OBSERVATIONAL ASSESSMENT OF INFANT-CAREGIVER INTERACTIONS IN GROUP CARE

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BY
ARMINTA LEE KEMP JACOBSON

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CHAPTER I

INTRODUCTION

The formal study of infant day care is a relatively new area of research. As more mothers have entered the work field during the last few years (TDCA, 1978), group care for infants has become socially accepted and increasingly needed. The importance of infancy as a developmental period has long been recognized and causes much speculation as to the effects of group care away from home upon the developing infant.

Research findings have dealt with various aspects of caring for infants during the day in groups. Research studies of infants in day care have primarily focused upon various indices which have demonstrated normal physical, social, emotional, and cognitive development in infants (Keister, 1970; Schwartz, Strickland & Krolick, 1973; Caldwell and Richmond, 1970; Blehar, 1974). Many of the earlier studies were designed to evaluate the acceptability of infant day care as an alternative for infant care which is not harmful to the infant (Caldwell, 1970).

Infant caregiving is unique and different from care and education of children over three years of age (Travers and Ruopp, 1978) and should require special competencies in caregivers which foster the crucially important development of

infants. Personality traits and competencies in caring for infants are particularly important areas needing investigation. Mother-infant interaction research establishes the importance of the quality and nature of caregiver-infant interaction to the successful later development of the child (White and Watts, 1973; Yarrow et al., 1972; Yarrow et al., 1973; Bayley and Schaefer, 1964; Murphy, 1973).

Problem

Caregiver variables in infant day care and their effects on infants have not been effectively researched. In existing studies of infant day care, interactions between the caregiver and the infants have largely been studied in relation to teaching functions (Honig and Lally, 1974; Winkelstein, 1974).

• An intensive evaluation of relationships between caregivers and infants in day care, essential for planning an optimal environment for infants, has not been made.

Lack of existing research methodology and instrumentation for the study of infant-caregiver relations in day care led the researcher to examine existing infant-mother research for an appropriate research model. The need for development of research methodology and instrumentation designed specifically for the study of caregiver-infant relationships in day care was indicated by shortcomings of methodology and instrumentation used in mother-infant interaction research. Available dyadic measures did not take in account the effects of multiple caregiving and simultaneous

interactions. Methodology which uses observations of brief episodes in laboratory settings are not generalizable to day care settings. A measure is needed which assesses interpersonal interactions qualitatively and quantitatively. Purpose

The major purpose of this study was to develop instrumentation which could be used in day care: (1) to assess qualitative and quantitative aspects of interpersonal interactions between caregivers and infants and (2) to assess interpersonal characteristics and competencies of infant caregivers. In general, the goals were: (1) to establish content validity of day care observation instruments on the basis of previous research findings extrapolated from mother-infant research; (2) to verify the extrapolation of assessment constructs, as well as item content, on the basis of ratings from persons in the infant care field; and (3) to develop instrument design and methodology on the basis of the use of videotapes of infant day care.

Specific goals of this study included the development of assessment instrumentation which (1) was comprehensive in the study of interpersonal care, (2) could be used observationally in naturalistic settings, (3) examined for both general and specific factors, (4) included as many relevant variables as possible, (5) could be used in descriptive as well as inferential research, (6) could be used for evaluative purposes

by trained observers in the field, (7) was based on a profile of the competent infant caregiver, and (8) consisted of a battery of observation schedules and rating scales which could be used collectively as an assessment system.

Instrument Design

An observational assessment system was developed which included caregiver-infant interaction observation instruments reflecting multiple caregiving relationship variables and rating scales which measure general caregiver characteristics. This assessment system provides research instrumentation for the collection of descriptive as well as inferential data on interpersonal relationships in day care.

The emphasis in instrument design was upon overt behaviors, defined as those behaviors which can be seen, heard, or perceived by a human or mechanical recorder (Coller, 1972). The molarity of these measures was carefully considered in terms of validity and reliability of observation. As discussed by Brandt (1972), the molarity of the measures influences both reliability and validity, with more molecular behaviors more reliably measured, and measures of more full-range phenomena more valid. The researcher considered the reliability of observation of described measures, while considering as fully as possible the total relationship phenomena.

A sign data system was employed in the <u>Caregiver-Infant</u>

<u>Interaction Schedule</u> in which specific behaviors to be
observed are predetermined and behaviors may or may not occur
during a period of observation. Discrete data categories are
used, with no particular hierarchy or continuum of behaviors
implied. The sampling unit employed is a time/event plan in
which absence or presence of certain behaviors are noted
within a short uniform time interval. Trait rating procedures are also employed, in which postsession ratings are
made following extended observation of behaviors (Coller,
1972; Wright, 1960).

The <u>Caregiver-Infant Interaction Schedules</u> were developed to measure the following interactional variables:

- 1. frequency of interaction
- 2. initiation of interaction
- 3. direction of interaction
- 4. modality of interaction
- 5. affect
- 6. contingency of response
- 7. direction of attention
- 8. effectiveness in comforting of infants
- 9. frequency of rejecting and punishing behavior
- 10. mediation with play things
- 11. sensitivity to infant cues

- 12. vocal, visual, tactile, and play content of interactions
- 13. level of caregiver stimulation
- 14. nature of response to distressed and nondistressed infants

The Caregiver-Infant Interaction Schedule, as designed, provides a tool for research investigations leading to analysis of reciprocity, relationships between variables, differences in sample populations, comparisons between individual infants and caregiver interactions, variability of interactional competence over time, and interactional competence in relation to sex, age, nature and size of grouping. One observational schedule was developed for analysis of interpersonal interactions as they relate to use of the spatial environment. It was designed to be used concurrently with the caregiver-interaction observation instrument or used singularly, with descriptive data resulting from singular use, or inferential data resulting from combined use with the interaction observation instrument. Instrument prototype is one in which, on a predetermined time schedule proximities, orientation, posture, and kinesthetic factors of the caregivers and infants are noted. The format was developed to provide data which can be analyzed in terms of: (a) floor freedom