dollars per year. Some data were converted from categorical to continuous data by using the midpoint of each category.

[c] F = mean square (form of child care) / Mean square (center nested within form)

** $p < .01$
*** $p < .001$

of child care, not between the children within a center within a form of child care. This form of statistical analysis will be used throughout the study.

The only statistically significant mean differences between the three settings in Table 3 emerged on the number of hours per week the mother was employed, F (2, 34) = 20.52, $p < .001$, and percentage of children with two-parents living in the home, chi-square (2) = 9.57, $p < .01$. Further analysis showed that in both instances the

preschool sample was different than either the center-based or home-based samples. These differences are not surprising given the fact the preschool was university based, operated only a few hours per day, limited the number of weeks each child could attend, and was closed when the university was not in session. The nature of the preschool made it difficult for dual earner or single parent families to participate. While these differences may cause some initial concern, it was actually a desired effect. One of the purposes of the study was to define the familial correlates of children's perceptions of child care. The increased range of variability on the independent variables maximizes the opportunity to discuss familial correlates across a broad spectrum of circumstances.

In data not shown, there were seven statistically significant differences (out of the 14 variables reported in Table 3) between the individual child-care centers, within the forms of child care. This shows that there was more variability between centers within the forms of child care than there was between the forms of child care.

Instrumentation

The measures from all three substudies were very similar and complemented each other in ways that promoted coherency across studies and settings. Although no substudy used the full range of measures available in the current study, each substudy used the CCGA, the dependent measure in this study. Similar information was gathered from the children's families and child-care providers. Substudies #2 and #3 gathered information on various aspects of child-care quality.

Table 4 shows which measures were administered in each substudy by conceptual category. As these instruments were not designed for this categorization, nor have they been grouped in this manner before, the classification was based upon

Table 4

Instrumentation for Each Study by Conceptual Category

Measures and subscales	Substudy #1 Preschool, family home, center child-care study	Substudy #2 Center child-care study	Substudy #3 Family home child-care study
Measures on the children			
Child Care Game Assessment	X	X	X
Test of Early Language Development		X	X
Classroom Behavior Inventory		X	X
Apathy, Dependence, Distractibility, Personal Sociability, Negative Classroom Adjustment, Task Orientation, Intellectual Competence			
Previous care experiences	X	X	X
Teacher checklist		X	
Academic Ability, Aggressiveness, Attractiveness, Disruptiveness, Dominant, Prosocial Behavior, Social Insecurity			
Measures of family structure			
Demographic information	X	X	X
Home Observation for Measurement of the Environment		X	X
Recent life events		X	X
Measures of family process			
Complexity of life		X	X
Parenting Stress Index (Short Form)			X
Difficult Child, Parent/Child Dysfunction, Parent Distress			
Inventory of parent experiences		X	X
Measures of child-care structure			
Demographic information	X	X	X
Early Childhood Environment Rating Scale		X	
Motor Activity, Routine Care, Space and Materials, Teacher Stimulation			
Family Day Care Rating Scale			X
Basic Care, Learning Activities, Adult Needs, Space and Furnishings			
Caregiver Interaction Scale			X
Permissiveness, Punitiveness			
Job Satisfaction Scale		X	X
Commitment, Work Demands/ Effort, Work and Family, Working Conditions			
Measures of child-care process			
Child Care Game Assessment	X	X	X
No. Friends			
Parent Evaluation		X	X
Caregiver Interaction Scale			X
Detachment, Positive Interaction			
Family Day Care Rating Scale			X
Elaboration, Language and Reasoning, Social Development			
Job Satisfaction Scale		X	X
Coworker Relations			
Teacher Behavior Rating Scale		X	
Physical Proximity, Supportive Facial, Supportive Verbal, Physical Contact, simultaneous Support, Verbal Instructions, Physical Instructions			

subjective content analysis. Each item of each measure was subjected to a priori content analysis to decide the most relevant category. Subscales from these instruments were placed in the category that was most relevant based on the previous definition of structure and process and the subject of the scale. Because some scale names seemed to imply they belonged in one category, but item analysis suggested another, the item analysis prevailed. Several instruments had items that conceptually fit in more than one category. These instruments were placed in the category based upon conceptual cohesion with the other items on the measure.

Each instrument is further described below. Those instruments that had subscales that conceptually fit in more than one category are only described in the primary category

Measures on the Children

The children in the study were administered up to two instruments. Each individually administered assessment tapped various abilities or perceptions. Teachers or parents completed up to three additional instruments for each child. The child instruments are described below.

The Child Care Game Assessment (CCGA; Godfrey, 1992a). All the children in this study were administered the CCGA. The CCGA was designed to elicit children's perceptions of their nonparental child care without constraining thought processes or suggesting appropriate answers. The CCGA, a role-playing, game-like experience for 4- and 5-year-old children, used a three-dimensional model of the children's nonparental care environment that allowed them to act out portions of a typical day. In the CCGA, children used race neutral, colored dowels (green, yellow, blue, purple, and natural wood) to represent themselves, adults, and other children. The game

allowed children to directly manipulate concrete objects representing major items in their nonparental care setting. It permitted children to express themselves while actively engaged in a realistic model of their surroundings. Throughout the administration of the CCGA, children were asked fixed-response questions (i.e., "Would you rather come or stay home?") ostensibly by another child or adult, but in realty the administrator manipulating a dowel representing another child or adult. The fixed-response questions were either dichotomous choice (i.e., "Do you watch a lot of TV here?") or simplified Likert scale questions (i.e., "What does your face look like when the teacher does that?"). The Likert scale was designed for children and used smiling, neutral, or frowning faces as response alternatives. The procedure has been widely used when obtaining scaled responses from children (Asher, Singleton, Tinsley, & Hymel, 1979) and is considered valid.

The CCGA yields four subscales based upon conceptual and mathematical factor analysis. The subscales were defined from the dichotomous choice items or Likert scale items. Two scales were established from the dichotomous choice items: child's suitability to the setting ("Do you like coming here?"), and negative provider behaviors ("Do the providers get mad sometimes?"). The suitability to the setting scale measured how suitable the children perceived the care setting to be for them as individuals. The negative provider behavior scale measured whether or not children thought the care provider was angry or made them feel badly. Higher scores suggest children perceiving the setting as more suitable or the care provider showing more negative behaviors.

The other two scales were derived from the Likert rating scale items. They were titled perception of time spent (How does your face look when you're [doing an activity] in the large play area?) and discipline (How does your face look when the provider

[disciplines an aggressive peer]?). The first scale, perception of time spent, measured how children felt about the time the spent at child care. Questions focused on their perceptions of the activity quality and if the activities met their needs. Higher scores suggested more personal satisfaction with the activities. The discipline subscale allowed children to rate how they felt when another child was disciplined. They defined the form of discipline administered to the other child and how the provider handled the situation created in the CCGA. Higher scores suggest more satisfaction with the discipline procedures than low scores. Items in each subscale and statistics related to each are reported in Appendix B.

Coefficient alpha reliabilities range from .72 (perception of time spent) to .49 (negative teacher behaviors). Test-retest reliability ranged from .82 (suitability of the setting) to .46 (discipline). Interrater reliability was high, all factor scores at or above .91. Table 5 shows each factor and the various forms of reliability. Further CCGA psychometric properties, including conceptual basis, sample sizes, previous analysis, methods for analyzing reliability, and factor analysis, are reported in Appendix B.

Very limited information is available concerning the validity of the CCGA. Content validity was built into the measure with several professionals defining the

Table 5

Reliability of the CCGA Factors

Scale	No. items	Internal consistency		Test-retest		Interrater	
		α	n	Agree	n	Agree	n
Suitability of setting	10	.65	92	.82	36	.99	39
Perception of time spent	12	.72	110	.61	36	.95	39
Discipline	2	.55	140	.46	34	.91	39
Negative teacher behaviors	2	.49	159	.61	35	.97	37

categories and items in the CCGA. Based on the results of the first study, minor modifications were made and incorporated into the second study, furthering the content validity. In Austin et al. (1996), a difference between children's perceptions of their teachers' interactions was found depending on the amount of parental stress and on teacher-evaluated child characteristics. This construct validity, while important, is only a first step. Further validity and reliability data are not available, but were partially established with this study.

Test of Early Language Development - Second Edition, Form B (TELD-2; Hresko, Reid, & Hammill, 1991). The TELD-2 is an individually administered measure of early language development. It measures oral language in the areas of receptive and expressive language, syntax, and semantics and is designed for use with children 2.0 through 7.11 years of age. Reported internal consistency is .98. Based on Rasch analysis, the authors concluded the alternative forms of the TELD-2 measure a single dimension and adequately cover the difficulty dimension. Test-retest reliability, both delayed and alternate form, ranged from .97 to .98. The criterion-related validity was evaluated with the original TELD and other measures of language development. The correlation between the original TELD and the TELD-2 Form B was .96. Other measures' correlations ranged from .47 (with the Preschool Language Scale) to .66 (with the Peabody Picture Vocabulary Test). Construct validity was addressed though correlations with age, measures of mental ability (aptitude, IQ, and achievement), and diagnostic categories of children. These results were generally acceptable and reflect the conclusion that the TELD-2 is a reliable and valid measure of language achievement.

Classroom Behavior Inventory--Preschool Form (CBI; Schaefer & Edgerton, 1978). The Preschool Version of the Classroom Behavior Inventory provided a

method of collecting data on children's classroom behavior from their teachers and child-care workers. It was developed for children aged 2 through 5. The CBI has 60 statements rated on a 5-point Likert scale. The results produce 11 scales with internal consistencies that range from .71 to .97 and interrater reliabilities that range from .68 to .80. Seven of the nine factors can be combined to form three factors (E. S. Schaefer, personal communication to Ann Austin, July 6, 1994) that measure intellectual competence, personal sociability, and negative classroom adjustment (see Austin et al., 1996). These three scales, along with the apathy, dependence, distractibility, and task-orientation scales, were used in this study. Each scale uses mutually exclusive items.

Previous Care Experiences (Godfrey, 1992a). This form was completed by the parents of each child in this study. It gathered retrospective information about the children's pervious child-care experiences. It asked about the type of care, the child's relationship to the care provider, the length of time in child care, including duration in months and the number of hours per week, the parents' rating of care and their prediction of how the child would rate the care.

Teacher Checklist (Coie & Dodge, 1988). The Teacher Checklist was an instrument designed to obtain information from teachers regarding children's patterns of behavior, academic ability, and physical characteristics. It is a 42-item instrument that factors into seven subscales. Appropriate age ranges were not included in the literature, but the scale appeared appropriate for preschool children. Internal reliability alphas range from .69 to .95 across the scales.

Measures of Family Structure

Family structure variables were gathered from questionnaires completed by the children's parent(s). The parents were given the measures as they picked up their child from the child-care setting and asked to return them to the child-care center.

Demographic information. The demographic information forms included information concerning each parent's age, education, marital status, length of commitment to partner, occupation, the number of hours spent at work, the number of children in the family, and the children's ages. Study #1 also included a question about religious preference, the child's birth date, and the number of years in the current residence. Study #2 included categorical income data.

Home Observation for Measurement of the Environment--Preschool Version, Variety of Stimulation Subscale (HOME; Caldwell & Bradley, 1984). The variety of stimulation subscale of the Preschool HOME Inventory was used as a home stimulation measure. Parents were asked eight questions assessing the climate and amount of stimulation provided in their home. The parents responded whether or not these eight events occurred at home by checking either "yes" or "no" to each item. A total score was obtained by summing the number of affirmative responses. Although the HOME is typically used as an observation instrument, this subscale has been used as a parent checklist as well (see Kontos,1991). Valid psychometric information for this use of the scale is not provided, but seems warranted based on similar studies and previous use.

Recent life events (Abidin, 1983). This 19-item index was a part of the original Parenting Stress Index. The form lists stressful life events and subjects indicate which events have occurred in the previous 12 months. Theoretically, the more events, the more stress.

Measures of Family Process

Parents completed several questionnaires to provide information regarding the processes in their families. These questionnaires dealt with their perceptions of stress and their satisfaction with events in their lives.

Complexity of Life (Howes & Olenick, 1986). The Complexity of Life scale was a self-report measure focusing on how often parents had to spend time away from their children and how complex their "away" time was. It reported on both regular and irregular schedules. The score is the sum of yes responses on a 12-item measure, six items each for the mother and father. Psychometric information was not included with the scale.

Parenting Stress Index--Short Form (PSI/SF; Abidin, 1990). The PSI/SF is a direct derivative of the full length test. It was developed as a time-efficient alternative to the long form. It takes about 10 minutes to complete. It is a measure of the stresses involved in parenting. The PSI's development was guided by a theoretical model of the determinants of dysfunctional parenting. The short form follows a similar model. The items were derived through a series of factor analyses that provided a three-factor solution: Parental Distress, Parent-Child Dysfunctional Interaction, and Difficult Child. A total stress score is also obtained. Higher scores equate to increased levels of stress.

Inventory of Parent Experiences (IPE; Crnic & Greenberg, 1981). This inventory has 28 items divided into five dimensions: parental role satisfaction, degree of pleasure in infant/child, community support, friendship support, and intimate support. These factors combine into two subscales: satisfaction with parenting scale, and a questionnaire on social support. Studies two and three used half of the total items. This procedure has been justified in several studies (Crnic, Greenberg, Robinson, &

Ragozin, 1984; Crnic, Greenberg, Ragozin, Robinson, & Basham, 1983). The coefficient alpha for the entire scale was reported at .81 (Sexton, Thompson, Scott, & Wood, 1990). Alphas for the five factors ranged between .37 and .72. These alpha coefficients have been replicated (Crnic et al., 1983; 1984; Sexton et al., 1990). Although Sexton and his colleagues questioned the scale's internal consistency and construct validity, they did support the IPE's criterion-related validity.

Measures of Child-Care Structure

The structure of the child-care centers was measured with information supplied by the child-care providers and through direct observation.

Demographic information. The center demographic information was obtained from the center-based directors or family-based child-care providers. It included information about the number of children, teacher-child ratios, hours of operation, types of educational programs (if any), and in some cases, salary and tuition.

Early Childhood Environment Rating Scale (ECERS; Harms & Clifford, 1980). The ECERS is an observational measure that provides seven subscale scores and an overall rating. The 37-item instrument involves rating the center on a 7-point Likert scale for each item. Subsequent factor analysis by the authors (Harms & Clifford, 1993) recommend a four-factor solution over the original seven subscales. The four factors included teacher interactions, space and materials, motor activity, and routine care. Interrater reliability for the ECERS was .93. Tests of internal consistency for the scale as a whole range from .81 to .91 in four studies (Harms & Clifford, 1993).

Family Day Care Rating Scale (FDCRS; Harms & Clifford, 1989). The FDCRS defined family home child-care quality with 32 items rated on a 7-point Likert scale. Results produce six subscales that measure various aspect of quality in home-based

care centers. A total score measuring overall quality is also produced. Austin and colleagues (1997) used another factor, elaboration, that assessed the utterances from the care provider encouraging the development of children's language skills. All the scales were used in this study, including the elaboration subscale. The scales were divided between child-care structure and process categories as appropriate for the items in each subscale. Internal consistency for the FDCRS total score was .86. The elaboration subscale had an alpha of .80 (Austin et al., 1997) Howes and Stewart (1987) reported internal consistencies for the other scales ranging from .70 on adult needs to .93 for learning activities.

Inadequate and minimal ratings on the FDCRS focus on the provision of basic materials, safety, and health precautions. Higher scores require positive interaction between the provider and the children, advanced planning, personalized care, and good materials. It is appropriate for use with children from infancy through kindergarten.

Caregiver Interaction Scale (CIS; Arnett, 1989). The CIS uses a 45-minute observation period to provide an evaluation of the caregiver's behavior. The instrument focuses on the provider's interactions with the children, measuring the "tone" of the interactions. Two of the scales measure the procedures of the child-care center and were included in the structure category for this study. The scale has 26 items that are divided into four subscales: detachment, permissiveness, positive interaction, and punitiveness. Detachment and positive interaction are measures of process for the current study.

Job Satisfaction Scale--Teacher and Director Forms (JSS; Whitebrook, Howes, & Phillips, 1990). The JSS is a self-report measure measuring teachers' satisfaction with their work environment on a 4-point Likert scale. In this study, supervisors,

center-based providers, and home-based providers were given similar forms that were reworded appropriately (e.g., As a supervisor, my staff sees me as competent; My supervisor is competent; I feel competent in this job).

Measures of Child-Care Process

Information about processes in the child-care centers were gathered from the children through the CCGA and the number of friends they mentioned, the child-care providers, the parents, and through direct observation. Together these sources of data provide a clear picture of what was happening in the child-care setting.

Demographic information. The child-care providers provided information about their amount of training, both in school and early-childhood-related classes. They also reported their perceptions of the working environment through the Job Satisfaction Scale.

Teacher Behavior Rating Scale (TBRS; Larsen, 1975). The TBRS provides a frequency count of teachers' supportive behavior recorded over a 15-minute observation. The observation occurs in 15-second intervals during structured and unstructured teacher-child activities. Four classes of supportive behaviors are identified: physical proximity, facial behaviors, verbal behaviors, and physical contacts. The frequency of these behaviors is summed to yield a total score. An overall rating of the teacher's supportive behavior is also made. The scale has limited, although promising, psychometric information (Larsen, 1975).

The measures used across all three studies complemented each other and reinforced the coherency of the current study. Although none of the studies used all of the available measures, nor were all the available measures appropriate, the combined data provide a useful way to ascertain which variables, in which settings,

impact children's perceptions and hence their developing personal premise system. The specific procedures used to join the studies and analyze the results are presented next, followed by the results of the study.

Procedures

Procedures for the three individual substudies can be found in Godfrey (1992a) and Austin et al. (1996, 1997). For this study, the three databases from the substudies needed to be joined into a single, comprehensive database. Then the data needed to be checked for accuracy and the results of the substudies studies reproduced. Following the accurate reproduction of the substudies studies, the CCGA was analyzed to determine its structure and reliability. Data analysis for the combined studies data set was next. The analysis produced results for each of the null hypotheses in the order they were presented.

Joining the three substudies into a single, comprehensive database proved to be challenging. Each of the three substudies was coded to answer the questions of the particular study, with alternative variable names, data values, and labels--many of which overlapped between the studies. Furthermore, two of the data sets were incomplete in that the data were collected but not entered. As an example, most of the information from Substudy #1 had been collected, but not entered into any database. Some demographic information and the CCGAs for each child were entered, but most of the parent measures and the previous child-care experiences were not coded. Likewise, in Substudy #2 there were still several forms that needed to be coded, such as the Previous Care Experiences form, and the data checked for accuracy. The three data sets were also in three different forms. Substudy #1 had all the variables coded into one data file. Substudy #2 used a hierarchical format that

placed the child data subsumed under center data. Substudy #3 had each instrument coded into a separate data file.

After the data sets were completely entered, the data and value labels were reconciled with a master list. The substudies were joined into a single database followed by extensive data checking and basic statistics to replicate the analysis of the earlier studies. The CCGA was analyzed next, starting with the previous analysis of the other studies and extending it to include the other forms of child care and the expanded sample.

Formal hypothesis testing followed. Each hypothesis (H_{01}, H_{02}, etc.) and the method of analysis (A) are described below. Detailed analysis procedures are described in the next chapter.

H_{01}: Children attending the three different forms of child care do not differ in their perceptions of their child care.

A. The CCGA responses were analyzed using ANOVA methods among the three child-care settings. Categorical variables were analyzed with chi-squared analysis, as appropriate.

H_{02}: Child-care history, as reported by parents, is not related to children's current perceptions of their child care.

A. The child-care history, including the form of care and the parental rating, was analyzed next to see if it was related to children's current perceptions or their placement. This was done with correlational and regression analyses and ANOVA. Chi-squared analysis was used when it was appropriate.

H_{03}: Individual child variables are not related to children's perceptions of their child-care placement.

A. Individual child variables were related to children's perceptions of their child-care environment with regression analyses and ANOVA. This included:

   a. comparing gender differences on child variables,

   b. comparing children attending the various forms of child care with ANOVA and chi-square,

   c. correlating the individual child variables for regression analysis,

   d. regression analysis based upon the correlations and meaningful conceptualizations, and

   e. using the regression formulas identified in the previous step with each sample. This resulted in a regression formula relevant to each form of child care.

H_{04}: Current family structure is not related to children's perceptions of their child-care placement.

A. Children's current family structure and its relationship with their perceptions of the child-care center were analyzed using regression analyses and ANOVA. This included:

   a. a regression analysis encompassing the total sample. Possible variables that predicted children's perceptions were entered in the equation. The variables were chosen after correlational analysis with the CCGA and other family structure variables. Possible variables included the family's demographic characteristics, major life events, the HOME, and so forth.

   b. using the regression formulas identified in the previous step with each sample. This resulted in a formula relevant to each setting.

c. a check for differences within and between samples using ANOVA.

H_{05}: Current family processes are not related to children's perceptions of their child-care placement.

A. Children's current family processes in relation to children's perceptions of their child-care center were analyzed using regression analyses and ANOVA. These procedures were completed in a manner similar to that reported for family structure.

H_{06}: Current child-care structure is not related to children's perceptions of their child-care placement.

A. Children's current child-care structure was also analyzed in relation to their perceptions of child care using regression analyses and ANOVA. Similar procedures were followed.

H_{07}: Current child-care processes are not related to children's perceptions of their child-care placement.

A. The final step analyzed children's current child-care processes in relation to their perceptions of their child-care center. This was completed using comparable regression analyses and ANOVA.

CHAPTER III

RESULTS

This chapter reports the results of the analysis for this study. Discussion of the results and their interpretation are included in subsequent chapters. Because of the inconsistency across substudies for independent variables, sample sizes varied widely across analyses. In some analyses, subsamples were dropped altogether as appropriate. For significance testing, an alpha level of .05 was used for all statistical tests.

Table 6 shows the dependent and independent variables by conceptual category including child measures, family structure, family process, child-care structure, and child-care process. Study range, mean, standard deviation, and sample size for each variable are reported. Mean gender differences are also shown and discussed in the appropriate sections.

Overview of Data Analysis

Analyses proceeded in a similar manner for each of the five conceptual categories defined in Table 4 and with the children's child-care history. Initially, nested ANOVAs were completed for all the variables within the predetermined categories to identify differences between the forms of child care. These differences were calculated in a nested design where children were nested under the center they attended and the centers were nested under the form of child care. The primary analysis focused on the difference between the forms of child care, not the differences between the centers within each form of child care.

Table 6

Ranges, Means, Standard Deviations, Sample Size, and Gender Comparisons for All Study Variables by Conceptual Category

Scale (Range)	Total			Boys			Girls			F
	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	ratio
DEPENDENT MEASURES										
CCGA										
Suitabiiity of setting (0-9)	7.7	(1.8)	162	7.4	(1.8)	79	8.0	(1.8)	83	5.26*
Time spent at setting (12-60)	45.8	(8.9)	147	45.9	(8.2)	66	45.7	(9.4)	81	.01
Discipline (2-10)	5.7	(3.2)	170	5.7	(3.3)	87	5.6	(3.2)	83	.04
Negative provider behavior (0-2)	1.5	(.7)	169	1.4	(.7)	85	1.6	(.7)	84	3.10
INDEPENDENT MEASURES										
Child Measures										
Previous child-care experiences										
# of child-care settings (0-5)	1.4	(1.3)	175	1.3	(1.3)	87	1.4	(1.3)	88	.24
# times form changed (0-5)	.8	(1.2)	175	.8	(1.1)	87	.8	(1.2)	88	.15
Months/former settings(1-62)	13.8	(11.4)	117	13.3	(11.7)	54	14.3	(11.3)	63	.20
Total months/former setting (1-84)	23.7	(17.5)	117	23.3	(18.1)	54	24.0	(17.0)	63	.05
Hrs/wk past child care(2-60)	30.7	(14.4)	120	32.3	(12.9)	57	29.3	(15.6)	63	1.36
Parent rating of care (1-5)	3.8	(1.3)	122	3.8	(1.2)	59	3.8	(1.3)	63	.01
Parent's idea-child rating(1-5)	3.8	(1.3)	121	3.7	(1.3)	60	3.9	(1.3)	61	1.04
Demographic Variables										
Age of child in months (45-78)	57.9	(7.1)	122	57.5	(6.9)	61	58.3	(7.4)	61	.34
Birth order (1-7)	1.9	(1.2)	147	1.8	(1.1)	71	1.9	(1.3)	76	.16
TELD (31-61)	51.0	(6.2)	117	50.0	(6.3)	54	51.8	(6.0)	63	2.48
Classroom Behavior Inventory										
Apathy (4-16)	8.4	(2.7)	106	8.9	(2.8)	45	8.1	(2.7)	61	2.47
Dependence (3-14)	6.9	(2.3)	107	7.1	(2.5)	48	6.8	(2.1)	59	.47
Distractibility (4-19)	10.0	(3.5)	109	10.5	(3.8)	48	9.7	(3.2)	61	1.43
Personal sociability (19-50)	38.6	(6.9)	107	38.2	6.6	48	38.9	(7.2)	59	.28
Negative classroom Adj. (10-48)	24.4	(8.3)	109	25.8	(8.5)	48	23.4	(8.0)	61	2.22
Task orientation (7-30)	21.1	(4.8)	106	19.9	(5.2)	48	22.1	(4.2)	58	5.66*
Intellectual competence (40-105)	79.1	(12.2)	108	75.8	(14.2)	47	81.6	(9.8)	61	6.47*
Teacher Checklist										
Total score (105-204)	146.6	(21.6)	78	148.6	(21.8)	39	144.7	(21.5)	39	.65
Academic ability (4-28)	20.2	(5.3)	71	18.7	(5.5)	37	21.7	(4.8)	34	6.00*
Aggressiveness (8-53)	20.4	(11.3)	78	23.0	(12.0)	39	17.9	(10.1)	39	4.19*
Attractiveness (9-21)	18.0	(2.9)	69	17.6	(2.9)	36	18.5	(2.9)	33	1.38
Disruptiveness (10-60)	23.0	(9.3)	80	24.6	(8.9)	39	21.6	(9.5)	41	2.23
Dominant (7-45)	20.2	(8.6)	80	19.1	(7.8)	39	21.3	(9.3)	41	1.32
Prosocial behavior (7-33)	20.7	(5.5)	78	20.0	(4.9)	39	21.5	(5.9)	39	1.39
Socially insecure (8-50)	21.2	(8.8)	78	22.4	(9.0)	39	20.0	(8.6)	39	1.45
Family Structure										
Demographic variables										
Age of mother in years (20-45)	31.5	(5.7)	155	31.7	(5.3)	76	31.2	(6.0)	79	.28
Age of father in years (19-54)	34.7	(6.6)	134	34.1	(6.3)	68	35.3	(6.9)	66	1.09
Years of education--mother (12-18)	14.2	(1.9)	157	14.0	(1.9)	76	14.3	(2.0)	81	.83

(table continues)

Scale (Range)	Total			Boys			Girls			u ratio
	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	
Years of education--father (8-18)	14.0	(2.4)	151	14.0	(2.3)	74	14.0	(2.4)	77	.00
% w/ two parents living at home	73.7	(44.2)	156	75.0	(43.6)	76	72.5	(44.9)	80	.13[a]
Years married (0-23)	7.1	(4.9)	127	6.4	(4.2)	62	7.7	(5.4)	65	2.40
Hrs/wk mother employed (0-70)	34.5	(13.0)	140	31.9	(14.5)	72	37.2	(10.6)	68	5.95*
Hrs/wk father employed (0-80)	41.9	(11.1)	111	43.6	(9.8)	53	40.3	(12.2)	58	2.55
Hollingshead score (22-66)	43.7	(12.3)	135	44.9	(12.2)	65	42.7	(12.3)	70	1.12
Total household income[b] (2.5-60)	29.3	(18.8)	102	28.9	(18.5)	45	29.6	(19.2)	57	.00
Number of siblings (0-6)	1.7	(1.3)	175	1.6	(1.2)	87	1.7	(1.3)	88	.31
HOME (0-8)	6.2	(2.4)	118	6.1	(2.6)	54	6.2	(2.3)	64	.09
Recent life events (0-9)	2.7	(2.1)	109	2.7	(2.2)	48	2.6	(2.1)	61	.03
Family Process										
Complexity of life (0-9)	2.1	(2.0)	106	2.0	(1.9)	47	2.2	(2.1)	59	.16
Parenting Stress Index--Short Form										
Difficult child (33-59)	47.0	(6.7)	30	47.1	(7.4)	11	46.9	(6.5)	19	.01
Parent/child dysfunction (41-60)	53.8	(4.3)	30	54.2	(3.5)	11	53.6	(4.7)	19	.11
Parent distress (27-60)	46.3	(8.1)	30	49.2	(4.9)	11	44.6	(9.1)	19	2.39
IPE (14-28)	22.9	(3.4)	103	22.6	(3.9)	46	23.2	(2.9)	57	.79
Child-Care Structure										
Demographics										
Providers per room (1-2)	1.3	(.5)	144	1.3	(.5)	76	1.3	(.5)	68	.01
Ratio: providers to children (.05-.25)	.1	(.1)	140	.1	(.1)	73	.1	(.1)	67	.83
Early Childhood Environment Rating Scale										
Motor activity (2.67-6)	4.2	(1.1)	87	4.2	(1.1)	43	(4.1)	1.11	44	.14
Routine care (2-5.4)	3.7	(1.0)	87	3.7	(1.0)	43	(3.7)	0.96	44	.03
Space and materials (1.2-6.2)	3.2	(1.7)	87	3.3	(1.7)	43	(3.2)	1.72	44	.01
Teacher stimulation (2.1-6.2)	4.1	(1.4)	87	4.1	(1.4)	43	(4.1)	1.45	44	.00
Family Day Care Rating Scale										
Total score (82-181)	128.7	(28.1)	31	127.9	(32.7)	11	29.2	(26.1)	20	.01
Basic care (12-37)	24.8	(5.6)	31	23.8	(6.1)	11	25.4	(5.4)	20	.56
Learning activities (21-59)	41.3	(11.3)	31	39.0	(11.7)	11	42.6	(11.1)	20	.69
Adult needs (5-21)	13.4	(4.7)	31	13.1	(5.1)	11	13.5	(4.6)	20	.05
Space and furnishings (16-34)	23.6	(4.7)	31	23.7	(4.1)	11	23.5	(5.0)	20	.02
Caregiver Interaction Scale										
Permissiveness (9-14)	11.6	(1.7)	31	11.0	(1.7)	11	11.9	(1.7)	20	1.76
Punitiveness (10-22)	12.6	(3.8)	31	13.1	(4.2)	11	12.4	(3.6)	20	.27
Job Satisfaction Scale										
Commitment	18.7	(4.4)	63	18.6	(4.6)	30	18.8	(4.3)	33	.05
Work demands/effort (9-14)	12.1	(1.7)	87	12.0	(1.7)	43	12.3	(1.6)	44	.68
Work and family (13-31)	21.1	(6.9)	63	21.6	(6.8)	30	20.7	(7.0)	33	.31
Working conditions (22-42)	35.8	(7.1)	46	35.4	(7.4)	23	36.2	(6.9)	23	.17
Child-Care Process										
Parent evaluation (6-13)	12.3	(1.4)	105	12.1	(1.7)	47	12.5	(1.2)	58	2.29
CCGA # of friends (0-6)	2.3	(1.5)	156	2.2	(1.4)	79	2.4	(1.6)	77	.60
Family Day Care Rating Scale										
Elaboration (6-22)	13.2	(4.4)	30	14.2	(5.9)	11	12.6	(3.4)	19	.85
Language and reasoning (6-22)	14.5	(5.4)	18	16.3	(5.4)	9	12.7	(5.0)	9	2.22
Social development (6-20)	13.9	(4.4)	31	13.7	(4.8)	11	14.1	(4.4)	20	.04
Caregiver Interaction Scale										
Detachment (4-16)	6.8	(3.7)	31	7.4	(3.9)	11	6.5	(3.6)	20	.39
Positive interaction (19-40)	33.8	(6.4)	31	32.3	(6.7)	11	34.7	(6.2)	20	.99

(table continues)

Scale (Range)	Total			Boys			Girls			F ratio
	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	
Job Satisfaction Scale										
Coworker relations (26-38)	31.5	(4.0)	63	31.6	(3.9)	30	31.2	(4.2)	33	.12
Teacher Behavior Rating Scale										
Physical proximity (4-49)	33.2	(13.5)	87	33.6	(13.7)	43	32.9	(13.4)	44	.07
Supportive facial (1-36)	15.6	(9.6)	87	15.4	(9.5)	43	15.7	(9.7)	44	.02
Supportive verbal (5-29)	16.1	(6.5)	87	15.8	(6.5)	43	16.4	(6.5)	44	.16
Physical contact (5-22)	12.8	(6.6)	87	13.2	(6.6)	43	12.4	(6.7)	44	.30
Simultaneous support (0-21)	8.2	(6.6)	87	8.2	(6.6)	43	8.2	(6.6)	44	.00
Verbal instructions (33-59)	44.2	(8.7)	87	44.3	(8.8)	43	44.1	(8.6)	44	.01
Physical instructions (4-26)	16.5	(8.2)	87	16.1	(8.3)	43	17.0	(8.3)	44	.26

[a] Based on chi-square analysis
[b] Income is reported in thousands of dollars
* $p < .05$

Bivariate correlations were then computed between the conceptually related independent variables. Because different measures used are dependent upon the substudy, bivariate correlations were computed using a pairwise deletion of missing cases. This resulted in various sample sizes within each correlation matrix. An explanation of sample sizes and the corresponding measures are included in a note with each correlation table.

Each of the conceptually grouped independent variables was also correlated with the dependent variables. Correlations were used to help define variables for regression analysis. Independent variables that were related (i.e., those variables that approached a statistically significant correlation) with one of the CCGA factors were considered as potential variables in further analyses, subject to conceptual coherency and the minimization of multicollinearity. To minimize the possibility of multicollinearity, independent variables that were highly intercorrelated (i.e., .60 or above) were identified and only one chosen for further analysis based on extant literature and previous research.

Four regression analyses, one for each factor of the CCGA as dependent variable, followed. The goal was to determine which independent variables within

each conceptual category predicted the CCGA factor score with the most parsimonious, statistically significant, maximum model (Kleinbaum, Kupper, & Muller, 1988). Each model was then fitted to the data and an accuracy estimate made.

These analyses resulted in 24 regression models: four (one for each of the four the CCGA factors) from each of the five conceptual categories defined in Table 4 and one from child-care history. Each conceptual group of models (i.e., from each of the five conceptual groupings outlined in Table 4) was then entered as blocks into further regression analyses to determine which block, or combination of blocks, accounted for the most variability in the dependent variables (i.e., each of the four CCGA subscales). Each block of variables was entered in logical combinations with the other blocks to find the most advantageous solution.

Each of these analyses will be reported following the comparison of the CCGA factors and the influence of past child-care history on children's current perceptions of child care.

H_{01}: CCGA Comparison--Children attending the three different forms of child care do not differ in their perceptions of child care.

Children's responses on the CCGA were analyzed among the three child-care forms using a nested (3 forms X 37 centers X 175 children) analysis of variance using the model: $Y_{ijk} = \mu + \tau_i + \beta_{j(i)} + \epsilon_{k(ij)}$ where Y is the score of the individual children, μ is the true estimated overall mean score, τ is the effect associated with each form of child care, β is the effect of an individual center within a child-care form, and ϵ is the residual effect or the effect of an individual child within the center. Children's responses did not vary in a statistically significant manner among the three forms on any of the four factors of the CCGA (see Table 7). Nor did the children attending the different centers vary significantly within the forms of child care.

Table 7

Means and Standard Deviations on the CCGA Factors Among Three Forms of Child Care

Scale (Range)	Center-based			Preschool-based			Home-based			F ratio
	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	
Suitability of setting	7.9	(1.8)	103	7.2	(1.6)	15	7.5	(1.8)	44	2.64
Time spent at setting	47.5	(9.2)	88	45.3	(8.6)	15	38.8	(7.8)	40	2.56
Discipline	5.6	(3.2)	106	6.3	(3.3)	18	5.5	(3.3)	46	.84
Negative provider behavior	1.6	(.7)	105	1.1	(.8)	18	1.4	(.7)	46	1.68

Based on these results, hypothesis #1 should be retained. Children from different forms of child care did not differ in their perceptions of child care.

There was a statistically significant gender effect on the suitability of the setting scale (see Table 6). Girls were more likely than boys, F (1, 160) = 5.26, $p < .05$, to report they liked what they did at child care, they liked going, and they thought the rules were reasonable (e.g., Do you like coming here?; Are they good rules or bad rules?).

H_{02} Influence of Past Child Care--Child-care history, as reported by parents, is not related to children's current perceptions of their child care.

Parents were asked to complete information on their child's child-care history. The information included the form of setting, the familial relationship of the care provider to the child, how many months the child had attended the setting, the number of hours per week the child attended, and the parents' rating of the experience along with their idea of how the child would rate the experience.

Group and Gender Comparisons by Child-Care History Variables

Table 8 shows the means and standard deviations of these measures between the three forms of child care. In a nested (3 forms X 37 centers X 175 children) analysis of variance using the model: $Y_{ijk} = \mu + \tau_i + \beta_{j(i)} + \epsilon_{k(ij)}$ where Y is the score of the individual children, μ is the true estimated overall mean, τ is the effect associated with each form of child care, β is the effect of an individual center within a child-care form, and ϵ is the residual effect or the effect of an individual child within the center, there were no statistically significant differences among the forms of child care. However, there were differences among the centers within the forms of child care. The number of settings children attended, the number of times the forms changed, and the total number of months differed among the various centers, but not among the forms of child care. This suggested there was more variability among centers than there was among the forms of child care.

Table 8

Comparison of Child-Care History Among Children in the Three Forms of Child Care

Scale (Range)	Center-based			Preschool-based			Home-based			F ratio
	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	
No. of child-care settings (0-5)[a]	1.2	(1.2)	108	.6	(1.1)	21	2.1	(1.3)	46	2.02
No. of times form changes (0-5)[b]	.5	(.9)	108	.4	(.8)	21	1.7	(1.4)	46	2.37
Mean mts. at former settings (1-62)[c]	11.0	(9.2)	72	12.7	(7.6)	6	19.2	(13.8)	39	.01
Total mts. at former settings (1-84)	17.3	(15.8)	72	29.3	(19.1)	6	34.5	(15.8)	39	.79
Hrs/wk. at former settings (2-60)	32.3	(15.0)	73	11.5	(6.7)	6	30.7	(12.1)	41	2.07
Parent rating of care (1-5)	4.1	(1.0)	74	4.8	(.3)	6	4.2	(1.0)	42	1.10
Parent's idea of child rating (1-5)[d]	4.2	(.9)	75	4.7	(.4)	5	4.2	(.8)	41	.10

[a] Number of different child-care settings the parents reported
[b] Number of different forms (e.g., home-based care to center-based care) reported
[c] Mean length of time at each setting, not the total amount of time in child care
[d] How the parents thought the child would rate the setting

Even though the groups did not differ by a statistically significant amount, there was an interesting trend in the data. Children in home-based child care had attended an average of at least one more child-care setting and had changed child-care forms more frequently than their preschool or center-based counterparts. They had also attended each setting for a longer length of time and been in child care for more of their lives.

To see how children who attended home-based child care differed from their center-based counterparts, additional chi-square analyses were completed. This analyses focused on the children who had changed forms of child care (e.g., from home-based care to center-based care). The preschool sample was excluded because only those who reported previous child care were eligible. As most of the preschool sample did not report any previous long-term child care, the expected values were too low. Chi-square analysis showed those attending center-based care were less likely to subsequently attend home-based care, chi-square (1) = 9.86, $p < .01$. Further analysis showed a statistically significant association between the two variables (Goodman and Kruskal's $\lambda = .11$, $p < .01$; Reynolds, 1984), suggesting those who attended home-based care were more likely to attend center-based care or another home-based care program than those attending a center-based care to attend home-based care. It appears children who attended home-based child-care programs were more likely to change settings than those who attended center-based care. However, the mean length of time at the settings suggested they also stayed in the setting for a longer period of time.

Surprisingly, those who attended the preschool (mean = 11.47 hours, SD = 6.7) did not differ significantly from the center-based (mean = 32.34, SD = 15.0) or home-based (mean = 30.66, SD = 12.1) participants on the number of hours spent in

previous child care. This may be attributed to the number of parents reporting past child care (only six in the preschool sample). Only those who reported previous child care were entered for analysis, limiting the sample size of the preschool sample. Of the six that were entered, some may not have been true child care. Anecdotal reports from the parents of the preschool children indicated that some parents traded with others in the neighborhood for child care on an irregular or as-needed basis.

Regression Analysis: Predictors of Children's Perceptions from Previous Child-Care Variables

Children's past child-care experiences, as reported by parents, did not appear to influence CCGA responses. Of the 64 correlations reported in Table 9, 3 were

Table 9

Correlations Among the Four Primary Subscales of the CCGA and Children's Child-Care History

Variables	Suitability	Time	Discipline	Negative	N
Number of different settings	.01	.09	.02	.01	147
Number of times form changed	-.06	-.03	-.02	-.05	147
Mean months at former settings	-.04	-.10	.04	-.05	105
Total months in former settings	-.07	-.02	.01	-.10	105
Hours per week at past child care	-.10	-.00	.17*	.00	105
Mean parent rating of past care	.08	.02	-.01	-.04	107
Mean parent/child rating of past care	.18	.03	-.15	-.08	106
Parent rating of most recent setting	.03	-.08	.05	-.02	116
Parent rating of setting #2[a]	-.01	.13	-.03	-.18	56
Parent rating of setting #3[a]	.24	-.07	.23	.19	33
Parent rating of setting #4[a]	.11	-.31	-.40	-.05	15
Parent rating of setting #5[a]	.14	-.30	-.29	.07	6
Parent/child rating of setting #1[b]	.08	-.01	-.11	-.05	106
Parent/child rating of setting #2[b]	.13	.20	-.14	-.14	50
Parent/child rating of setting #3[b]	.47**	.08	.32	.19	31
Parent/child rating of setting #4[b]	.21	-.34	-.59*	.10	14
Parent/child rating of setting #5[b]	.06	.30	-.20	-.00	6

[a] Settings are numbered sequentially from the most recent to the most distant. Some settings may have occurred simultaneously with other settings.

[b] Parent's idea of what child would rate the setting.

* $p < .05$

** $p < .01$

statistically significant, which is slightly less than the 3.2 expected by chance. One of the differences, that as children spend more time per week at a previous child-care setting their perceptions of current care provider discipline are more positive, is conceptually possible, but all three are likely a chance phenomenon.

Because there were no statistically significant, conceptually-based correlations between the CCGA and the reported previous child-care experiences, further analyses, including regression analyses, were not completed. This supports the second null hypothesis that there is no relationship between children's child-care history and their perception of their previous child-care experiences.

H_{03}: Influence of Individual Child Variables--Individual child variables are not related to children's perceptions of their child-care placement.

The children who attended the preschool, two of the center-based child-care settings, and seven of the home-based child-care settings (or participants in substudy #1) did not completed the TELD or CBI. Only children attending the seven center-based settings in substudy #2 were evaluated on the Teacher Checklist. This measure is inappropriate for home-based settings and, therefore, was not administered in substudies #1 or #3. Group comparisons followed the design of a 2 forms X 28 centers X 117 children nested analysis of variance using the model: $Y_{ijk} = \mu + \tau_i + \beta_{j(i)} + \epsilon_{k(ij)}$ where Y is the score of the individual children, μ is the true overall mean score, τ is the effect from each form of child care, β is the effect of an individual center within a child-care form, and ϵ is the residual effect or the effect of an individual child within the center, when it was appropriate. Gender comparisons were completed with a one-way ANOVA, and there were no child-care form comparative statistics with the Teacher Checklist.

Gender and Group Comparisons of Individual Child Variables

Boys were seen as more aggressive by their care providers by a statistically significant margin, Teacher Checklist: F (1,76) = 4.19, $p < .05$, while girls were rated as more intellectually competent, CBI: F (1,106) = 6.47, $p < .05$; Teacher Checklist: F (1,69) = 6.00, $p < .05$, and more task oriented, F (1, 104) = 5.66, $p < .05$, on the CBI and Teacher Checklist. There were no other gender differences (see Table 6).

The group comparisons shown in Table 10 revealed no statistically significant group differences. As noted earlier, the reported F-ratios are for nested ANOVAs, not for the sample size reported in each table. The reported means and standard

Table 10

Comparison of Key Child Variables Between Two Forms of Child Care

Variables	Center-Based			Home-Based			Between form F-ratio[a]
	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	
Test of Early Language Development							
TELD Total	52.8	(4.7)	87	45.8	(7.0)	30	2.54
Classroom Behavior Inventory							
Apathy	8.4	(2.7)	76	8.6	(2.9)	30	1.66
Dependence	6.8	(2.5)	77	7.1	(1.7)	30	.80
Distractibility	9.7	(3.7)	79	10.8	(2.9)	30	2.96
Personal sociability	38.6	(7.3)	77	38.6	(5.8)	30	1.10
Negative classroom adjustment	24.2	(8.7)	79	25.1	(7.2)	30	.02
Task orientation	21.1	(5.0)	76	21.1	(4.2)	30	.33
Intellectual competence	79.5	(12.6)	78	77.9	(11.0)	30	.01
Teacher Checklist							
Total score	146.63	21.59	78				
Academic ability	20.14	5.32	71				
Aggressiveness	20.42	11.26	78				
Attractiveness	18.02	2.89	69				
Disruptiveness	23.05	9.28	80				
Dominant	20.20	8.64	80				
Prosocial	20.73	5.46	78				
Socially insecure	21.15	8.84	78				

[a] F = mean square (form of child care) / Mean square (center nested within form)

deviations are those of interest for each measure, but the F-ratios are those of interest for determining the differences between the forms of child care, not between the children within a center within a form of child care. The number of settings within each form of child care can be found in Table 2. In a statistic not shown, the within-setting F-ratio again showed more variability among the centers within the forms of child care than among the forms of child care.

Regression Analysis: Predictors of Children's Perceptions from Individual Variables

Table 11 shows the correlations between the variables hypothesized to measure qualities of the children. Overall TELD scores significantly correlated with the child's age ($r = .52$, $p < .01$) and negatively correlated with the number of past child-care placements ($r = -.33$, $p < .01$). The two measures that care providers completed on the children were also significantly correlated in logical directions on the various subscales. For example, the academic ability subscale on the Teacher Checklist was significantly correlated with the intellectual competence subscale of the Child Behavior Checklist ($r = .47$, $p < .001$). Further, as care providers perceptions of the child's ability to stay on task increased, so did their intellectual competence ($r = .74$, $p < .001$ with CBI; $r = .55$, $p < .001$ with Teacher Checklist). As their distractibility increased, the care provider's perceptions of the child's intellectual competence (both CBI and Teacher Checklist), attractiveness, prosocial behavior, and ability to stay on task decreased ($r = -.55, -.63, -.40, -.49, -.74$, respectively, $p < .05$ less). Similarly, their apathy, dependence, negative classroom adjustment, and aggression increased ($r = .35, .57, .47, .53$, respectively, $p < .001$).

Correlations between the child measures and the CCGA subscales showed several logical, statistically significant correlations. The discipline subscale of the

Table 11

Correlations Among Variables Measuring Qualities of the Children and the Four Dependent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Age	.--																	
2. Birth Order	.08	.--																
3. Gender	.05	.03	.--															
4. # Past Care	.05	-.05	.04	.--														
5. TELD	.52***	.01	.15	-.33***	.--													
6. Apathy	.06	-.05	-.15	.08	-.22*	.--												
7. Dependence	.11	.08	-.07	-.02	-.07	.42***	.--											
8. Distractibility	-.03	.12	-.12	.20*	-.14	.35***	.57***	.--										
9. Task Orientation	-.04	.03	.23*	-.08	.21*	-.51***	-.47***	-.74***	.--									
10. Personal Sociability	.10	.04	.05	-.05	.28**	-.60***	-.34***	-.15	.31**	.--								
11. Negative Classroom Adjustment	.02	-.05	-.14	-.04	-.11	.27**	.30**	.47***	-.56***	-.16	.--							
12. Intellectual Competence	.03	-.04	.24*	-.07	.31**	-.63***	-.56***	-.55 ***	.74***	.65***	-.37***	.--						
13. Teacher Checklist Total	.20	-.01	-.09	-.20	.04	.28*	.35**	.44***	-.41***	-.19	.78***	-.32**	.--					
14. Academic Ability	-.00	-.13	.28*	-.25*	.12	-.15	-.30*	-.63***	.55***	.30*	-.26*	.47***	-.32**	.--				
15. Aggressiveness	.15	-.03	-.23*	-.17	-.06	.22	.28*	.53***	-.54***	-.14	.91***	-.37**	.84***	-.37**	.--			
16. Attractiveness	.28	-.10	.14	-.12	.38**	-.39**	-.35**	-.40**	.53***	.41**	-.31*	-.58***	-.14	.15	-.28*	.--		
17. Prosocial Behavior	.18	.01	.13	-.03	.33**	-.46***	-.31**	-.49***	.65***	.47***	-.55***	.62***	-.22	.23	-.50***	.54***	.--	
18. Socially Insecure	-.04	.11	-.14	.05	-.27*	.54***	.48***	.22*	-.23*	-.82***	.10	-.61***	.31**	-.37**	.09	-.40**	-.22*	.--
DV1. Discipline	.14	.03	-.02	-.02	.15	-.05	.18	.08	-.09	-.06	.02	-.10	.06	-.28*	-.06	.04	.08	.26*
DV2. Negative Provider Behaviors	-.19*	-.23**	.14	.01	-.08	-.00	.07	.08	-.10	-.15	-.06	-.15	.14	-.07	.06	-.12	-.06	.12
DV3. Suitability	-.05	-.10	.19*	.01	.09	-.33**	-.12	-.20*	.33**	.20*	-.12	.29**	-.06	.17	-.21	.08	.33**	-.10
DV4 Time Spent	.10	-.01	-.01	.09	.24*	-.15	.00	.04	.09	.12	-.21*	.04	-.25*	-.04	-.39**	.24	.24*	-.12

* = $p < .05$

** = $p < .01$

*** = $p < .001$

min $n = 70$ with the teacher checklist score

max $n = 175$ with the demographics

CCGA was significantly correlated in a negative direction (r = -.28, p < .05) with academic ability while care providers' perception of the children's social insecurity was positively correlated (r = .26, p < .05). The older the child, and the higher their birth order, the more likely they were to view their care providers as showing more negative behaviors in child care (r = -.19 and -.23, respectively, p < .05 or less). Not surprisingly, children who scored higher on the suitability subscale of the CCGA were rated as less apathetic by their care providers (r = -.33, p < .01). They were also seen as showing more prosocial behaviors, were more task oriented (r = .33, p < .01 for both correlations), more intellectually competent (r = .29, p < .01), and less distracted (r = -.20, p < .05). Children who rated their child care more positively on the time spent in child-care subscale of the CCGA were seen as less aggressive (r = -.39, p < .01) and were better adjusted to the classroom as scored by the care provider on the CBI (r = -.21, p < .05). They also showed more prosocial behaviors (r = .24, p < .05) and scored higher on the TELD (r = .24, p < .05).

Independent variables that were significantly correlated with the dependent variables were entered into regression analysis following the method advocated by Kleinbaum et al. (1988). Their procedure prescribed a method of selecting the most parsimonious model for each regression from the available variables without useless variables spuriously increasing the amount of variance explained. After conceptually choosing which variables logically predict the score on the dependent measure, and eliminating highly intercorrelated independent variables, they recommend a stepwise approach to further eliminate variables that spuriously inflate the amount of variability explained. This method of variable reduction was chosen for specifying the most coherent, parsimonious model.

Table 12 lists the results of the regressions completed in the study. The models are listed for each category identified in Table 4 by the four subscales of the CCGA. This table will be referred to throughout the text as a summary of results.

One variable, academic ability, was a statistically significant predictor of children's perception of the care provider's discipline. As Table 13 shows, it accounts for 8% of the variability. The model, 9.07 + (-.17 * Academic Ability score on Teacher Checklist), is included in Table 12 along with the other models predicting children's perception of child care. The demographic variables, child's age and birth order, likewise accounted for 8% of the variance on the children's perceptions of their care

Table 12

Summary of Final Regression Models Predicting Children's Perception of Child Care

Conceptual Category	Model[a]	R^2
Teacher discipline		
Child measures	9.07 + (-.17 Academic Ability score on the Teacher Checklist)	.08
Family structure	3.35 + (.06 No. of hours father employed per week)	.04
Family process	-10.40 + (.30 PSI-SF Parent/Child Dysfunction)	.15
Child-care structure	None	
Child-care process	None	
Negative provider behavior		
Child measures	2.71 + (-.02 child's age in months) + (-.13 child's birth order in the family)	.08
Family structure	1.94 + (-.27 [if there are two parents in the family]) + (-.14 birth order of the child)	.08
Family process	1.68 + (-.27 [if there are two parents in the family])	
Child-care structure	3.36 + (-.06 FDCRS Adult Needs) + (-.04 FDCRS Basic Care)	.41
Child-care process	None	
Stability of setting		
Child measures	7.21 + (-.14 CBI apathy score) + (.08 CBI task orientation score)	.14
Family structure	6.20 + (.75) *(1 [if a female child]) + (.03 father's hours at work per week)	.06
Family process	None	
Child-care structure	4.96 + (.23 JSS work demands)	.04
Child-care process	7.28 + (.16 No. friends mentioned on CCGA item 13)	.03
Time spent		
Child measures	33.95 + (.31 TELD Score) + (-.30 aggressiveness score on the teacher checklist)	.20
Family structure	29.67 + (1.14 mother's years of education)	.06
Family process	None	
Child-care structure	-1.65 + (.67 FDCRS basic care) + (2.67 CIS permissiveness)	.49
Child-care process	15.27 + (.90 CIS positive interaction)	.42

[a] Intercept plus regression coefficient multiplied by individual variables

Table 13

Final Steps of the Hierarchical Regression Analyses Predicting Children's Perception of Their Child-Care Setting from Individual Child Variables

Variable	N	B	SE B	β	t	R^2
Discipline	70					
Academic ability		-.17	.07	-.28	2.36	.08
Negative provider behavior	110					
Child's age		-.02	.01	-.17	1.80	
Birth order		-.13	.06	-.22	2.32	.08
Suitability of setting	103					
Apathy		-.14	.07	-.22	2.05	
Task orientation		.08	.04	.22	2.03	.14
Time spent	72					
TELD score		.31	.15	.22	2.02	
Aggressiveness		-.30	.08	-.38	3.53	.20

provider's negative behaviors. The model is also included in Table 12. Fourteen percent of the variance in children's perception of setting suitability was accounted for with two variables, the apathy and task orientation scores from the CBI. These variables combined to provide the predictive formula [7.21 + (-.14 * apathy score) + (.08 * task orientation score)] as shown in Tables 12 and 13. The children's perception of their time spent at the setting is also presented in Table 13 and was predicted in the formula 33.95 + (.31 * TELD Score) + (-.30 * Aggressiveness Score on the Teacher Checklist). These two variables accounted for 20% of the variance on the score.

While these R^2s are small, this represents only the variables measuring qualities of the children. The results also help us reject the third null hypothesis, that child variables are not related to their perceptions of child care. Next the results of the analysis focusing on family structure are presented.

H_{04}: Influence of Family Structure Variables--Current family structure is not related to children's perceptions of their child-care placement.

Thirteen of the 15 variables classified in the family structure category were demographic measures gathered from each of the samples. The other two, the HOME and Recent Life Events scale, were collected from the participants of substudies #2 and #3, or most of the center-based and home-based participants. Group comparisons used the model $Y_{ijk} = \mu + \tau_i + \beta_{j(i)} + \epsilon_{k(ij)}$ where Y was the score of the individual children, μ was the true estimated overall mean score, τ was the effect associated with each form of child care, β was the effect of an individual center within a child-care form, and ϵ was the residual effect or the effect of an individual child within the center. This resulted in a 2 form X 28 center X 117 child nested ANOVA. Gender differences used a one-way ANOVA and the model $Y_{ij} = \mu_i + \beta_j + \epsilon_{ij}$ where Y was the score of the individual child j, μ was the true mean score, β was the gender effect on the score due to the individual child j, and ϵ was the residual effect. Nesting was not appropriate in this equation because the analysis was looking at the difference between genders, not the forms of child care.

Group and Gender Comparisons of Family Structure Variables

Family structure variables encompass the majority of demographic variables presented in Table 3. The few differences between the three forms of child care were discussed in the methods section and in Appendix A. Statistically significant differences were apparent between the forms on one of the eleven family structure demographic measures. Mothers of children who attended the preschool were employed significantly fewer hours per week than their center- or home-based counterparts, F (2, 39) = 20.52, $p < .001$.

Other measures included in the family structure category, the HOME and the summation of a list of recent life events, are included in Table 14. Parents whose children attended center-based care (mean = 2.74, SD = 2.3) reported one more major life event occurring in the previous 12 months than their home-based counterparts, mean = 1.71, SD = 1.3; F (1, 25) = 4.34, $p < .05$, suggesting slightly more life stress. The preschool sample was not administered this instrument.

Statistically significant gender differences occurred only on one measure, the hours per week mother's reported being at work. Girls' mothers reported spending over 5 hours per week longer in employment than the boys' mothers, F (1, 138) = 5.95, $p < .05$.

Regression Analysis: Predictors of Children's Perceptions from Family Structure Variables

Correlations among independent variables. Table 15 shows the correlations between each pair of variables measuring family structure. Logical correlations existed between the demographic variables (e.g., as mothers were older, so were the fathers; as mother's amount of education increased, so did the father's). The recent life events scale showed that as paternal age and education increased, the number of stressful life events decreased ($r = -.32$, $p < .01$; $r = -.40$, $p < .001$, respectively).

Table 14

Comparison of Family Structure Variables Between Two Forms of Child Care

Variable	Center-based			Home-based			Between setting
	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	F-ratio
HOME score	6.59	(1.9)	78	6.74	(1.0)	31	.58
Recent life events	3.05	(2.3)	78	1.71	(1.3)	31	4.87*

* $p < .05$

Table 15

Correlations Among Variables Measuring Family Structure and the Four Dependent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Gender	.--														
2. Birth order	.03	.--													
3. Siblings	.04	.82***	.--												
4. Mother's Age	-.04	.35***	.16*	.--											
5. Fathers Age	.09	.33***	.26**	.70***	.--										
6. Mother's Education	.07	.02	-.02	.50***	.26**	.--									
7. Father's Education	.00	-.03	-.03	.49***	.44***	.62***	.--								
8. Two Parents	-.03	.01	-.09	.28***	.30**	.20*	.40***	.--							
9. Years Married	.14	.20*	-.02	.45***	.35***	.37***	.44***	.52***	.--						
10. # Hrs. Mother worked/week	.20*	-.18*	-.21*	-.07	.04	.01	-.09	-.04	.02	.--					
11. # Hrs. Father worked/week	-.15	.13	.24*	.01	.03	.07	.06	.07	.16	.08	.--				
12. SES	-.09	.09	.02	.50***	.36***	.66***	.64***	.29**	.30**	-.20*	.01	.--			
13. Income	.02	-.02	-.10	.56***	.54***	.53***	.69***	.72***	.59***	.19	.04	.55***	.--		
14. HOME	.03	-.05	.27**	.18	.18	.02	.12	-.03	.01	-.05	.00	.13	.22*	.--	
15. Recent Life Events	.03	-.05	.27**	-.36***	-.32**	-.19	-.40***	-.41***	-.25*	-.00	.10	-.36**	-.45***	.32***	.--
DV1. Discipline	-.02	.03	-.04	.11	.04	.09	.06	.03	.00	.03	.19*	.08	.12	.03	-.06
DV2. Negative Provider Behaviors	.14	-.23**	-.03	-.19*	-.16	-.01	-.10	-.17*	-.15	.15	-.00	-.10	-.20*	.15	.14
DV3. Suitability	.18*	-.09	-.02	-.02	.02	.07	.14	.03	.07	.15	.14	-.03	.08	.04	.03
DV4. Time at setting	-.01	-.01	-.01	.17	.13	.25**	.23**	.06	.08	.04	-.10	.17	.14	.01	-.05

* = $p < .05$
** = $p < .01$
*** = $p < .001$
min $n = 70$ with father's age and income
max $n = 175$ with other demographic variables

Likewise as the number of parents, years together, SES, and income increased, the number of stressful life events decreased ($r = -.41$, $p < .001$; $r = -.25$, $p < .05$; $r = -.36$, $p < .01$; $r = -.45$, $p < .001$, respectively).

Relationships among dependent and independent variables. The few family structure variables that correlated significantly with CCGA scores provided significant predictor variables in regression analysis and a model for each of the four CCGA scales. However, each regression analysis accounted for less than 10% of the variance in each of the four dependent measures. The models are presented in Table 12.

For children's perception of discipline at the child-care setting, the only significant predictor variable was the number of hours the child's father worked per week ($r = .19$, $p < .05$). As the father worked more, the child's perception of discipline at the child-care center improved. The structure of the CCGA did not define the discipline at the center, the children did, and then rated how they felt about that discipline. The regression analysis is presented in Table 16.

Table 16

Final Steps of the Hierarchical Regression Analyses Predicting Children's Perception of Their Child-Care Setting from Family Structure Variables

Variable	N	B	SE B	β	t	R^2
Discipline	109					
No. hours dad worked/week		.06	.03	.19	2.02	.03
Negative provider behaviors	140					
Two parents		-.27	.13	-.17	2.03	
Birth order		-.4	.05	-.23	2.77	.08
Suitability of setting	106					
Gender		.75	.34	.21	2.20	
No. hours dad worked/week		.03	.02	.17	1.77	.06
Time spent	132					
Mother's education		1.14	.39	.25	2.91	.06

Children's views of negative care provider behaviors were correlated with a number of demographic variables including: birth order (r = -.23, p < .01), family income (r = -.20, p < .05), mother's age (r = -.19, p < .05), and the number of parents present in the home (r = .-17, p < .05). These variables were highly intercorrelated however, and only the number of parents in the home and birth order was chosen for the final regression analysis. These variables were both negatively correlated with the dependent variable suggesting that first born children and children from single parent households feel their care provider is more likely to show anger and make them feel badly. Table 16 shows the regression analysis where birth order (β = -.17, p < .01) and the number of parents present (β = -.23, p < .05) were significant predictors of children's perceptions of negative care provider behaviors.

Girls were more likely to feel the child-care setting was suitable to their needs (r = .18, p < .05) and was a significant predictor in this analysis (β = .21, p < .05). Father's time at work also entered into the regression formula (β = .17, p < .05) and is presented in Table 16. Regression formulas are presented in Table 12.

As mothers were more educated, their children's perception of the time spent at child care improved (r = .25, p < .01). This was the only significant predictor and provided the most parsimonious model accounting for 6% of the variance (see Table 16). The predictor variable had a multiplier of 1.14 and an intercept of 29.67 (see the model in Table 12).

The family structure variables accounted for a small amount of variance in all of the four subscales of the CCGA. Even though the correlations were small, they were statistically significant and significantly predicted children's perceptions. Because of these interactions, the fourth hypothesis, that family structure is not related to children's perceptions of child care, should be rejected. Family structure is related to

children's perceptions of child care. Family processes, or the ways in which families interact, get things accomplished, and the general "tone" of family life, will be discussed next.

H_{05}: Influence of Family Process Variables--Current family processes are not related to children's perceptions of their child-care placement.

Nine variables fit into the family process category. Several of the variables conceptually fit in both the family process and structure categories. The Recent Life Events Scale and HOME had items pertaining to both. The number of parents and years married were overtly family structure variables, but have such a strong influence on the functioning within a family (Glen, 1989; McLanahan & Booth, 1991; White, 1991) they were included in the pool of variables for family processes as well. Data regarding the number of parents and the length of time in a two parent family were drawn from all three groups of children. The Complexity of Life Scale and the IPE were completed by the parents in substudies #2 and #3, or most of the center-based and home-based participants. The PSI-SF was completed by parents in substudy #3, a home-based sample.

The two models, $Y_{ijk} = \mu + \tau_i + \beta_{j(i)} + \epsilon_{k(ij)}$, and $Y_{ij} = \mu_i + \beta_j + \epsilon_{ij}$ (where Y is the score of the individual child j, μ is the true estimated overall mean score, τ is the effect associated with each form of child care [i], β is the effect of individual center j within child-care form i in the first model and the effect of gender on the score due to the individual child j in the second model, and ϵ is the residual effect or the effect of an individual child within the center) were used for group comparisons and were identical to those used for the family structure variables. Group comparisons were made where data were drawn from two or more groups.

Gender and Between Group Comparisons on Family Process Variables

There were no statistically significant gender differences on any of the measures classified under family process, including the Complexity of Life Scale, the PSI-SF, or the IPE (see Table 6). Furthermore, the center-based and home-based participants did not differ on these measures of family process (see Table 17). The percentage of two-parent families in the preschool differed significantly from the other two groups, chi-square (2) = 9.57, $p < .01$; see Table 3, with a higher percentage of the preschool children residing in two-parent families than the children in either the center- or home-based child-care settings. This difference did not influence further analysis, however. The preschool sample did not complete the Complexity of Life Scale, the PSI-SF, or the IPE, nor did the other participants of substudy #1, and were subsequently dropped from this set of regression analyses.

Table 17

Comparison of Family Process Variables Between Two Forms of Child Care

	Center-based			Home-based			
Variable	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	F-ratio
Complexity of life	2.31	(2.1)	78	1.65	(1.7)	28	2.60
Parenting Stress Index							
Difficult child	--	--	--	47.0	(6.7)	30	
Parent/child dysfunction	--	--	--	53.8	(4.3)	30	
Parent distress	--	--	--	46.3	(8.1)	30	
Inventory of parent experiences	22.9	(3.5)	72	23.0	(3.2)	31	1.12

Regression Analysis: Predictors of Children's Perceptions from Family Process Variables

To prepare for the regression analysis, correlations between all the independent and dependent variables were run. There were several statistically significant correlations among the measures of family process as shown in Table 18.

Correlations among independent measures. Two-parent families were likely to report being married longer (r = .52, p < .001) than single-parent families, and to report fewer notable life events (r = -.40, p < .001). The measure of family life complexity, or the parents' work schedule, was significantly correlated with the parent distress subscale of the PSI-SF (r = -.52, p < .01) and the variety of stimulation subscale of the HOME (r = .28, p < .01). A discussion of these results will be presented in subsequent chapters.

Table 18

Correlations Among Variables Measuring Family Process and the Four Dependent Variables

Variables	1	2	3	4	5	6	7	8	9
1. # Parents	.--								
2. Years married	.52***	.--							
3. Recent life events	-.40***	-.24*	.--						
4. Complexity of life	.09	.06	.07	.--					
5. HOME	.01	.09	.12	.28**	.--				
6. Difficult child	.05	.51**	-.17	-.29	.11	.--			
7. Parent/child dysfunction	.01	.28	-.03	-.30	.29	.67***	.--		
8. Parent distress	.27	.24	-.38*	-.52**	.34	.56**	.33	.--	
9. Inventory of parent experiences	-.06	-.03	.04	-.12	.04	.29	.13	.27	.--
DV1. Discipline	.03	.00	-.04	-.03	.13	.31	.39*	.04	.14
DV2. Negative provider behaviors	-.17*	-.15	.11	.05	.09	-.11	-.23	-.10	-.14
DV3. Suitability of setting	.04	.08	.00	.14	-.05	-.21	-.13	-.29	-.05
DV4. Time at child care	.06	.08	-.04	.07	.07	.20	.15	.06	-.18

* = p < .05
** = p < .01
*** = p < .001
min n = 27 with the PSI Short Form
max n = 169 with the demographic measures, recent life events, and HOME

Relationships among dependent and independent variables. Statistically significant correlations between the measures of family process and the dependent variables were very limited. However, as parents reported increased amounts of dysfunction between themselves and their children as measured by the PSI-SF, the children reported more satisfaction with the discipline at child care ($r = .39$, $p < .05$, $n = 31$). As a result of this finding, the parent/child dysfunction subscale was used in regression analysis for the discipline scale of the CCGA. The parent/child dysfunction subscale accounted for 15% of the variance in the dependent measure and was the only significant predictor ($\beta = .39$, $p < .05$; see Table 19). The formula generated from the regression is reported in Table 12.

The negative provider behaviors scale of the CCGA correlated significantly with the number of parents in the children's home ($r = -.17$, $p < .05$). Children who had two parents in their family were less likely to perceive their child-care provider as showing negative behaviors. This correlation resulted in the regression 1.68 + (-.27 if there are two parents in the family). The formula, while statistically significant, may not be practically significant. The number of parents in the children's family only accounted for 3% of the variance (see Table 19).

Table 19

Final Steps of the Hierarchical Regression Analyses Predicting Children's Perception of Their Child-Care Setting from Family Process Variables[a]

Variable	N	B	SE B	β	t	R^2
Discipline	30					
Parent/child dysfunction		.30	.13	.39	2.25	.15
Negative provider behaviors	151					
No. parents		-.27	.13	-.17	2.10	.03

[a] Other dependent measurers were not statistically significantly correlated with variables in this category, thus precluding regression analyses.

None of the family process variables correlated significantly with the children's perceptions of suitability of the setting or perception of time spent. Therefore, none were entered into regression equations for these variables.

The family process variables, while presenting two statistically significant correlations with children's perceptions, were generally not related. Despite these low correlations, and the amount of variance explained, the fifth hypothesis was rejected. Current family processes were related to children's perceptions of their child-care placement, in a limited way.

H_{06}: Influence of Child-Care Structure Variables--Child-care structure is not related to children's perceptions of their child-care placement.

Five measures provided 17 variables that conceptually fit in the child-care structure category. Most of these variables were collected from the child-care centers, not on the children themselves. The ECERS, FDCRS, and CIS were observation measures and the JSS was completed by the care provider. The ECERS is an instrument for center-based child-care facilities with four subscales. The JSS has four subscales conceptually related to this child-care structure. These measures were completed in substudy #2. The FDCRS and CIS (with four and two subscales, respectively, fitting in this category) were completed in substudy #3.

The sample size was considerably smaller than the previous analyses. The variables were either observations for the group of children or the provider's perceptions of the working conditions, not individual child scores. Between-group comparisons were inappropriate for most measures because the home-based child-care centers necessarily used different measures than the center-based child-care centers (the information was not collected from the child-care centers in substudy #1).

Group and Gender Comparisons on Child Care Structure Variables

Two demographic measures, the number of providers in the room, and the provider:child ratio, were applicable to all three forms of child care. These measures, along with the means and standard deviations of the other variables, are included in Table 20. The model: $Y_{ij} = \mu + \tau_i + \epsilon_{ij}$, was similar to the previous models, except the observations were not nested. Y was the score obtained on the center, μ was the true estimated overall mean score, τ was the variation inherent in the center i, and ϵ was the residual effect.

There was a statistically significant difference on the ratio of providers to children among the forms of child care ($F(2, 13) = 24.28$, $p < .001$; LSD procedure). There were more providers per child in the preschool classrooms (mean = .25, or 1 adult to every 4 children, SD < .01) than the in the home-based care (mean = .17, or 1 adult to 6 children, SD = .02) and more in the home-based care than in the center-based care (mean = .09, or 1 adult to every 11 children, SD = .03). The difference was expected and logical considering the forms of child care in this study. The preschool was part of a training program for future child-care providers and teachers and had a comparatively large number of care providers per child. Home-based centers were smaller, generally had fewer children, and served other functions, such as a home for a family. The center-based facilities were used solely for child care and typically had several classrooms with one or more child-care providers in each room. However, the sample size and standard deviations were small enough to warrant caution in interpreting these findings.

Table 20

Comparison of Child-Care Structure Variables Among Three Forms of Child Care

Scale (Range)	Center-based			Preschool-based			Home-based			F ratio
	$\bar{X}$	(SD)[a]	n	$\bar{X}$	(SD)[a]	n	$\bar{X}$	(SD)[a]	n	
Demographics										
Care providers in room	1.6	(.5)	7	5.0	(.0)	1	1.0	(.0)	7	2.50
Provider:child ratio	.1	(.0)	7	.3	(.0)	1	.2	(.0)	7	24.28***
Early Childhood Rating Scale										
Motor activity	4.2	(1.2)	7							
Routine care	3.7	(1.1)	7							
Space and materials	3.1	(1.9)	7							
Teacher stimulation	4.2	(1.6)	7							
Family Day Care Rating Scale										
Total score							132.4	(28.5)	20	
Basic care							26.2	(6.0)	20	
Learning activities							41.5	(10.8)	20	
Adult needs							13.6	(4.5)	20	
Space and furnishings							24.4	(4.9)	20	
Caregiver Interaction Scale										
Permissiveness							11.2	(1.5)	20	
Punitiveness							12.5	(3.4)	20	
Job Satisfaction										
Commitment	18.4	(5.3)	5							
Work demands-effort	12.1	(1.7)	7							
Work and family	21.6	(7.3)	5							
Working conditions	35.0	(8.9)	4							

[a] Standard deviations were rounded to the nearest one tenth decimal place. Where standard deviations were reported to equal 0, the standard deviation was below .05. The preschool was omitted from this analysis.

*** $p < .001$

Regression Analysis: Predictors of Children's Perceptions from Child-Care Structure Variables

Correlations among independent variables. Correlations within measures for the child-care structure variables were high except for the Job Satisfaction Scale (JSS). The JSS was completed by the seven care providers participating in substudy #2. It is interesting to note that as teachers were more committed to providing child care, routine care, space and materials, and teacher stimulation scales of the independently observed ECERS increased (see Table 21). These scales were significantly

Table 21

Correlations Among Variables Measuring Child-Care Structure and the Four Dependent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. No. Providers/Room	.--														
2. Provider.Child Ratio	-.21	.--													
Early Childhood Environment Rating Scale (n = 7)															
3. Motor Activity	.64	.80	.--												
4. Routine Care	.68	.58	.78*	.--											
5. Space and Materials	.60	.54	.90**	.92**	.--										
6. Teacher Stimulaiton	.58	.54	.85*	.94**	.97***	.--									
Family Day Care Rating Scale (n = 20)															
7. Total score							.--								
8. Basic care							.81***	.--							
9. Learning activities							.91***	.74***	.--						
10. Adult needs							.77***	.59**	.64**	.--					
11. Space and Furnishings							.81***	.57**	.72***	.47*	.--				
Caregiver Interaction Scale (n = 20)															
12. Permissiveness							.14	.06	.27	.11	-.09	.--			
13. Punitiveness							-.62**	-.37	-.59**	-.56*	-.47*	-.49*	.--		
Job Satisfaction Scale (n = 4)															
14. Commitment	.99	.85	.71	.98**	.87*	.97**								.--	
15 Work demands-effort	-.38	-.45	-.28	.09	.02	.08								-.13	.--
16. Work and family	-.76	-.42	.41	-.25	.06	.02								-.10	-.53
17. Working conditions	.11	-.30	.52	.85	.76	.83								.86	.35
DV1. Discipline	-.10	.13	.53	.35	.34	.33	-.34	-.30	-.19	-.34	-.21	.17	.15	.44	-.56
DV2. Negative Provider Beh.	-.01	-.28	-.24	-.40	-.15	-.22	-.43*	-.55	-.29	-.64**	-.24	.11	.17	-.12	-.23
DV3. Suitability of setting	.30	-.39	-.10	-.00	.13	.23	.18	.30	-.15	.04	.09	.09	-.25	.56	.61
DV4. Time w/child care	-.15	-.18	-.00	-.34	-.18	-.06	.41	.54*	.47*	.16	.18	.56*	-.45*	.23	-.17

* = $p < .05$
** = $p < .01$
*** = $p < .001$
min $n = 4$ for the Job Satisfaction Scale
max $n = 20$ for the FDCRS, CIS

correlated, though caution in interpreting these findings is warranted because of the extremely low sample size.

Relationships among dependent and independent variables. Two of the CCGA subscales were not significantly correlated with the independent variables and two were moderately correlated. The moderate correlations provided significant results in regression analysis, but caution is again warranted because of the small sample size.

The discipline and suitability of the setting subscales of the CCGA were not significantly correlated with the child-care structure variables. Therefore, regression analyses was not completed.

Child-care providers whom children perceived as showing fewer negative behaviors scored higher on the adult needs scale (took opportunities for professional growth, had a good relationship with parents; $r = -.64$, $p < .01$) and total score of the FDCRS ($r = -.43$, $p < .01$). The FDCRS adult needs and total score were also highly correlated ($r = .77$, $p < .001$). To avoid multicollinearity, the conceptual clarity of the adults needs score was chosen as a predictor in regression analysis on the negative provider behaviors subscale of the CCGA. This resulted in a significant regression of negative provider behaviors ($\beta = -.64$, $p < .01$; $n = 20$) accounting for 41% of the variance (see Table 22).

The time in child-care subscale of the CCGA was significantly correlated with the provider's perceptions of work and family as measured by the JSS ($r = .87$, $p < .05$), permissiveness as rated on the CIS ($r = .56$, $p < .05$), the FDCRS basic care ($r = .54$, $p < .05$), CIS punitiveness ($r = -.45$, $p < .05$), and the FDCRS learning activities ($r = .47$, $p < .05$). The JSS was administered to participants of substudy #2 and the CIS and FDCRS were measures in substudy #3. The different samples made a single regression impractical, so two were completed.

Table 22

Final Steps of the Hierarchical Regression Analyses Predicting Children's Perception of Their Child-Care Setting from Child-Care Structure Variables[a]

Variable	N	B	SE B	β	t	R^2
Negative provider behaviors	20					
Adult needs		-.09	.03	-.64	3.51	.41
Time spent	20					
Permissiveness		2.54	.75	.53	3.38	
Basic care		.59	.18	.51	3.22	.58

[a] Other dependent measures were not statistically significantly correlated with variables in this category, thus precluding regression analyses.

For the center-based sample of substudy #2, the most highly correlated measure, the working conditions as seen by the care provider on the JSS, was a significant predictor ($\beta = .87$, $p < .05$) accounting for 76% of the variance. However, there were only five care providers who completed this measure, making generalizations tenable at best.

The other two measures, the CIS and FDCRS, were administered to the home-based care sample of substudy #3, and the appropriate scales were entered into a regression formula. The learning activities scale of the FDCRS was highly correlated with the basic care scale ($r = .74$, $p < .001$) and the CIS punitiveness scale ($r = .-.59$, $p < .01$) prompting its exclusion from further analysis because of multicollinearity. The other three scales were entered in the hierarchical regression analysis. The CIS punitiveness scale was not a significant predictor ($\beta = -.01$, $p = .95$) of children's perceptions of their time at the child-care setting when entered with permissiveness ($\beta = .2.54$, $p < .01$) and basic care ($\beta = .59$, $p < .01$). These two variables accounted for 58% of the variance (see Table 22) with a sample size of 20 home-based care centers.

Based on the results of these regressions, the null hypothesis was rejected. Children's perceptions were correlated with the structure of the child-care setting. Although two of the subscales of the CCGA did not have statistically significant correlates, the remaining two subscales had correlates that were rational and were statistically significant predictors.

The next section builds on this analysis and looks at child-care processes.

H_{07}: Influence of Child-Care Process Variables--Current child-care processes are not related to children's perceptions of their child-care placement.

Similar to child-care structure, the majority of measures in this section were collected on the center, not on individual children. The measures included the detachment and positive interaction scales of the CIS; the elaboration, language and reasoning, and social development scales of the FDCRS; the coworker relations scale of the JSS, and the six scales of the TBRS. The statistical model and procedures were similar to the procedures followed for the previous section on child-care structure.

Five measures were gathered on individual children. These measures included the parent rating of the child-care setting, the number of friends children mentioned as part of their CCGA interview, the parent evaluation scale, the number of previous child-care placements, and the number of times the form of child care changed.

Group and Gender Comparisons for Variables Measuring Child-Care Processes

Demographic measures. As previously mentioned, most variables measuring child-care processes were gathered on the centers. The demographic measures were collected from individual children. To keep the unit of analysis the same between measures, the responses from individual families and children were aggregated into a

single score for each center. This was done by averaging scores across children and using the mean as the center score (D. V. Sisson, personal communication, July 8, 1997). Means, standard deviations, and number of centers are reported in Table 23.

Group differences were apparent on the demographic measures gathered at each center. The preschool children attended only a single center (albeit different classrooms), and thus a standard deviation between centers for the form of child care could not be obtained and was omitted from these analyses. The results indicated children attending home-based child care attended more previous child-care centers

Table 23

Comparison of Child-Care Process Variables Among Three Forms of Child Care

Scale (Range)	Center-based			Preschool-based[a]			Home-based			F ratio
	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	
Parent rating (3-5)	4.2	(.4)	9	4.8		1	4.3	(.6)	27	.66
No. past centers (0-5)	1.2	(.7)	9	.6		1	2.3	(1.2)	27	4.25*
Time changed forms (0-5)	.5	(.3)	9	.4		1	1.9	(1.3)	27	6.15**
CCGA No. friends mentioned (1-6)	2.4	(.4)	9	1.2		1	2.9	(1.5)	27	1.32
Parent evaluation (9-13)	11.9	(1.3)	7				12.9	(.3)	20	12.05**
Caregiver Interaction Scale										
Detachment							6.6	(3.1)	20	
Positive interaction							34.1	(5.6)	20	
Family Day Care Rating Scale										
Elaboration							13.7	(4.5)	19	
Language and reasoning							15.6)	(5.0)	12	
Social development							14.2	(4.2)	20	
Job Satisfaction Scale										
Coworker relations	32.0	(4.3)	5							
Teacher Behavior Rating Scale										
Physical proximity	32.9	(14.4)	7							
Supportive facial	15.6	(11.0)	7							
Supportive verbal	15.6	(7.1)	7							
Simultaneous support	8.1	(7.3)	7							
Verbal instructions	44.6	(9.8)	7							
Physical instructions	15.9	(8.7)	7							

[a] The preschool sample is shown for comparative purposes. Statistics were not completed using this subsample.

* $p < .05$
** $p < .01$
*** $p < .001$

(mean = 2.26; SD = 1.19) and changed forms more frequently (mean = 1.90; SD = 1.27) than their center-based (# centers mean = 1.15, SD = .70; forms changed mean = .46, SD = .29) or preschool counterparts, F (2, 34) = 4.25, $p < .05$; F (2, 34) = 6.15, $p < .01$; respectively.

This difference is in contrast to results reported in Table 8, where no significant group differences were reported. The difference in the analysis results can be attributed to the method of obtaining the results. Averaging the individual children's scores into a single score for the various centers changed the sample size and provided a single score for a group of children. This was needed in this section to keep the unit of analysis the same across measures and provide meaningful results for subsequent regression analysis. However, it should not be interpreted as the most appropriate form of analysis evaluating group differences with these measures. These measures were gathered on individual children who were attending (nested within) a center within a specific form of child care. Table 8 shows the results of the nested ANOVA, the most appropriate analysis for these measures.

The parents who sent their children to home-based child-care centers also evaluated the home-based child-care center higher on the parent evaluation scale, $F = (1, 25) = 12.05$, $p < .01$. The same caution mentioned for the number of previous child-care settings is warranted here. This is a measure on individual children whose scores were averaged together to obtain a single center measure.

Children did not differ between the forms of child care on the number of friends they mentioned as part of the CCGA. Nor did their parents evaluate the various forms of child care as significantly different on the 5-point Likert scale item asking them to rate how they felt about the setting.

Center measures. Given the nature of the data, group comparisons using the CIS, FDCRS, JSS, and TBRS could not be made. These instruments were properly administered to different subsamples depending on the form of child care and original substudy. The means, standard deviations, and number of centers are reported on Table 23 as a reference.

Gender differences. There were no statistically significant gender effects on the individual child measures classified in the child care process category. Male and female children were in similar circumstances with regard to the variables measuring child-care processes.

Regression Analysis: Predictors of Children's Perceptions from Child-Care Structure Variables

Center-level variables in the child-care process category provided correlations that afforded a meaningful regression for children's perception of the time spent at the center. The correlations for all the variables in this category are shown in Table 24. These correlations show the intra-measure correlations were high for the CIS and FDCRS, and low for the TBRS.

Correlations among independent variables. Across measures, as centers scored lower on the CIS detachment scale, they scored higher on FDCRS' social development scale ($r = -.57$, $p < .01$; $n = 20$). The positive interaction scale of the CIS correlated $r = .60$ ($p < .01$; $n = 20$) with the social development scale. Oddly, as the mean number of friends children mentioned increased, the center's social development score decreased ($r = -.45$, $p < .05$; $n = 20$).

The Job Satisfaction Scale had one statistically significant correlation, with the parent rating of the child-care setting ($r = .90$, $p < .05$; $n = 5$) and an apparent

Table 24

Correlations Among Variables Measuring Child-Care Process and the Four Dependent Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Demographic measures																		
1. Parent ratings	.--																	
2. No. past centers	-.18	.--																
3. C.C. forms changed	-.09	.91***	.--															
4. No. friends @ center	-.30	.05	.17	.--														
5. Parent evaluation	.00	.29	.27	.14	.--													
Caregiver Interaction Scale																		
6. Detachment	-.15	-.12	-.11	.12	-.39	.--												
7. Positive interaction	.31	.06	.04	-.12	.38	-.92***	.--											
Family Day Care Rating Scale																		
8. Elaboration	.26	-.06	-.07	-.08	.27	-.28	.41	.--										
9. Language & reasoning	.31	-.01	-.02	-.29	.60*	-.42	.48	.89***	.--									
10. Social development	.31	.22	.13	-.45*	.05	-.57**	.60**	.49*	.69*	.--								
Job Satisfaction Scale																		
11. Coworker relations	.90*	-.46	-.27	.15	-.29						.--							
Teacher Behavior Rating Scale																		
12. Physical proximity	-.37	-.83*	-.83*	.03	-.20						.14	.--						
13. Supportive facial	.44	-.08	.05	-.49	.50						.59	-.04	.--					
14. Supportive verbal	.15	-.15	-.02	-.41	.56						.39	.11	.89**	.--				
15. Physical contact	.13	-.87*	-.62	.30	-.47						.85	.54	.34	.28	.--			
16. Simultaneous support	.15	-.56	-.35	-.29	.24						.67	.39	.86*	.86*	.68	.--		
17. Verbal instructions	-.20	.24	.31	.49	-.49						-.35	-.54	-.57	-.62	-.21	-.60	.--	
18. Physical instructions	-.31	.26	.14	.37	-.18						-.94*	-.21	-.58	-.24	-.41	-.55	.44	.--
DV1. Discipline	.12	.12	.07	.04	.10	.13	-.03	-.24	-.20	-.38	.12	-.11	.27	.08	-.11	.08	-.31	-.55
DV2 Negative provider beh.	-.15	-.00	-.06	.20	-.07	.29	-.32	-.21	-.28	-.41	.86*	.06	.07	.07	.75*	.27	.24	.11
DV3 Suitability of setting	-.04	-.23	-.16	.19	-.02	-.40	.38	.15	-.02	.04	.77	-.46	.09	.13	.09	-.12	.05	.46
DV4 Time at setting	.06	.11	.08	.02	-.06	-.57**	.71***	.24	.19	.31	.03	-.10	-.36	-.18	-.15	-.39	.03	.58

* = $p < .05$
** = $p < .01$
*** = $p < .001$
min $n = 5$ with the JSS, 7 with the TBRS
max $n = 37$ with the other measures

discrepancy with that score, the parent evaluation (r = -.29, p = .64; n = 5). However, the sample size was extremely low, making generalizations and the power of the statistic questionable.

The number of past child-care centers for the children on average in each form, and the number of times the forms changed, negatively correlated with the TBRS measure of physical proximity (r = -.83, p < .05, n = 7 for both correlations) and the amount of physical contact shown in the individual centers (r = -.87, p < .05; n = 7 for the number of past centers only). This finding is addressed further in the next chapter.

Relationships among dependent and independent variables. Correlations with the scales on the CCGA were meager. There were no statistically significant correlations with the CCGA discipline or suitability of setting subscales. Thus, regressions were not completed with these variables.

The negative provider behaviors subscale of the CCGA was significantly correlated with the coworker relations subscale of the JSS (r = .86, p < .05, n = 5) and the physical contact subscale of the TBRS (r = .75, p < .05, n = 7). These two subscales could not be conceptually related to the dependent variable and they were too highly intercorrelated (r = .85, p = .07; n = 5) to proceed with the regression for the negative provider behaviors subscale.

For the CCGA subscale regarding children's perception of time spent at the setting, both CIS scales correlated with the dependent variable (detachment: r = -.57, p < .01, n = 20; positive interaction: r = .71, p < .001, n = 20) and with each other (r = -.92, p < .001, n = 20). Positive interaction was entered as the single predictor variable, which accounted for 51% of the variance (β = .71, p < .001, n = 20; see Table 25).

Table 25

Final Steps of the Hierarchical Regression Analyses Predicting Children's Perception of Their Child-Care Setting from Child-Care Process Variables[a]

Variable	N	B	SE B	β	t	R^2
Time spent						
CIS positive interaction	20	.88	.20	.71	4.30	.51

[a] Other dependent measures were not statistically significantly correlated with variables in this category, thus precluding regression analyses.

Despite the small sample size, these analyses provided tentative evidence for a coherent relationship between a child-care process variable and children's perceptions of child care. Because of this, the null hypothesis (current child-care processes are not related to children's perceptions of their child-care placement) was rejected.

Summary

The preceding sections have described analyses for each of the six hypotheses defined at the end of Chapter 1. We failed to reject the first two hypotheses: that children in different forms of child care do not differ in their perceptions of child care, and that children's child-care history is not related to their current perceptions of child care. Four hypotheses were rejected. These included the four involving the family, child care, structures, and processes; namely family ($H:_{03}$ and $H:_{04}$) and child care ($H:_{05}$ and $H:_{06}$) structures and processes variables are not related to children's perceptions of child care.

Further Analyses

The relationships reported in the previous sections answered the specific questions posed in the null hypotheses but did not define which group of variables, or combination of groups, accounted for more variance in the dependent measures. To ascertain these relationships, further analyses were completed.

This set of analyses focused on combining results of the previous sections (organized by the variable classification) to discover the most efficient model for explaining the variance in the dependent measures. The analyses reported in this section are divided according to the four dependent measures, the subscales of the CCGA. To complete the analyses, independent variables that were significant predictors of each CCGA subscale were correlated--across conceptual classifications. Then, minimizing multicollinearity, they were entered as blocks into regressions predicting the subscales of the CCGA. Blocks were entered separately and together to account for variance on the dependent measure.

Unit of Analysis Resolution

Most of the child-care structure and process variables were measures on the centers, while the child, family structure, and family process measures were obtained directly from the individual children or their families. These different units of analyses precluded further regression analysis unless the various levels of observation could be reconciled. Two methods of reconciliation were considered: (a) aggregating the scores of the children to obtain a mean score for each center, or (b) duplicating the center scores for each child. The first method, which was done for the earlier analysis, masked important information available from the individual children and severely limited the sample size in previous analysis. It also made significant

correlations unlikely while accounting for large variances in regression analysis, increasing the probability of a Type II error. The second method would inflate the sample size and, subsequently, the degrees of freedom, making statistically significant differences more likely and increasing the probability of a Type I error.

The goal of the analyses reported in this section was to show which group of variables, be it individual, family, child care, process, product or a combination of classifications, accounted for the largest amounts of variance in each dependent measure. Before a decision could be made about the method of joining the units of analysis, a comparison of the different methods was undertaken. The analyses focused on the child-care structure and process variables, where the unit of analysis discrepancies were most prevalent.

Child-care structure. Mean comparisons for the child-care structure variables with the center measures replicated to each child can be found on Table 26. Visual comparison between Tables 20 and 26 showed means and standard deviations very similar on a measure-by-measure basis. By using a nested ANOVA, the provider/child ratio showed statistically significant differences between the forms of child care with the same magnitude as the more conservative ANOVA reported in Table 20.

The correlation table, Table 27, was also very similar to Table 21. The larger sample size produced a larger number of significant correlations but the magnitudes were very similar. The most consistent discrepancies between Tables 21 and 27 were from the JSS. The discrepancy resulted in a statistically significant correlation between the work demands and effort subscale of the JSS and the suitability subscale of the CCGA. The JSS was regressed on the CCGA suitability subscale ($\beta = .21$, $p < .05$, $n = 85$), but accounted for only 4% of the variance (see Table 28).

Table 26

Comparison of Child-Care Structure Variables Among Three Forms of Child Care with Center Measures Replicated to Each Child

Scale (Range)	Center-based			Preschool-based			Home-based			F ratio
	$\bar{X}$	(SD)*	n	$\bar{X}$	(SD)*	n	$\bar{X}$	(SD)*	n	
Demographics										
Care providers in room	1.4	(.5)	108	5.0	(.0)	21	1.0	(.0)	13	.00
Provider/child ratio	.1	(.0)	108	.3	(.0)	21	.2	(.0)	11	26.08***
Early Childhood Environment										
Rating scale										
Motor activity	4.2	(1.1)	87							
Routine care	3.7	(1.0)	87							
Space and materials	3.2	(1.7)	87							
Teacher stimulation	4.1	(1.4)	87							
Family Day Care Rating Scale										
Total score							128.7	(28.1)	31	
Basic care							24.8	(5.6)	31	
Learning activities							41.3	(11.3)	31	
Adult needs							13.4	(4.7)	31	
Space and furnishings							23.6	(4.7)	31	
Caregiver interaction scale										
Permissiveness							11.5	(1.7)	31	
Punitiveness							12.6	(3.8)	31	
Job Satisfaction Scale										
Commitment	18.7	(4.3)	63							
Work demands-effort	12.1	(1.7)	87							
Work and family	21.1	(6.9)	63							
Working conditions	35.8	(7.1)	46							

* Standard deviations were rounded to the nearest one-tenth decimal place. Where standard deviations were reported to equal 0, the standard deviation was below .05. The preschool was separated into the two classrooms for this analysis.

*** $p < .001$

Another discrepancy added FDCRS' basic care to the regression for negative provider behaviors. The basic care subscale was a significant predictor ($\beta = -.34$, $p < .05$, $n = 31$) along with FDCRS' adult needs ($\beta = -.39$, $p < .05$, $n = 31$). Together they accounted for 41% of the variance (see Table 28).

The regression model for children's perception of their time spent at child care was similar with both methods, the aggregated children into centers, and the centers replicated to the children. Table 28 shows the CIS permissiveness subscale ($\beta = .52$, $p < .001$, $n = 30$) and the FDCRS basic care subscale ($\beta = .42$, $p < .01$, $n = 30$)

Table 27

Correlations Among Variables Measuring Child-Care Structure and the CCGA Using Replicated Center Variables

Variables		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	No. providers/room	.--																
2.	Provider:child ratio	-.07	.--															
Early Childhood Environment Rating Scale (n = 7)																		
3.	Motor activity	.83***	.71***	.--														
4.	Routine care	.75***	.40***	.75***	.--													
5.	Space and materials	.77***	.52***	.90***	.91***	.--												
6.	Teacher stimulation	.75***	.45***	.85***	.93***	.96***	.--											
Family Day Care Rating Scale (n = 20)																		
7.	Total score							.--										
8.	Basic care							.80***	.--									
9.	Learning activities							.90***	.72***	.--								
10.	Adult needs							.78***	.55**	.73***	.--							
11.	Space and furnishings							.76***	.55**	.55**	.40*	.--						
Caregiver Interaction Scale (n = 20)																		
12.	Permissiveness							.34	.10	.48**	.34	-.02	.--					
13.	Punitiveness							-.64***	-.27	-.55**	-.64***	-.46**	-.58**	.--				
Job Satisfaction Scale (n = 4)																		
14.	Commitment	.85***	.33**	.72***	.97***	.86***	.96***								.--			
15	Work demands-effort	-.59***	-.60***	-.38***	.03	-.09	-.01								-.27*	.--		
16.	Work and family	.08	.02	.51***	-.19	.21	.14								-.02	-.60***	.--	
17.	Working conditions	.49**	-.28*	.46**	.82***	.73***	.79***								.83***	.32*	.00	.--
DV1.	Discipline	.08	.08	.16	.08	.10	.08	-.21	-.23	-.07	-.15	-.21	.17	.05	.10	-.19	.21	.16
DV2.	Negative provider beh.	.09	-.18*	-.02	-.07	.00	-.02	-.43*	-.55**	-.33	-.58**	-.23	.03	.19	.01	-.07	.06	-.09
DV3.	Suitability of setting	.05	-.20*	-.02	.01	.06	.10	.03	.12	.00	-.00	.03	-.06	-.06	.11	.21*	.11	.14
DV4.	Time w/child care	.03	-.14	.05	-.10	-.02	.02	.46*	.47**	.52**	.30	.17	.56**	-.46*	.09	-.05	.32*	.03

* = $p < .05$
** = $p < .01$
*** = $p < .001$
min n = 46 for the Job Satisfaction Scale
max n = 167 for the demographic measures

Table 28

Final Steps of the Hierarchical Regression Analyses Predicting Children's Perceptions of Child-Care Structure Variables Using Replicated Center Variables[a]

Variable	B	SE B	β	t	R^2	n
Negative provider behaviors						
Adult needs	-.06	.03	-.39	2.23		
Basic care	-.04	.02	-.34	1.94	.41	31
Suitability						
Work demands and effort	.23	.11	.21	1.98	.04	85
Time spent						
Permissiveness	2.67	.71	.52	3.77		
Basic care	.67	.22	.42	3.04	.49	30

[a] The discipline subscale was not statistically significantly correlated with variables in this category thus precluding regression analyses.

accounting for 49% of the variance compared to 58% of the variance with the more conservative data base. The regressions completed with this method were reported in Table 12.

Child-care process. The unit of analysis also needed to be resolved for the child-care process variables. Means, standard deviations, and sample size using the center variables replication method for variables measuring child-care processes can be seen on Table 29. Comparing Table 29 with Table 23 shows center replication method as providing fewer statistically significant differences between groups than aggregating the child data to a single center score. In both tables, the means for the center measures were not analyzed for differences between groups because each measure was gathered on a single group. The means and standard deviations shown in Table 29 are comparable to those shown in Table 23. Comparison of each measure between the two tables reveals differences of less than one standard deviation.

Table 29

Comparison of Child-Care Process Variables Among the Three Forms of Child-Care Settings with Center Measures Replicated to Each Child

Variable (Range)	Center-based			Preschool-based			Home-based			F ratio
	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	$\bar{X}$	(SD)	n	
CCGA No. friends mentioned (1-6)	2.3	(1.4)	93	1.2	(1.5)	20	2.8	(1.6)	43	.64
Parent Evaluation (9-13)	12.1	(1.6)	74				12.9	(.4)	31	.04
Caregiver Interaction Scale										
Detachment							6.8	(3.7)	31	
Positive interaction							33.8	(6.4)	31	
Family Day Care Rating Scale										
Elaboration							13.2	(4.4)	30	
Language and reasoning							14.5	(5.4)	18	
Social development							13.9	(4.5)	31	
Job Satisfaction Scale										
Coworker relations	31.4	(4.0)	63							
Teacher Behavior Rating Scale										
Physical proximity	33.2	(13.5)	87							
Supportive facial	15.6	(9.6)	87							
Supportive verbal	16.1	(6.5)	87							
Physical contact	12.8	(6.6)	87							
Simultaneous support	8.2	(6.6)	87							
Verbal instructions	44.2	(8.7)	87							
Physical instructions	16.5	(8.2)	87							

* $p < .05$
** $p < .01$
*** $p < .001$

The correlations were again very similar (compare Table 30 with Table 24). The largest differences came from those measures with the smallest number of replications, namely, the center measures--the TBRS and JSS. This caused some differences in the subsequent regression analysis, particularly with the negative provider behavior subscale of the CCGA. However, because of the discrepancies, the small sample size, and the lack of conceptual clarity between the two measures (i.e., the TBRS and the negative provider behavior subscale), the regression analysis based on the replication of the TBRS to each child was discarded.

The number of friends children reported significantly predicted their perception of setting suitability as measured by the CCGA ($\beta = .16$, $p < .05$). This relationship

Table 30

Correlations Among Variables Measuring Child-Care Process and the CCGA Using Replicated Center Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Demographic Measures																		
1. Parent ratings	.--																	
2. No. past centers	-.19*	.--																
3. C.C. forms changed	-.03	.71***	.--															
4. No. friends at center	-.14	.07	.18*	.--														
5. Parent evaluation	-.07	.20*	.22*	.07	.--													
Caregiver Interaction Scale																		
6. Detachment	-.11	-.10	-.03	.09	-.41*	.--												
7. Positive interaction	.17	.07	-.01	-.06	.39*	-.94***	.--											
Family Day Care Rating Scale																		
8. Elaboration	.16	.11	-.07	-.01	.21	-.27	.41*	.--										
9. Language & reasoning	.20	.19	.12	-.21	.39	-.57*	.65*	.86***	.--									
10. Social development	.26	.27	.14	-.39*	.21	-.64***	.66**	.50**	.72**	.--								
Job Satisfaction Scale																		
11. Coworker relations	.19	-.17	-.07	.08	-.20						.--							
Teacher Behavior Rating Scale																		
12. Physical proximity	-.10	-.32**	-.24*	.01	-.11						.12	.--						
13. Supportive facial	.08	-.06	.01	-.09	.22*						.58***	-.03	.--					
14. Supportive verbal	-.02	-.08	-.02	-.08	.28*						.34**	.14	.87***	.--				
15. Physical contact	.00	-.33**	-.16	.09	-.25*						.86***	.54***	.41***	.30**	.--			
16. Simultaneous support	-.02	-.24*	-.11	-.04	.09						.63***	.42***	.86***	.84***	.71***	.--		
17. Verbal instructions	-.02	.13	.11	.08	-.18						-.36**	-.61***	-.50***	-.56***	-.30**	-.57***	.--	
18. Physical instructions	-.08	.13	.04	.05	-.05						-.95***	-.22*	-.60***	-.22*	-.53***	-.58***	.39	.--
DV1. Discipline	-.01	.01	-.02	-.04	.13	.02	.04	-.14	-.13	-.23	.06	-.01	.07	-.00	.03	.03	-.07	-.17
DV2 Negative provider beh.	-.04	.01	-.05	.12	-.02	.30	-.35	-.23	-.28	-.35*	.25*	.01	.05	.03	.20*	.09	.03	-.01
DV3 Suitability of setting	.08	.01	-.06	.16*	-.02	-.13	.11	-.01	-.07	-.04	.18	-.16	.02	.03	-.05	-.07	.01	.17
DV4 Time at setting	.02	.09	-.03	.15	.06	-.54**	.65***	.30	.33	.40*	.04	-.03	-.14	-.08	-.05	-.15	-.01	.18

* = $p < .05$

** = $p < .01$

*** = $p < .001$

min n = 18 with FDCRS Language and Reasoning; 30 with the other FDCRS and CIS

max n = 170 with the demographic measures; 87 with the TBRS

was not significant in the earlier analysis (aggregating the scores across the children attending each center), but is appropriate as it is a measure on each child. The regression is shown on Table 31 and the formula is reported in Table 12.

Perception of time spent at the child-care setting was the same using both methods of analysis. The CIS positive interaction score was a significant predictor using both methods. In the center replication method it accounted for 42% of the variance compared to 51% of the variance using the aggregated method. The replication method is reported in Table 31 and the formula is reported in Table 12.

Summary for unit of analysis resolution. In summary, the purpose of the additional analyses was to discover the most efficient model explaining the variance in the dependent measures regardless of variable classification. This goal was hampered by the different levels of observation in the study.

Two methods of overcoming this obstacle were proposed: (a) replicating the center scores for each child, or (b) aggregating the scores from all the children attending each center into a single center score. The results of analysis from two groups of variables, the child-care structure and process variables, were compared.

Table 31

Final Steps of the Hierarchical Regression Analyses Predicting Children's Perceptions of Child Care from Child-Care Process Variables Using Replicated Center Variables

Variable	n	B	SE B	β	t	R^2
Suitability	147					
Number of friends		.19	.10	.16	1.94	.03
Time 30						
CIS positive interaction		.90	.20	.65	4.49	.42

The comparisons yielded similar results for across-group comparisons and correlations. There were some differences in regression analysis, but these were discussed in the text.

Because this was an exploratory analysis that would help define further research, the first alternative, that of replicating center scores to the children, was chosen. With the small number of center-based child-care settings in the sample, replicating center variables may show relationships that can define additional research, whereas elimination of those variables would limit the future outcomes. The procedure can also be justified in that each child in each child-care center was subjected to that particular environment and their perceptions likely had some basis in the atmosphere and specifics of the center. However, for specific relationships between the child-care structure and process variables, the results of the earlier analysis should be used.

Regression analysis, predicting the four dependent variables with the most parsimonious, statistically significant model as predictor variables can now continue with the same unit of analysis. These analyses will help clarify which category of variables, individual, family, child care, structures, or processes, or a combination of classifications, account for the most variance in children's perceptions of child care.

Model Testing with Regression Analysis

Each of the four dependent variables was tested for significant predictor variables based on previous analyses. The variables providing the most significant, parsimonious model for each of the four dependent variables were entered in regression analysis as blocks of variables depending upon their classification (as defined in Table 4). Dependent upon conceptual clarity, each block was entered in

combination with each of the other blocks. From these models the percentage of variance explained was calculated and the best models were chosen. The results of the analysis for each of the four dependent variables follow.

Models predicting children's perception of the use of discipline at child care. Three variables were significant predictors of children's perceptions of discipline at the childcare setting: academic ability score on the Teacher Checklist, number of hours per week the father was employed, and the parent/child dysfunction subscale of the PSI-SF. Center measures did not enter as significant predictors for this dependent measure.

The correlations between these pairs of measures are presented in Table 32. Correlations were small, minimizing the probability of multicollinearity. Table 33 shows the regression models and the amount of explained variance. Each of the individual variables was a significant predictor (models 1-3) with the family process variable accounting for the most variance, 15%. When joined with the family structure variables in model 5, the variance decreased to only eight percent. The model accounting for the most variance, 18%, was the model combining the individual child characteristics (their academic ability) and family structure (or the amount of time father spent at work per week).

Table 32

Correlations Among Variables Predicting Provider Discipline

Variables	1	2	3
1. Academic ability[a]	.--		
2. Hours father employed	-.17	.--	
3. Parent/child dysfunction[a]	.--	-.17	.--

[a] Measure #1 was completed by the center-based subsample while Measure #3 was completed by the home-based subsample.

Table 33

Children's Perceptions of Care Provider Discipline Regressed on Individual and Family Variables: β

	Model				
Variable (n)	1 70	2 109	3 30	4 41	5 21
Child characteristics					
1. Academic ability	-.28*			-.25	
Family structure					
2. No. hours father worked		.19*		.30*	.19
Family process					
3. Parent/child dysfunction			.39*		.25
r^2	.08	.04	.15	.18	.08

* $p = .05$

Models predicting children's perception of negative provider behaviors. The five variables predicting children's perception of their care provider's negative behaviors were categorized in seven different models based upon the child's individual characteristics, their family structure, and their child-care structure. The correlations among these five variables are shown in Table 34.

Four of the seven models in Table 35 accounted for over 40% of the variance in children's perception of their care provider's negative behavior. Each of these models included the FDCRS child-care structure variables adult needs ($\beta = -.39$, $p < .05$) and basic care ($\beta = -.34$, $p < .05$), which accounted for 41% of the variance by themselves. Various combinations of models in addition to these variables accounted for small extra amounts of variance. With all the variables entered into the regression formula (model 7), none were statistically significant, but together they accounted for 44% of the variance. The structure variables (both family and child care; model 6) accounted for 42%, while family structure alone accounted for 3% (model 2). Individual and

Table 34

Correlations Among Variables Predicting Negative Provider Behaviors

Variable	1	2	3	4	5
1. Child's age in months	.--				
2. Child's birth order	.08	.--			
3. No. parents	.05	.01	.--		
4. Adult needs	.12	.10	.41*	.--	
5. Basic care	.15	.12	.20	.56**	.--

* $p < .05$
** $p < .01$

Table 35

Children's Perceptions of Negative Care Provider Behaviors Regressed on Individual, and Structure Variables: β

	Model						
Variable	1	2	3	4	5	6	7
(n)	108	151	31	102	31	31	31
Child Characteristics							
1. Age	-.13*			-.10	.09		.11
2. Child's birth order	-.28*			-.28**	-.12		.09
Family Structure							
3. No. parents in home		-.17*		-.17		-.13	-.12
Child-care Structure							
4. Adult needs			-.39*		-.39*	-.33	-.33
5. Basic care			-.34		-.34	-.34	-.35
r^2	.10	.03	.41	.14	.43	.42	.44

* $p < .05$
** $p < .01$

child-care structure variables accounted for 43% (model 5), slightly more than the two structure categories, with individual characteristics accounting for 10% of the variance alone (model 1), adding an additional 3% to the child-care structure variables.

Children's perceptions of their care provider's negative behaviors were most influenced by the structure of the child-care setting, particularly the adult needs (balancing personal and caregiving responsibilities, taking advantage of opportunities for professional growth) and basic care (greeting/departure, safety concerns). Individual child characteristics also account for a portion of the variance, but only a small amount in comparison to the child-care structure.

Models predicting children's perception of their suitability to the setting. Child characteristics, family structure, child-care structure, and child-care processes were the conceptual categories that entered six variables into the model regression analyses on children's perception of their suitability to the setting. The correlations among these variables are presented in Table 36.

Table 36

Correlations Among Variables Predicting Suitability to the Setting

Variable	1	2	3	4	5	6
1. Apathy	.--					
2. Task orientation	-.51***	.--				
3. Gender	-.15	.23*	.--			
4. No. hours father worked	-.03	.03	.15*	.--		
5. Work demands	-.15	.27*	.09	.04	.--	
6. No. friends mentioned	-.12	-.07	.06	.02	-.15	.--

* $p < .05$
*** $p < .001$

Child characteristics, child-care structure, and child-care process accounted for 20% of the variance in the children's suitability to the child-care setting (model 11 in Table 37). Adding the family structure variables to the model actually decreased the amount of variance explained to 16% (model 12). Neither model provided significant predictors ($p < .05$) but both models served to predict children's scores.

Subtracting the child-care process variables from model 11 did not dramatically change the amount of explained variance (from 20% to 19%; model 6), but it did change the significance of the CBI apathy score ($\beta = -.28$, $p < .05$) inferring that as teachers rate the children as more apathetic, the children rate their suitability to the setting lower. A similar relation was apparent for only the child characteristics where

Table 37

Children's Perceptions of Their Suitability to the Child-Care Setting Regressed on Individual, Family, and Child-Care Variables: β

	Model											
Variable	1	2	3	4	5	6	7	8	9	10	11	12
(n)	101	106	85	147	62	71	90	53	73	41	61	35
Child characteristics												
1. Apathy	-.26*				-.14	-.28*	-.25*			-.12	-.26	-.08
2. Task orientation	.19				.21	.13	.16			.23	.12	.25
Family structure												
3. Gender		.19*			.01			.17		.07		.04
4. No. hours father worked		.16			.17			.16		.20		.21
Child-care structure												
5. Work demands			.21*			.17		.08	.24*	.02	.18	.01
Child-care process												
6. No. Friends				.16			.12		.17		.13	.20
r^2	.15	.05	.05	.03	.13	.19	.14	.05	.07	.15	.20	.16

* $p < .05$

the apathy and task orientation score accounted for 15% of the variance and apathy was a statistically significant predictor.

Predictors of children's perception of time spent at child care. Six variables in four conceptual categories were significant predictors of what children perceived of their time at the child-care setting. The correlations between these variables are presented in Table 38. Not surprisingly, as mothers' years of education increased, so did their child's TELD score ($r = .30$, $p < .01$). Similarly, as maternal education increased, so did the basic care provided at the home-based child-care setting ($r = .45$, $p < .05$). As the basic care increased, so did the positive interaction at the child-care setting ($r = .52$, $p < .01$). As the positive interaction increased, so did the permissiveness ($r = .67$, $p < .001$).

The child-care setting (model 11 in Table 39), both the structure and process variables, accounted for 51% of the variance in children's perception of their time spent at the setting. While impressive compared to the earlier analyses, the two

Table 38

Correlations Among Variables Predicting Children's Perception of the Time Spent at Child Care

Variable	1	2	3	4	5
1. TELD	.--				
2. Aggressiveness	-.06	.--			
3. Mother's education	.30**	-.18	.--		
4. Basic care	.22		.45*	.--	
5. Permissiveness	.36		.13	.10	.--
6. Positive interaction	.38*		.22	.52**	.67***

* $p < .05$
** $p < .01$
*** $p < .001$

Table 39

Children's Perceptions of Time Spent at Child Care Regressed on Individual, Family, and Child-Care Variables: β

	Model											
Variable (n)	1 72	2 132	3 30	4 30	5 62	6 29	7 30	8 29	9 29	10 30	11 30	12 29
Child characteristics												
1. TELD	.09				.05	.03		.08	.07			.06
2. Aggressiveness	-.39***				-.43***							
Family structure												
3. Mother's education		.25**			.06		-.15	-.18		-.00		-.15
Child-care structure												
4. Basic care			.42**			.40**	.49**	.47**			.31	.35
5. Permissiveness			.52***			.52**	.54***	.52			.37	.38
Child-care process												
6. Positive interaction				.65***					.62***	.64***	.24	.22
r^2	.16	.06	.49	.42	.20	.46	.51	.49	.42	.42	.51	.50

* = p < .05
** = p < .01
*** = p < .001

subscales of the CIS, the permissiveness and the positive interaction subscales, were correlated at r = .67 (p < .001), increasing the probability of multicollinearity.

Because of this, model 7 should be considered more accurate, also accounting for 51% of the variance. This model included both family structure and child-care structure variables. The child-care structure variables were both significant predictors of the children's perception of their time at the setting (β = .49, p < .01 for FDCRS basic care; and β = .54, p < .001 for CIS permissiveness), accounting for 49% of the variance alone (see model 3 in Table 39).

Summary of the regressions predicting the CCGA scores. This set of further analyses specified the variables that accounted for variance in the dependent variables. Individual child characteristics and the variables associated with the child-care setting consistently accounted for more variance on the four subscales of the

CCGA than the family variables. This finding has important implications for the personal premise system and the direct influences on children and their perceptions. These implications will be discussed in the next chapter.

CHAPTER IV

DISCUSSION

One hundred seventy-five children, their families, and child-care providers participated in this study examining the familial and extrafamilial correlates of children's perceptions of child care. Children attended one of three forms of child care: large center-based child-care settings, home-based care settings, and a preschool. The study used variables in six categories, individual child characteristics, previous child-care experiences, family structure, family processes, child-care structure, and child-care processes to help estimate children's perceptions of their child-care experiences. Their perceptions were elicited through the Child Care Game Assessment (CCGA), a role-playing game-like experience for 4- and 5-year-old-children. Throughout the assessment, children use colored dowels to act out portions of their day at child care. The CCGA's 59 items were divided into four subscales measuring children's perceptions of the child-care provider's discipline techniques and negative behaviors, their perceptions of the time spent at child care, and how suitable they thought the setting was.

The null hypotheses stated that children's perceptions were not related to the child-care setting, children's family environment, or individual characteristics. Furthermore, the null hypothesis postulated that past experiences at child care did not influenced their current perceptions of child care. The working hypothesis was to provide evidence of the inverse of the null hypotheses: that children's perceptions are related to their child-care setting, have a foundation in the family environment, and are influenced by their child-care history.

These three influences, and the interactions between other children and their care providers (including parents and nonparental care providers) lay the foundation for children's developing personal premise system, or what they believe others think of them and what they expect from others. This personal premise system has long-lasting effects that influence expectations for interactions throughout life. The CCGA, while not a direct measure of the personal premise system, was a valuable resource in defining what children need to develop a confident personal premise system. It accomplished this by defining the variables that have the most influence on their perceptions, or how they expect others to interact with them.

Seven hypotheses guided the study. The hypotheses defined which categories influenced children's perceptions of child care. Four categories were defined from previous literature (see Goelman & Pence, 1987) into family and child-care structure and processes. Three additional hypotheses defined categories that included personal characteristics, previous child care, and the various forms of child care included in the study.

This chapter reviews the results presented in the previous chapter in context of the entire study. This discussion will follow a similar order as the results chapter, reviewing each hypothesis and the implications of those results.

H_{01}: Children attending the three different forms of child care do not differ in their perceptions of their child care.

Children who attended the various forms of child care did not differ significantly from each other in their perceptions of child care. Visual comparisons of the mean responses from the children showed children attending the preschool felt the setting was less suitable (meaning they reported more dissonance between their ideal--"Is there enough room to play?"--and the setting), but they felt better about the forms of

discipline used. The children in the home care settings reported less satisfaction in how their time was spent than the other two settings, while the children in the center-based settings reported more negative teachers behaviors ("Do the teachers get mad sometimes?"). These differences, while interesting, were not statistically significantly different from each other. Because of this, the first hypothesis was retained.

It is reasonable to conclude, based on this set of analyses, the form of child care itself does not make a difference on children's perceptions of child care. However, there were statistically significant differences between the centers within the forms of child care. This suggests certain aspects of child care within each form does make a difference.

H_{02}: Child-care history, as reported by parents, is not related to children's current perceptions of their child care.

Children's child-care history, as reported in this study, was not related to children's perceptions of their current child care. This finding was contrary to the theoretical basis for this hypothesis. It was postulated that children's previous child-care experiences would influence their perceptions of current child care because of the larger networks to which they had been exposed.

Despite these results, further research is needed. The measure of previous child care was general in nature and based on retrospective reports of child care. A more detailed measure, or longitudinal research, may find more meaningful relationships.

Although a full range of child-care histories was included in the analysis (from no previous child care to a large amount), the results were based on the differences of children currently attending three different forms of child care. Perhaps if the sample were divided into categories based on previous experiences (instead of current

experiences), differences would be found that would relate more reliably with children's perceptions of child care.

Additional chi-square analyses were performed with the data because of the observation that home-based children attended more forms of child care, and were in the settings for a longer period of time, than their center-based counterparts. The nonparametric analysis provided evidence that home-based care may have been less stable, perhaps because of the turn-over rate of home-based child-care providers, compelling families to change forms of child care more frequently than families in center-based care. However, parents whose children attended home-based settings also reported staying in that setting for a longer period of time, suggesting their children had been in child care for more of their lives.

H_{03}: Individual child variables are not related to children's perceptions of their child-care placement.

The statistical analyses for this hypothesis provided important theoretical and practical results. Foremost was the validation of the dependent measure. In the center-based sample, care providers completed two measures on each child. These measures correlated in conceptually meaningful ways with the children's perceptions of the child-care center. For example, children who rated the setting as more suitable were rated as more academically competent by the care provider, more attractive, and less of a discipline problem. Children who viewed their care provider more negatively were also viewed more negatively by their care provider. Those who perceived their time in child care as positive were rated by their care providers as less aggressive, more social, and were seen as having a better adjustment to the care setting. In sum, providers' ratings match the children's perceptions very well. As care providers were

more positive about the children, the children were more positive about the child-care setting.

The study also provided some validation for the independent variables. Providers rated children similarly on two independent measures, the CBI and Teacher Checklist. As a group they percieved boys as more aggressive and girls more intellectually competent (a finding from both instruments).

The TELD scores were significantly correlated with the child's age and negatively correlated with the number of past child-care placements. It could be that the number of placements influenced language development, or those children with less developed language were more likely to switch child-care placements more frequently. Alternatively, those with less stable home environments and slower language development were more likely to change settings. These findings provide evidence for the validity of the scales and the findings of this study.

The lack of statistically significant group differences between the forms of child care again provides evidence that the form of child care in this study does not make a difference on children's perceptions or developmental outcome. The quality of the center, as measured by the FDCRS or ECERS, makes a difference, not the form of child care. Home-based care and center-based care can be of equally high quality.

H_{04}: Current family structure is not related to children's perceptions of their child-care placement.

This hypothesis was rejected because of significant regressions that predicted each score of the CCGA. For example, the number of parents in the home was a significant predictor of children's perceptions of their care provider's negative behaviors. Those with two parents were more likely to perceive their care providers as showing few negative behaviors.

Parental variables were significant predictors of children's perceptions of discipline, time spent at child care, and the suitability of the setting. The number of hours the father worked each week positively correlated with discipline and the child's perceptions of setting suitability. This suggests that as the father spent more time at work, the children felt the setting was more suitable and the provider used more appropriate means of discipline. One interpretation could be that as fathers worked more, children felt they had more control over the child-care setting, perhaps because they were there more, and made it suit their needs more closely.

These relationships were helpful in predicting children's perceptions of their child-care center, but were not strong enough to provide meaningful $\underline{R}^2$s. Despite the evidence that rejected the null hypothesis, the amount of explained variance in each of the dependent measures was minimal. The lack of varience explained suggests that other variables would account for more of the variance in children's perceptions. Theoretically, these variables may be familial in nature; however, the evidence from this study does not support that theory.

H_{05}: Current family processes are not related to children's perceptions of their child-care placement.

Correlations between the measures designed to provide a conclusion to this hypothesis provided results that require further explanation. For example, parents who reported more life events within the previous 12 months also reported less parental distress. Theoretically, the greater the number of recent life events, the higher the reported stress should be. The correlations also suggest (albeit statistically nonsignificant) that parents who share responsibilities with another adult in the home and have done so for a longer period of time have less stress. This is supported by

the correlations relating younger families, or single-parent families, to more life events within the previous 12 months than older, or two-parent families.

So why the significant negative correlation between parent distress and recent life events? Part of the explanation may lie in the events reported on the scale. The recent life events scale has 19 unweighted items of notable life events, of which 4 have to do with marriage, divorce, or events surrounding those relationships. The average number of reported changes was only 2.5 events in the previous year, of which additional analysis showed .33 were in the marriage category. A large portion of the sample may have been through a relationship change, thereby decreasing the stress of adding a parent or removing themselves from a relationship causing stress.

Further discussion about the Complexity of Life Scale is also warranted. As parents reported more unusual work schedules on the Complexity of Life Scale, the HOME score increased and the perceptions of their own distress decreased by a statistically significant margin. Although the correlations were not significant, as the Complexity of Life Scale increased, parents' perceptions of the dysfunction between themselves and their children, and how difficult they perceived their child, also decreased. One logical explanation could be that as parents spent more time away from home, or had more unusual work schedules, they tried to spend more quality time with their children, or buy them stimulating toys. This quality time and additional toys would serve to increase the variety of stimulation subscale of the HOME. Another explanation may be that parents may also have been more reluctant to report additional stress related to their family. It is also possible the stress associated with other areas in their life (such as the work schedule) made the stress associated with their family seem less troublesome.

Whatever the rationale, the amount of parent/child dysfunction reported was the only statistically significant predictor of the child's perceptions of discipline at the child-care center, accounting for 15% of the variance. One interpretation is plausible: as parents and their children have relationships that are dysfunctional, children find child care and their definition of the providers discipline comforting. The results, while interesting, need to be interpreted with caution. The PSI-SF was administered to the home-based sample ($\underline{n} < 31$), thereby limiting the ability to generalize or make broader inferences. The result may be random variability in the sample. This needs to be replicated with a larger sample and a broader range of child-care forms.

H_{06}: Current child-care structure is not related to children's perceptions of their child-care placement.

Children's perceptions of the time spent in child care were significantly correlated with the permissiveness, basic care, punitiveness, and learning activities provided at the setting. It was also correlated with the provider's perceptions of the balance between work and family. Each of these correlations was reasonable. Children's perceptions of their time at child care would logically increase as their providers were less punitive and more permissive, as they provided an increased amount of appropriate learning activities, and as they were more caring.

Significant predictor variables, the amount of permissiveness and basic care, accounted for 58% of the variance and provided positive betas. Children do notice when care providers care about them (warmth) and they appreciate age-appropriate permissiveness (control).

Surprisingly, the teacher:child ratio did not influence children's perceptions of child care in this analysis. Although it was a statistically significant correlation in the replicated center analysis, it was not a statistically significant predictor in either

regression analysis. Apparently children did not notice the ratio as long as their child-care provider was available and the children's needs were consistently met.

The child-care structure variables provided substantial evidence that the personal premise system operates within the child-care environment, and the CCGA is an indirect measure of that system. It also points to the need to focus on interpersonal variables when setting standards for child care. The focus on physical variables should not be ignored, but additional dimensions, focusing on warmth, control, and reciprocity, are warranted.

H_{07}: Current child-care processes are not related to children's perceptions of their child-care placement.

Additional child-care dimensions should be apparent in the variables measuring child-care process. However, very few variables directly measured the dimensions noted in the previous section. The one measure that appeared to support the new dimensions (the TBRS) was collected from the centers in substudy #2, providing a sample size of seven. The correlations with the CCGA were generally not statistiaclly significant, in either regression model, precluding further analysis. Regardless of these results, the theoretical nature of the independent variables should be explored further.

Other results under this hypothesis bear additional interpretation. For example, the children did not differ between the forms of child care in the number of friends they mentioned in the CCGA. This is interesting, because the preschool and center-based child-care facilities typically had more children per classroom than the home-based centers. However, the children still chose the same number of friends, about two, per setting. Children likely have a similar number of active friends, regardless of the setting, though they may change more frequently in larger settings.

Another interesting finding in the correlation tables (Tables 24 and 30) involved some demographic measures and the TBRS. The reported number of past child-care centers, and the number of times the forms changed, negatively correlated with physical proximity and contact shown in the individual centers. It is possible that as the number of past centers increased, children were reluctant to get close to their provider, or their provider was less likely to get physically close to them and establish a relationship. The data do not suggest directionality, only a relationship. This finding needs further exploration.

The preceding discussion, concerning the results generated from hypotheses testing, contributed significantly to the child-care literature by partially filling the void about the influences effecting children's perceptions of child care. It did this by examining family and child-care structure and process variables relating to children's perceptions. Additional analysis integrated the four conceptual categories further by identifying the combination of variables that accounted for the most variance in the dependent measures. Those results, used to define further analysis, are discussed next.

Variables Predicting Child-Care Discipline

Children's perceptions of discipline at child care were best predicted by individual child characteristics and family structure. These variables combined accounted for 18% of the variance. However, the family process variable, the parent/child dysfunction score, accounted for 15% of the variance alone. Conceptually, this last variable is a reasonable predictor in and of itself. The more home dysfunction, the more accepting children are of the discipline at the child-care setting. It should be

remembered individual children defined discipline in the CCGA, and then rated how they felt about the teacher administering that discipline to another child.

While the variance explained is apparently small, so were the sample sizes. The two largest R^2s from these analyses were from children in different studies. This necessarily limited the sample size due to the dissimilar measures. Additional research, using the same measures across samples, is needed to clarify the relationship and define which measures are most useful in predicting children's perceptions of discipline at the child-care setting.

Variables Predicting Negative Provider Behaviors

Children's perceptions of their care provider's negative behaviors were most influenced by the structure of the child-care setting, particularly the adult needs (balancing personal and caregiving responsibilities, taking advantage of opportunities for professional growth) and basic care (greeting/departure, safety concerns). These two variables are plausible given the dependent variable. As home-based care providers are successful at attending to their other needs, such as their household responsibilities, and they effectively balance that with the needs of the children they care for, they could be viewed by the children as less "grouchy." As the providers provide a warm greeting, they may seem less authoritarian, or they set the tone for subsequent interactions.

This warmth and reciprocity would influence children's personal premise systems. The children recognized that influence and reported their perceptions in the CCGA. Children's personal premise systems are influenced by their child-care providers and the structure of the child-care setting.

Variables Predicting Children's Perceptions of Their Suitability to the Setting

Children's suitability to their child-care setting was best predicted by a combination of individual variables and child-care setting variables, both structure and process. Based on the variables entered into the regression formulas, it appeared that as children were more involved in the setting, and had more friends, were more task oriented, and showed less apathy, they perceived the setting as more suitable. Individual child characteristics (less apathetic and more task oriented) accounted for the most variance, but adding child-care variables produced additional gains. Twenty percent is not a large amount of explained variance; therefore, future studies will have to clarify the relationship and find other measures that more appropriately predict children's perceptions of their suitability to their child-care setting.

Variables Predicting Children's Perceptions of Their Time Spent at the Setting

Variables classified in the child-care structure category were the best predictors of children's perceptions of the quality of time spent at child care. The two significant variables in this category (basic care and permissiveness) accounted for 49% of the variance on this dependent measure. Both of the variables suggest that as the child-care structure improves, so do children's perceptions of the quality of time. As the CIS permissiveness and the FDCRS basic care scores increase, so do children's perceptions of their time at child care. It appears child-care providers who allow more age-appropriate choices in the setting, and provide a more appropriate setting, have children who report having a better time.

Summary and Integration

Previous research has focused on readily observable aspects of child care as a means of providing quality child care. The instruments used to measure quality in child-care settings are quantifiable and provide measures of quality that enhance children's development (Caughy et al., 1994). These measures are also most related to children's perceptions of child care.

The child-care setting, be it home-based or center-based, accounted for the largest amounts of variance in children's perceptions of child care. The variables classified as either process or structure were significant predictors in three of the four scales in the CCGA. The child-care setting did not predict children's perceptions of discipline, but it did predict negative provider behaviors, the children's perceptions of setting suitability, and their perceptions of the quality of time they spent in child care.

Individual variables, particularly children's academic ability, their ability to work on a project, and how excited they got about the projects, were also significant predictors. These variables explained their perceptions of discipline, and setting suitability.

The family variables were significant predictors of children's perceptions of discipline, but did not account for much variance on the other dependent variables. This finding was in accordance with the null hypothesis, but was against the theoretically predicted outcome of the study. It was argued theoretically that children's perceptions of what happened in child care was influenced by family events. It was also pointed out that several researchers, including Burchinal et al. (1995), Hestenes et al. (1993), and Kontos (1991), showed that what occurred in the child-care center was partially an extension of what happened at home. This study did not replicate those findings.

However, we should not conclude that families do not make a difference on children's perceptions of child care. This study may have used instruments insensitive to family structure and process variables affecting children's perceptions of their child-care environment. Alternatively, perhaps the area of family studies does not have the appropriate instruments that will account for these perceptions.

The measurements used in this study provided evidence that the child-care setting does make a difference on what the child perceives of the setting. Family variables also make a difference, though they do not account for as much variance as the child-care setting. These relationships will be summarized in the Conclusions chapter that follows.

CHAPTER V

CONCLUSIONS

This study defined some of the familial and extrafamilial correlates of children's perceptions of child care. Their perceptions were elicited through the CCGA, an instrument that has four subscales: care provider discipline, negative provider behaviors, quality of time, and suitable of the setting.

Children's perceptions were hypothesized to be important because of their influence on children's developing personal premise system, or what they believe others think of them and what they can expect from others. This personal premise system has a long-lasting effect that potentially influences expectations for interactions throughout life.

These expectations have foundations in the interactions children experience with their parental and nonparental care providers and with other children. Their perceptions of the interactions with their child-care provider and other children are measured by the CCGA. Through the CCGA, children's perceptions were related to variables present in both their family and child-care setting. Child-care variables accounted for more variance than the family variables in three CCGA scales: negative providers behaviors, suitability of the setting, and time spent. Family variables accounted for more variance than the child-care variables in the discipline scale. Previous child-care experiences were not related to children's perceptions of child care.

This chapter will specify the limitations of the study, report on the implications, define future research, and summarize the conclusions.

Limitations

This study used extant data sets from three similar studies. As extant data, the study was limited by the variables available for analysis. Extant data also limited the sample size and sampling frame to that collected for the original studies. However, it also had the benefits of a current sample and previously collected but unanalyzed data. It also provided a larger sample size than would have been possible otherwise.

The three studies joined for this research used similar measures, were designed to answer similar questions, and used similar sampling frames. However, there were also dissimilarities along all three dimensions. For example, each study used measures particular to that specific sample. This effectively limited the sample size in the current study to that of the previous studies in some analyses. The measures for each study were chosen to answer the specific questions for that study, which necessarily used children attending different forms of child care. This difference was an important part of the current study; however, it also limited some of the analyses, as the measures were not applicable to each of the subsamples. These differences caused the sample sizes to fluctuate within and between analyses, limiting the methods of analysis.

Another limitation came from the different levels of observation. Some measures were completed with individual children and families, while others were completed on the centers. The different levels of observation made combining variables in analyses challenging. This is a common problem for research on child care and there are no ideal solutions available to overcoming this problem.

Many of the limitations of this study were also its strengths. For example, the variety of child-care forms allowed the examination of results that were previously

limited to one form of child care or another. The variety of measures also helped define further research, and the nested design extended the type of analysis appropriate for child-care research.

Implications

Implications from this study are broad and varied. Theoretically, the study has implications for the personal premise system. It also has practical implications for child-care providers and parents.

Theoretical Implications

Child-care setting variables were the most consistent, single largest group of predictors accounting for variance in children's perceptions of child care. This set of variables has labels that correspond with the dimensions specified in the personal premise system. The personal premise system is built upon children's interactions with others, including their perceptions of the amount of control they are provided, the warmth extended by others, and others' availability to meet their demands. As the child-care providers were more age-appropriately permissive, and used less punishment (control), children's optimistic perceptions increased. Similarly, as the care providers' ability to provide basic care (e.g., greet the children) for the children increased (warmth), and the providers were able to balance their child-care demands with other demands (availability), children viewed their experiences at child care more positively.

The child-care structure variables provided substantial evidence that the personal premise system operates within the child-care environment, and the CCGA is an indirect measure of that system. The CCGA quantifies what children think of their

surroundings and how they perceive others react to them. It provides indicators of control in the setting, warmth, and provider availability. However, it should be noted that the propositions of the personal premise system and CCGA, while they received support in this study, need further study and refinement.

Practical Implications

Child-care providers could benefit by knowing about the foundations of children's personal premise systems and how they influence children. Specifically, children noticed when care providers cared for them in a manner that provided warmth and reciprocity. They also appreciated age-appropriate permissiveness and discipline (control).

Parents would benefit from knowing that the quality of the center, not the form of child care, made a difference on children's perceptions. Home- and center-based child care can both be high quality. Finding a setting where the child is happy, or one that matches the child's needs is the important objective.

Surprisingly, the teacher:child ratio did not affect children's perceptions of child care. Apparently, children do not notice the ratio as long as the provider is available and the children's needs are consistently met with warmth.

Future Research

Future research should extend this study by carefully selecting the sample and measures in a prospective manner and analyzing the center measures for a point of diminishing returns. These aspects will be discussed further in the following paragraphs with specific examples from the study.

One of the limitations of this study was the variety of measures completed by various subsamples. While the variety provided a broad assortment of measures and implications, it also limited the sample size. Using the significant measures in future research, while at the same time implementing new measures, would find the variables that influence children's perceptions with a greater degree of accuracy. This would involve a study where all three settings used the same measures.

The CCGA scales should also be applied to other samples to verify their validity. The regression formulas, while accurate for this sample, should also be verified with additional samples.

Other analyses could also be completed with these data, or similar data. For example, at what point on the center measures do children define centers as good or poor? At what point do they notice the difference?

Further studies should also address the amount and quality of past child care and its relationship to children's perceptions. Contrary to the theoretically expected outcome of this study, previous child-care experiences were not correlated with children's perceptions of child care. However, the number of previous child-care settings and the number of times the forms changed were negatively correlated with the amount of physical contact and proximity from the child-care provider. These findings need further exploration and replication.

The measure of previous child care was general in nature and based on retrospective reports of child care. A more detailed measure may find more meaningful relationships. Additionally, although a full range of child-care histories was included (from no previous child care to a large amount), the results were based on current child-care placements. Perhaps if the sample were divided into categories

based on previous experiences, differences would be found that would relate more reliably with children's perceptions of child care.

Other research should focus on sociometric status and children's perceptions of child care. It was interesting to note that children attending the different forms of child care did not choose a significantly different number of friends. The preschool and center-based child-care facilities typically had more children per classroom than the home-based centers, but children still chose the same number of friends (about two) per setting. It would be interesting to ascertain if children perceived themselves as changing friends more frequently in center-based care compared to home-based care. How popular, rejected, and isolated children perceive child care should also be studied.

The family variables did not account for much variability in children's perceptions of child care compared to the child-care variables. However, we should not conclude that families do not make a difference on children's perceptions of child care. This study may not have used instruments that were sensitive to family structure and process variables that impact children's perceptions of their child-care environment. Other measures, ones that theoretically measure aspects of the personal premise system, may provide more coherent results.

Some of the family measures completed by the participants of this study theoretically should have been significant predictors of children's perceptions. The explanation may lie in several directions. For example, only one subscale of the HOME was administered and it was through parental report. Perhaps the full measure would have provided more meaningful results. Also, the PSI-SF was only completed by the participants of substudy #3, a small subsample. Future studies should use this instrument in each of the three settings. Other family measures did not seem to be

related to the CCGA or the personal premise system. A more careful selection of instruments, selected for their theoretical linkages to the CCGA, should be included in future studies. An improvement in family measurement may also be the key.

Summary

In summary, the study provided results that helped define the familial and extra-familial influences on children's perceptions of child care. It also broadened the current definitions of quality child care. The results had implications for child-care providers, parents, and researchers.

This study provided further evidence that the quality of the child-care center, not the form, makes a difference on children's perceptions of child care. Home- and center-based child care can be of equal quality, and children can enjoy one as much as the other.

Also, the teacher:child ratio in the child-care setting did not appear to affect children's perceptions of child care. As long as the children's needs were being met, they did not seem to notice. However, caution should be exercised in interpreting these results. These were all licensed and regulated child-care centers. In extreme circumstances (such as too many providers or not enough), children would be more likely to notice and reflect their dissatisfaction in the CCGA. Indeed, providers who scored higher on the basic care subscale had children who reported higher satisfaction scores; but again, the centers were all within acceptable guidelines (Bredekamp & Copple, 1997).

The CCGA's validity was also further established. Its theoretical underpinning, the personal premise system, was verified through the center measures. The CCGA

provided valuable information about children's perceptions, which will help establish better child-care environments and activities enhancing their development.

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APPENDICES

Appendix A

Study Descriptions

Description of the Three Studies

The three studies reported in this research used similar instrumentation and sampling frames. However, each study was designed to answer different research questions. Because of these fundamental differences, the purpose and sample for each study will be described in this appendix. In the conclusion, the procedures and methods used to ascertain the feasibility of joining the data bases into a single study will be described.

Purpose and Sample Description of Each Study

Study #1. Study #1 initially developed the Child Care Game Assessment (CCGA; Godfrey, 1992a). It compared the perceptions of children who attended three forms of nonparental child care in Cache County, Utah. These 57 4- and 5-year-old children were cared for in a preschool, one of two full-day child care centers, or one of several full-day home care settings. Demographic characteristics for the whole sample are presented in Table A1.

Table A1

Comparison of Key Demographic Variables Among the Three Studies

Variables	Three settings $\bar{x}$	(SD)	n	Center-based $\bar{x}$	(SD)	n	Home-based $\bar{x}$	(SD)	n	p value	Bartlets p value
Age of child in months as of CCGA administration	57.8	(7.8)	50	58.5	(7.1)	48	57.0	(5.8)	31	.65	.21
Age of mother in years	32.3	(5.0)	51	31.2	(6.2)	73	30.6	(5.3)	31	.38	.21
Age of father in years	35.4	(4.9)	50	34.2	(7.8)	58	34.2	(6.4)	26	.57	.01
Percent female[a]	42.0		57	51.0		87	64.0		31		
Years of education–mother	14.1	(2.1)	51	14.5	(1.8)	75	13.7	(1.7)	31	.15	.34
Years of education–father	14.4	(2.4)	51	13.9	(2.5)	71	13.7	(1.8)	29	.36	.11
Percent with two parents living at home[a]	95.0		56	58.0		69	71.0		31		
Hours/week mother employed	31.0	(15.4)	43	35.4	(12.7)	67	37.4	(8.3)	30	.08	.00
Hours/week father employed	39.7	(10.0)	36	43.7	(13.1)	53	41.0	(6.8)	22	.23	.00
Hollingshead score	45.8	(12.1)	50	42.5	(12.5)	66	42.5	(11.5)	19	.32	.91
Total household income[b]				$28,013	(19383)	73	32,413	(17002)	29	.29	.42
Number of siblings	1.4	(1.1)	57	2.0	(1.3)	87	1.4	(1.3)	31	.01	.27
Birth order of child	1.8	(1.0)	52	1.8	(1.1)	64	2.1	(1.4)	31	.58	.12

[a] Statistical analyses for these variables were based on a t-test where those children or families possessing the trait or characteristic were scored "1," and those not possessing the trait were score "0."

[b] Income data were converted from categorical to continuous data by using the midpoint of each category.

The table provides the means, standard deviations, and sample sizes from each form of child care. It also shows the p-value, based on ANOVA, for the probability of differences between the samples. The Bartlets p-value is the probability the samples were drawn from different populations based on Bartlets Box Test. This value is significant for the remainder of the study and will be discussed in this appendix.

Twenty-one children (see Table 1 in Chapter II for sample sizes of each study and classroom/gender breakdowns for each study) from Utah State University's Child Development Laboratory were conveniently selected and recruited to form the preschool sample.

The Child Development Laboratory is a 10 hour-per-week, NAECP (National Academy of Early Childhood Programs) accredited preschool with 20 children and 5 teachers in each lab. The Laboratory runs on a 9-week quarter and children do not typically participate for more than two quarters at each age level. Teachers are junior and senior early childhood education, home economics, or child development majors. A graduate student serves as the head teacher. Because of the training mission of the lab, student teachers teach for only one quarter. The head teacher is employed on a year-to-year basis. The interviews took place in a room near the preschool laboratory or in an unoccupied lab. These children were cared for by their parent(s) while not in preschool. Furthermore, these children had experienced no previous, long-term, full-day alternative care.

The 21 children in the full-day child care centers were conveniently sampled from two licensed, full-day child care centers. The provider-child ratio in these settings varied from setting to setting and from day to day, even from the morning to the afternoon. State guidelines, however, require no more than 10 children per provider in this age range. These children had been in the same setting for a mean of 20 months (SD = 9.8 months; range = 6 to 27 months), for a mean of 39 hours per week (SD = 8 hours per week; range = 20 to 50 hours per week). The providers in these settings had been in the same setting for a mean of 48 months (range = 1 to 108 months). Children were typically tested in the entry way of the schools and distractions were minimized as much as possible.

The 15 children cared for in the state licensed, full-day home child care settings were conveniently sampled from Utah State University's Child Care Referral Guide (Anderson & Lindauer, 1989) and the Utah State Department of Social Services Day Care Provider List (three issues between May 1990 and November 1990). Seven care providers and the children they cared for completed the study. Group size and the provider-child ratios in these settings showed wide variation. State guidelines allowed six children in this age range for every care provider. The children in this sample had been in the same alternative care setting most of their lives (length of attendance mean = 30 months, range 2 - 60 months) and were currently attending for a mean of 26 hours per week (range 12 - 45 hours per week).

Because of the limited sample size in this study, and the exploratory nature of the CCGA, parametric statistics were inappropriate. Item-by-item chi-square analysis revealed few significant differences between the three groups in this study. Data reduction based on a few conceptual groupings were attempted but did not yield

statistically meaningful results. Statistical data reduction techniques were not attempted due to the small sample size in each cell. Further sample descriptions and results were reported in Godfrey (1992).

Study #2. Study #2 compared children who attended child-care centers that admitted specific percentages of state-funded children. Two centers did not admit children whose parents utilized state funds as a method of payment (no state funds). Two centers admitted between 40 and 50% of clients who used state funding (med state funds), and three centers received payment from the state for 70 to 95% of their children (hi state funds). The sample sizes for this study are presented in Table 1 in Chapter 2.

All seven centers were located in the Salt Lake City, Utah, metropolitan area. The centers were randomly selected from centers that were privately owned and were not affiliated with a child care chain or franchise, corporation, business, local or state government, or church or synagogue. The sampling frame was available from a list provided by the state office of child care. Center directors were initially approached by the two professors directing the study and asked to participate. Only one center declined to participate.

Children were considered potential study participants if they met several criteria. Children had to be either 4- or 5-years-old when initially invited to participate, they needed to have been at the center for at least three continuous weeks for a minimum of 25 hours per week, and they could not have any identified disabilities. From this group of participants, children were selected contingent upon parental approval. Across centers, less than 10% of the parents contacted refused to participate. State funded and privately funded children were represented in the study at the same percentage as were present in the center.

Demographic characteristics of the sample are included in Table A1. Children were typically the second child in a family of two siblings and two adults; however, there was a large variance in the number of children in the families. In two families the target child was the ninth child. Parents' educational and occupational status also varied across the different levels of state funding.

The sample size for this study was large enough to provide an initial factor analysis of the CCGA. The analysis provided a four factor solution, of which one, teacher interactions, was reported and used in subsequent analysis. For further information on the CCGA, see Appendix B.

Results from this study indicated that children in more stressful life circumstances were more likely to perceive their providers' interactions more negatively. Likewise, their providers were likely to rate them as more hostile and less sociable in child care. Children from lower SES homes had similar perceptions. Surprisingly, center quality was not related to children's perceptions of their provider's interactions. Further results and information are available in Austin et al. (1996).

Study #3. Thirty-one children in Study #3 were administered the CCGA. The experimental design of this study compared home child care providers who received

additional provider training with home child care providers who did not receive the training. All measures used for this study were administered at pretest, before the intervention began. The study encompassed specific counties throughout the state of Utah, but the children administered the CCGA were attending home child care centers in Cache, Box Elder, or Davis counties. Demographic characteristics and sample size are presented in Table A1 and Table 1 in Chapter II, respectively.

Results from this study (Austin et al., 1997) provided evidence that qualities of the children and their families effects the home care provider and the program offered. The CCGA was only administered to a small subsample of children, and was not included in the analyses for the study.

Procedures and Methods Used for Joining the Databases

Combining the three studies into one data set was done after careful consideration of a number of factors. Statistical comparisons between the demographic characteristics of the three samples were completed first, followed by assumption testing. Finally, specific concerns for joining the sample from study #1 to samples #2 and #3 were completed. While the purpose of the current study required the larger data set, care was taken to make sure the three studies could be joined without compromising integrity.

Demographic comparisons were presented in Table A1. The statistically significant differences between the studies may be initially disturbing, but should not be particularly disconcerting. The samples for each of the three studies were drawn in such a way that differences were likely, expected, and logical. For example, the three forms of child care used throughout the studies were different, as were the populations who used those particular forms of child care. The demographic differences were an important part of the design in study #2, and was a primary focus of the study. Because of these factors, the major issue in joining the three studies was how the samples varied between the forms of child care, not the demographic characteristics between studies themselves. When combined, the studies form a coherent and meaningful data set.

Assumptions for Joining the Samples

To test the assumption all three samples were from the same population, a series of ANOVAs were run to test for group differences. However, whether or not the data met the assumptions of a fixed-effects one-way ANOVA, especially with the unequal sample sizes was a concern. While the model is robust, care was taken to avoid the automatic justification of applying the method.

Random selection. Each of the samples were, in varying degrees, independently and randomly selected from the population in general. While each study used a convenience sample, or those subjects attending child care centers allowing testing to occur, the results were generalized to the population from which the samples were

drawn. The degree to which the results can be applied to other populations (e.g., outside Utah or to other forms of child care) has yet to be determined.

Normalcy. The assumption of normality was not formally tested because the sample size of each sample was large enough to negate serious effects from violation of this assumption (Kleinbaum, Kupper, & Muller 1988) and bidirectional tests were used (Glass & Hopkins, 1984).

Homogeneity of variance. Homogeneity of variance was computed for each ANOVA and is included in the appropriate tables. This statistic is important because of its effect on the ability to generalize the results and commit a Type I or Type II error. "Mild" violations of this assumption (i.e., $\delta^2_{largest} < 10\delta^2_{smallest}$) have negligible consequences when sample sizes are approximately equal, but these sample sizes are unequal and may seriously affect α (Glass & Hopkins, 1984; Kleinbaum et al., 1988).

Analysis of variance for family demographic characteristics and CCGA responses of the children in the three studies are presented in Tables A1 and A3. Statistically significant differences were found between the studies on only one of the eleven demographic variables, the number of siblings. Homogeneity of variance analysis showed the samples' variance differing by a statistically significant margin on three of the eleven demographic variables, Bartletts-Box test applied. The violation of this assumption in this instance increases the probability of a Type I error for the father's age and the number of hours a week the mother was employed. Since neither of these variables p value exceeded the standard .05 level of significance, the violation is of little consequence as far as α is concerned. The samples' means and standard deviations for the number of hours a week the fathers were employed suggest the actual α level may be smaller than the nominal α level. This problem will be dealt with by using a dummy coded study variable as a covariate in ANOVAs that use the father's number of hours employed as a covariate. The dummy code will also be used in regression analysis as appropriate.

The effects of violation of this assumption on power is not as straightforward. There is no theoretical power value when variances are heterogeneous (Glass & Hopkins, 1984). However, these variables where the assumption is violated are not likely to effect the results of this study because of the unlikely nature the variables play a significant role in children's perceptions. The hours per week of parental employment could statistically significantly correlated with children's perceptions, but other variables will also likely be correlated with the dependent measure and these variables. To avoid colinearity only one of the intercorrelated variables can be chosen, and other variables will be chosen as appropriate and supported by previous literature.

The dependent measure showed less variability on an item-by-item and factor basis. Children's responses on the CCGA were more homogeneous and only 2 of the 21 variables showed statistically significant homogeneity of variance differences between the three studies. In both cases, at least one of the smaller samples provided more variable answers than one of the larger samples thereby possibly inflating the actual α beyond the nominal α. Only 5 of the 45 variables' means differed by a statistically significant margin (see Table A2).

Table A2

Comparison of CCGA Responses Among the Three Studies

CCGA Factor and Items	Three Settings $\bar{x}$	(SD)	n	Center-Based $\bar{x}$	(SD)	n	Home-Based $\bar{x}$	(SD)	n	p value	Bartlets p value
CCGA Factors											
Discipline	5.9	(3.0)	54	5.6	(3.2)	85	5.5	(3.6)	31	.79	.12
Negative Provider Behaviors	1.3	(0.7)	54	1.6	(0.7)	84	1.5	(0.7)	31	.14	.60
Suitability of Setting	7.1	(1.5)	46	8.0	(1.9)	85	7.9	(1.7)	31	.02	.44
Time at Setting	45.2	(7.7)	36	47.0	(9.2)	81	43.1	(8.8)	30	.10	.40
Overall Care Feeling											
... face when __ leaves?	3.4	1.9	56	3.6	1.7	85	3.1	1.9	31	.36	.74
... face when you come?	4.5	1.3	56	4.1	1.5	83	3.7	1.7	31	.06	.21
...face when it's time to go home?	4.8	1.0	54	4.3	1.4	84	4.6	1.1	31	.09	.03
Would you rather come or stay home?[1]	58.5		53	61.2		85	59.3		27	.95	
Do you like coming here?[2]	88.7		53	89.4		85	89.3		28	.99	
Are they good or bad rules?[3]	82.6		46	72.3		83	86.7		30	.17	
...good school or bad school?[3]	91.7		48	83.1		83	80.6		31	.30	
Care Provider-Child Interactions											
...providers' faces usually like?	4.4	1.2	48	3.8	1.6	71	4.1	1.6	31	.08	.04
...face provider helps you?	3.7	1.9	48	4.3	1.4	81	4.3	1.5	31	.07	.07
...face when the provider intervenes with an aggressive child?	3.5	1.9	52	2.9	1.9	80	3.1	2.0	28	.30	.94
...face ...provider talks to just you?	4.2	1.4	49	4.0	1.5	78	3.6	1.8	31	.27	.37
...face look when provider intervenes with a disorderly child?	3.5	1.9	42	3.0	1.9	79	2.9	1.9	30	.34	.99
...face look when just a few children are working with the provider?	4.1	1.6	44	3.7	1.6	79	3.9	1.5	30	.46	.97
Do providers get mad sometimes?[2]	76.6		49	82.1		84	83.9		31	.88	
Do you like making your own food?[2]	59.2		49	75.6		82	55.6		27	.06	
If you got hurt would the provider help you?[2]	92.0		50	96.3		82	76.7		30	.00	
If you needed to tell your provider something exciting ...time to listen?[2]	79.2		53	76.5		81	80.6		31	.87	
Does your provider talk to just you?[2]	85.2		54	82.1		84	90.3		31	.55	
Do you like that? -or- Do wish would?[2]	88.2		51	79.5		83	92.6		27	.17	

(table continues)

CCGA Factor and Items	Three Settings $\bar{x}$	(SD)	n	Center-Based $\bar{x}$	(SD)	n	Home-Based $\bar{x}$	(SD)	n	p value	Bartlets p value
Does your provider make you feel bad?[2]	62.7		51	73.8		84	72.4		29	.38	
Do the providers rules here or do you?[4]	80.0		50	79.3		82	70.0		30	.52	
Care Provider-Parent Interactions											
Does the provider talk to your ride when you g home?[2]	77.8		45	84.0		81	87.1		31	.53	
Child-Child Interactions											
...face look when the child is being disruptive?	1.8	1.6	46	1.8	1.5	83	2.0	1.6	31	.81	.66
Do you have friends here?[2]	94.6		56	94.2		86	96.7		30	.86	
Physical Environment											
...face look when you play outside?	4.6	1.1	81	4.5	1.4	31	4.5	1.2	31	.65	.20
Is there enough room for us to play?[2]	89.1		55	85.4		82	90.3		31	.71	
Do we bump into other kids a lot?[2]	31.5		54	41.0		83	60.0		30	.04	
...like to be at the large area or tables?[5]	50.0		44	43.8		80	44.8		29	.79	
Is the non-parental care messy or clean?[6]	66.7		48	61.4		83	63.3		30	.84	
Do you like it messy or clean?[6]	87.8		49	89.2		83	74.2		31	.11	
Do you use the bathrooms here?[2]	90.9		55	100.0		86	100.0		29	.00	
Do you like the bathrooms here?[2]	90.9		55	91.8		85	83.9		31	.44	
Health and Safety											
...face look when ...it's time to eat?	4.4	1.3	53	4.4	1.2	82	4.2	1.4	31	.76	.60
Scheduling											
...face look when ...at the tables?	4.2	1.4	54	4.4	1.2	83	4.2	1.5	31	.68	.20
...face look when ...at large area?	4.2	1.6	52	3.9	1.6	81	4.0	1.5	31	.55	.92
...face look at clean up time?	3.7	1.9	46	3.3	1.8	82	3.2	2.0	31	.41	.89
...face look at quiet time?	4.1	1.4	46	3.5	1.5	79	3.5	1.9	30	.07	.15
...face look at nap time?	4.3	1.4	27	3.4	1.6	64	3.2	1.8	31	.02	.40
Do you like to be alone sometimes?[2]	60.8		51	65.1		83	60.0		30	.83	
Do you play outside sometimes?[2]	98.0		51	95.3		86	100.0		28	.40	
Do you watch TV?[2,7]				94.2		86	96.8		31	.58	

& Mean is computed from a 5-point Likert scale for the rating scale items and are percentages for the dichotomous choice items
* *p*-values are derived from ANOVA for the rating scale items and chi-Square for the dichotomous choice items.
1 Percentage of children preferring to come to their nonparental child-care setting.
2 Percentage of children answering in the affirmative.
3 Percentage of children answering "good."
4 Percentage of children indicating the providers make the rules.
5 Percentage of children indicating the large play area
6 Percentage of children indicating "clean."
7 This question was not asked of the "3-study" sample.

Joining Sample 1 to Samples 2 and 3

The first study's sample included subsamples that categorically fit with the other two samples as far as their forms of child care. Study #1's center-based sample should have been roughly equivalent to the lowest and the middle DHS categories of study #2 (i.e., those categories that admitted fewer state funded children). Study #1's home-based child care sample should match with the third study. The preschool sample from study #1 should have been a sample without matching the other samples. Comparing the studies for statistically significant results is, therefore, inappropriate, because of the different samples and the differing hypothesis the studies were designed to answer.

To combine the three study samples, study #1's sample needed to split into it's three component samples, and those samples compared with the similar samples in the other studies. The center-care sample in study #1 was compared with study #2 along the eleven demographic measures. Statistical analysis showed significant differences between the samples on mother's education ($t(94) = 3.0$, $p < .01$), the number of siblings in the family, $t(63.7) = 3.1$, $p < .01$, and the number of subjects with two parents living in the home, $\chi^2(1) = 10.06$, $p < .01$. Further analysis showed that the mother's in study #1 had an education that most closely resembled that of the high DHS sample of study #2 (i.e., the category that admitted a large percentage of state funded children). The number of siblings were also more comparable. These differences were not statistically significant between the high DHS category and the center-based sample of study #1. The number of 2-parent families remained statistically significantly different, however, with over 95% of the sample in study #1 reporting a two-parent family and slightly more than 50% of the sample in study #2 reporting two parents living in the home.

The number of females in the studies was the only statistically significant difference between the home-care samples on the demographic measures, $t(44) = 3.05$, $p < .00$. The home-based care in study #1 had very few females, while the majority of sample in study #3 was female. No other variable showed a statistically significant difference.

Based on these analysis, it was deemed appropriate to join the samples by form of child care, not by study. Further analysis will report the differences and similarities by the form of child care the children attended instead of the study in which they participated. In analysis dealing with center-based child care, where the number of parents in the home is a statistically significant variable, the study will be entered as a controlling variable.

Appendix B

The Child Care Game Assessment (CCGA)

Child Care Game Assessment (CCGA)

The primary dependent measure in this study measured children's perceptions of their alternative child care. The CCGA, although used in all three studies and subjected to limited reliability and validity analysis, needed further analysis. To further clarify the reliability of the CCGA, the test-retest reliability needed to be analyzed. All three studies have retested children using the CCGA, but most of the retests have not been compared to the original test. Interrater reliability was only computed on a small sample, but is available for a larger sample via the taped interviews. The internal structure of the CCGA is also relatively unexplored. Each of the three studies has had very limited sample sizes to conduct reliability analysis, but combined, the sample size holds promise of more meaningful results.

Another advantage of the larger sample size was a more conceptually meaningful factor analysis. Some analyses were already completed (see Austin et al., 1996) but were limited by the small sample size. The current analysis followed the same procedures, but were more comprehensive in nature. It followed the steps outlined in Nunnally (1978) and Kim and Mueller (1978). After selecting items that were conceptually related, the items were subjected to factor analysis in a manner that was conceptually meaningful and statistically warranted. The factors were then subjected to internal reliability analysis (Cronbach's alpha) and adjusted to obtain conceptual and statistical cohesion.

The CCGA, while holding promise as a measure (Austin et at., 1995; Godfrey, 1992), needed additional psychometric information before the current study could proceed. The measure was designed in substudy #1 and, with the limited sample size, only appropriately reported non-parametric statistics. While this level of analysis was appropriate for a first step, it did not utilize the full potential of the CCGA or its rating scale. The second study provided enough subjects and variability to preform a small, conceptually-based factor analysis that showed promise in a four-factor scale. However, the sample size again limited the analysis and only allowed generalization to the center care population. As the primary dependent variable in this study, the CCGA was reanalyzed.

Based on earlier analysis and the theoretical base of the CCGA, items were first categorized by concept and question form (see Table B1). Following suggestions by Nunnally (1978) similar items were analyzed in a factor analysis where the number of variables were conceptually related in regard to theory and response type. In no analysis did the number of variables exceed one tenth of the number of subjects (see Nunnally, 1978). Following the suggestions offered by Norušis (1993) correlations were obtained between all the variables. Variables that were not related to other variables in a given analysis were excluded. Additional variables that were related mathematically and made conceptual sense were considered. From these initial steps, two waves of factor analysis were completed.

The first analysis focused on the dichotomous choice variables. Because of the binary nature of the data, statistical factoring was not appropriate. Based on previous work (see Godfrey, 1992b), and work completed but not reported in study #2,

Table B1

CCGA Item Category Divisions

Rating Scale Items	Dichotomous Choice Items	Free Response Items
Overall Care Feeling		
07 How is your face when _____ goes?	09 Would you rather come to non-parental care or stay home?	08 Why do you come to child care?
11 How is your face when you come?	10 Do you like coming here?	
58 ...face look when it is time to go home?	56 Are they god or bad rules?	
	57 ...good school or bad school?	
Care Provider/Child Interactions		
25 What are the providers faces usually like?	29 Do the providers get mad sometimes?	31 What does she do to make you feel bad?
28 ...face...provider talks to just you?	26 Does your provider talk just to you?	36 What does the provider do about a disorderly child?
34 ...face look...few are working with the provider?	27 Do you like her to talk just to you?	
19 ...face when the provider helps you?	30 Does your provider make you feel bad sometimes?	
49 How...feel when the provider disciplines an aggressive peer	41 If you got hurt, would the provider help you?	
37 ...face look...provider disciplines a disorderly child?	43 Do you like making your own food?	
	52 If you needed tell...time to listen?	
	55 Do the providers make the rules here or do you?	
Provider/Parent Interactions		
	59 ...care provider talk...when you go home	
Availability and Presence of Care Provider		
19 ...face when the provider helps you?	41 If you get hurt, would the provider help you?	48 What does the provider do about an aggressive child?
28 ...face...provider talks to just you?	52 If you needed tell...time to listen?	36 What does the provider do about a disorderly child?
34 ...face look...few are working with the provider?	26 Does your provider talk just to you?	
	27 Do you like her to talk just to you?	
Child/Child Interactions		
35 ...face look when the child is being disruptive?	12 Do you have friends here?	13 Who? or Who do you play with here?
37 ...face look...provider disciplines a disorderly child?		47 What do you do about an aggressive peer?

(table continues)

Rating Scale Items	Dichotomous Choice Items	Free Response Items
Physical Environment		
46 ...face look when you play outside	15 Is there enough room for us to play whatever we want?	14 Where do you like to play most?
	16 Do we bump into other kids?	
	17 ...like to be at the large area or the tables more?	
	21 Is the non-parental care messy or clean?	
	22 Do you like it messy or clean	
	38 Do you use the bathrooms here?	
	40 Do you like the bathrooms?	39 Why don't you use the bathrooms?
Health and Safety	16 Do we bump into other kids?	
	21 Is the non-parental care messy or clean?	
	22 Do you like it messy or clean?	
	41 If you got hurt, would the provider help you?	
	55 Do the providers make the rules here or do you?	
Nutrition and Food Service		
42 ...face look...time to eat?	43 Do you like making your own food?	
Scheduling		
18 ...face look when you're at the tables?	17 ...like to be at the large area or the tables more?	
20 ...face look when you're in the large area?	45 Do you play outside sometimes?	
46 ...face look when you play outside?	23 Do you like to be alone sometimes?	
32 ...face look at clean up time?	50 Do you watch TV?	24 Where can you go if you need to be alone?
33 ...face look at quiet time?	53 Do you watch a lot of TV?	51 What is your favorite thing to watch?
44 ...face look at nap time?		
54 ...face like...watching TV?		

dichotomous variables were conceptually linked and correlated to obtain a scale. The items on the scale were summed to obtain an interval scale that could be subjected to further analysis. Two scales were formed, the suitability of the care setting has 10 items, and the negative provider behavior has two items.

The rating scale items allowed a complete factor analysis that was guided by theoretical groupings and earlier results. The CCGA was constructed to measure specific components identified as indicators of quality child care (see Godfrey, 1992a, b). The first study provided extremely limited results because of the limited sample size and the exploratory nature of the CCGA. Parametric statistics were inappropriate and item-by-item chi-square analysis revealed few significant differences between the three groups of children. Data reduction based on a few conceptual groupings were attempted but did not yield statistically meaningful results. Statistical data reduction techniques were not attempted further due to the small sample size in each cell. The second study provided enough subjects and variability to preform a small, conceptually-based factor analysis that showed promise in a four-factor scale. However, the sample size again limited the analysis and only allowed generalization to the center care population. The current study provided the subjects and setting variability to extend the earlier results to a broader population and a more comprehensive, mathematically based factor analysis.

The factors identified in study #2 were applied to the entire study and failed to show a coherent structure. The results, along with the original conceptual groups on which the items were based (see Table B1), were reanalyzed and similar item groupings were formulated. Conceptually similar groupings were combined for a confirmatory factor analysis. A principle components analysis (Varimax rotation) was completed to provide an indication of the number of mathematically coherent factors. There were consistently six factors identified from the initial seven conceptual groupings. Analysis of the seven initial groupings suggested considerable conceptual overlap and concepts were reevaluated in terms of children's perceptions, the initial groups, and the earlier results. These sources of information produced a conceptually based solution with four factors. Furthermore, analysis of the mathematically based six factor solution did not emerge with conceptual clarity and was discarded.

A mathematically based three-, four-, and five-factor principle components solution was completed to confirm the mathematical clarity of the conceptual groupings or suggest modifications. The three-factor solution did not emerge with conceptual clarity, but the four- and five-factor solutions, while slightly different from the pure theoretical solution, were roughly equal in clarity. The four-factor solution was ultimately chosen because of the conceptual cleanliness on two of the four factors. Two factors could not be related conceptually and were discarded. One of the items (#33) on the dropped factor did load heavily on the first factor, and made conceptual sense there, so it was placed there for subsequent analysis. Further factor analysis with these items (dropping scale #4 and modifying scale #2) provided conceptual clarity and mathematical cleanliness. Factor loadings are presented in Table B2.

Although the factors did not emerge with completely orthogonally to each other (i.e., item #18 made conceptual sense in factor 1 but did not load reliably), the factor

Table B2

Factor Loadings for Relevant CCGA Rating Scale Questions

Item #	Question	F1	F2	F3	F4
Factor 1 - Perception of Time Spent					
07	How is your face when ___ goes?	.40			
11	How is your face when you come?	.51			
19	... face when your provider helps you?	.40			
20	...face look when you're in the large area?	.61			
28	...face ...provider talks to just you?	.57			
32	...face look at clean up time?	.64			
34	...face look when a few of you are working with the provider?	.48			
42	... face look... time to eat?	.55	.41		
46	...face look when you play outside?	.48			
Factor 2 - Modified					
25	What are the providers' faces usually like?		.58		
18	...face look when you're at the tables?		.44		
33	...face look at quiet time?	.47	.48		
Factor 3 - Discipline					
37	...face look ...provider disciplines a disorderly child?			.64	
49	How ...feel when the provider disciplines an aggressive child?			.69	
Factor 4 - discarded					
35	...face look when a child is disruptive?		.43		.51
58	...face look when its time to go home?				.52

Factors 1 and 3 were used. Factors 2 and 4 were discarded or modified due to their lack of conceptual clarity.

structure was kept because the items were related conceptually and made sense theoretically. Nunnally (1978) provided the guiding rational for the analysis: "Factor analysis is only a prelude...[it] is only useful to the extent that it aids in the development of principles of human behavior, and the best methods of analysis are those that aid most in the search...there has been a tendency to overdo the mathematical requirements of factor analysis and underdo the requirements of factor analysis for empirical research. This is a bad case of the 'tail wagging the dog.' ...It is important to maintain the distinction between factor analysis as a set of concepts and factor analysis as a set of mathematical procedures" (pp. 328, 330). Table B3 reports the items in each scale and the relevant statistics for each scale.

Table B4 reports the various forms of reliability for the CCGA and its factors. The internal consistency was adequate for two of the scales, but inadequate for the other two. One of the scales, discipline, while low as far as internal consistency, was the most consistent factor to emerge from factor analysis. The items that make up this scale consistently appear together and alone, without regard to sample, factor method, or rotation. The low reliability may be attributed to the small number of items present in the scale.

Table B3

Summary of CCGA Subscales

Item #	Question	$\bar{x}$	(SD)	MAX	MIN
Rating Scale					
Perception of Time Spent		48.0	(8.9)	60	12
07	How is your face when ___ goes?	3.5	(1.8)	5	1
11	How is your face when you come?	4.1	(1.6)	5	1
18	...face when you're at the tables?	4.4	(1.2)	5	1
19	...face when your provider helps you?	4.5	(1.3)	5	1
20	...face look when you're in the large area?	4.2	(1.4)	5	1
28	...face ...provider talks to just you?	4.1	(1.5)	5	1
32	...face look at clean up time?	3.3	(1.8)	5	1
33	...face look at quiet time?	3.5	(1.7)	5	1
34	...face look when a few of you are working with the provider?	3.9	(1.6)	5	1
42	...face look... time to eat?	4.4	(1.3)	5	1
46	...face look when you play outside?	4.6	(1.0)	5	1
54	...face look when you watch TV?	3.5	(1.8)	5	1
Discipline		6.3	(3.2)	10	2
37	...face look ...provider disciplines a disorderly child?	3.1	(1.9)	5	1
49	How ...feel when the provider disciplines an aggressive child?	3.2	(1.9)	5	1
Dichotomous Choice (1 = Yes)					
Suitability of the Setting		8.2	(1.7)	10	0
09	Would you rather come (1) or stay home (0)?	.6	(0.5)	1	0
10	Do you like coming here?	.9	(0.3)	1	0
12	Do you have friends here?	1.0	(0.2)	1	0
15	Is there enough room to play?	.9	(0.4)	1	0
21,22	Do you like it messy or clean?	.6	(0.5)	1	0
41	If you get hurt, would the care provider help you?	.9	(0.3)	1	0
50	Do you watch TV?	.9	(0.3)	1	0
52	If you needed to talk, would the provider have time to listen?	.8	(0.4)	1	0
56	Do you have good (1) or bad (0) rules here?	.8	(0.4)	1	0
57	Is this a good (1) place to come or a bad (1) place to come?	.9	(0.4)	1	0
Negative Provider Behaviors		1.5	(0.7)	2	0
29	Does the provider get mad sometimes?	.8	(0.4)	1	0
30	Does she make you feel bad sometimes?	.7	(0.5)	1	0

Table B4

Reliability of the CCGA Factor Structure

Scale	# items	Internal consistency α	Internal consistency n	Test-retest Agree	Test-retest n	Interrater Agree	Interrater n
Suitability of setting	10	.65	92	.82	36	.99	39
Perception of time spent	12	.72	110	.61	36	.95	39
Discipline	2	.55	140	.46	34	.91	39
Negative provider behaviors	2	.49	159	.61	35	.97	37
Dichotomous choice items				.76	36	.99	39
Rating scale items				.59	36	.95	39
Total				.66	36	.94	39

Item-by-item test-retest reliability was computed on 21% of the tests. Retests were completed from within a few hours of the previous test to 24 weeks later (mean = 10.2 weeks, SD = 7.36). Not surprisingly, this form of reliability improved as the time interval shortened. Test-retest reliability varied, but was generally adequate and similar to other measures for children of this age. For example, Sattler (1988) reported test-retest reliabilities for the Stanford-Binet Forth Edition subscales between .56 and .78 for 5-year-old children and between .28 and .86 for 8-year-old children. The older children's test-retest reliabilities are similar for the McCarthy Scales (.69 to .89) and the Denver Developmental Screening Test (.66 to .93).

Interrater reliabilities were gathered both at the time of the original test, and from tape recorded administrations. Twenty-two percent of the CCGAs were scored independently by different administrators who provided evidence that interrater reliability was both adequate and high. All raters agreed over 90% of the time. To obtain agreement, raters had to assign the same score to each item. The score was obtained on an item-by-item basis where the number of agreements was divided by the total number of items scored.

The correlations among the four CCGA subscales are shown in Table B5. The time spent at setting scale showed statistically significant correlations between the discipline and suitability of setting scales. The correlation is logical in that those who think they are doing worthwhile things at the setting are probably less likely to be disciplined and they find the setting suitable. The two sets of scales that come from the same form of question (i.e., dichotomous choice or rating scale) are not significantly correlated, nor should they be.

In summary, the CCGA has four scales that reliably measures children's perceptions of their nonparental care environment. This is a first step in measuring children's personal premise systems. Validity for the measure is still being developed, but may be established further in the current study.

Table B5

Correlations Among the Four Primary Subscales of the CCGA (N = 143)

Subscale	Suitability	Time	Discipline	Negative
Suitability of setting	.---			
Time spent at setting	.40***	.---		
Discipline	-.09	.26**	.---	
Negative provider behavior	.08	.06	.06	.---

** $p < .01$
*** $p < .001$

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Higbee, T. S., Shalala, M. R., & Godfrey, M. K. (1995, March). Child with Disabilities = Family with Disabilities: Fact or Fiction? Workshop presented at Utah's eighth annual Statewide Preschool and Early Intervention Conference. Salt Lake City, UT.

Godfrey, M. K., Higbee, T. S., Feng, X. (1994, October). Families of Children with Mental Retardation. Presentation to the Western Region of the American Association on Mental Retardation. Snowbird, UT.

Godfrey, M. K., & Lindauer, S. L. K. (1994, March). What Children Think About Child Care. Workshop presented at the Inter-Institutional Early Childhood Conference. Salt Lake City, UT.

Boyce, G. C., & Godfrey, M. K. (1994, March). Dimensions of Maternal Behaviors in Interaction with Their Children with Disabilities. Workshop presented at Utah's seventh annual Statewide Preschool and Early Intervention Conference. Salt Lake City, UT.

Goetze, L. D., & Godfrey, M. K. (1994, March). Transitioning Medically Fragile Infants to the Community. Workshop presented at Utah's seventh annual Statewide Preschool and Early Intervention Conference. Salt Lake City, UT.

Boyce, G. C., Casto, G., Innocenti, M. S., Godfrey, M. K., & Behl, D. (1993, September). Serving Families of Children with Disabilities: Understanding their Strengths and Needs. Presentation at the Region VIII Head Start Conference, Park City, Ut.

Godfrey, M. K., & Boyce, G. C. (1993, April). What Children Really Think About Child Care. Workshop presented at Utah's Statewide Preschool and Early Intervention Conference. Salt Lake City, UT.

Godfrey, M. K. (1993, March). Choosing the Best Child Care for You and Your Children. Workshop for the Community Family Partnership Town Meeting. Brigham City and Logan, UT.

Godfrey, M. K. (1992, July). Child Care: What Do Kid's Really Think? Workshop at the annual Insights Into Early Childhood, Utah State University. Logan, UT.

Godfrey, M. K., & Watts, K. (1991, September). Quality time? Easy As Child's Play. Workshop at the Utah Governor's Conference on Families. Salt Lake City, UT.

Godfrey, M. K. (1990, June). Early Childhood Education in India Workshop for the Utah Inter-Institutional Early Childhood Conference, Salt Lake Community College. Salt Lake City, UT.

Godfrey, M.K. (1990, June). Early Childhood Education in Cuba Workshop for the Utah Inter-Institutional Early Childhood Conference, Salt Lake Community College, Salt Lake City.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Society for Research in Child Development
National Association for the Education of Young Children
South Dakota Association for the Education of Young Children
East Central Association for the Education of Young Children
Phi Upsilon Omicron

COMMITTEES AND TASK FORCE

1996-1998: Financial Advisor: Beta Chapter Phi Upsilon Omicron

1995-1997: Special Needs Committee Chair, Hillcrest Elementary Parent-Teacher Association

1995: Early Childhood Instructional Materials Committee, Utah State Office of Education

1994-1995: Family Life Director, Edith Bowen Parent-Teacher Association

1993-1995: Advocacy and State Representative, Cache Valley Association for the Education of Young Children

1993-1994: Utah State University Child Care Task Force

1992:Ecumenical Subcommittee of the Utah State Office of Child Care

1990:Graduate Student Senator, Department of Family and Human Development

1988-1989: Video Programming Chair, Idaho State University

HONORS AND AWARDS

1985 Service Scholarship, Ricks College
1987 Kasiska Scholarship, Idaho State University
1988 Vending Scholarship, Idaho State University
1990 Widtsoe Fellowship, Utah State University
1991 Widtsoe Fellowship, Utah State University

TEACHING AND RESEARCH INTERESTS

Child Care Enhancement and Optimal Child Care Alternatives
Child Development from ages 2 through 12
Children's Prosocial Development and Neutral Sociometric Choice
Parent Education for Children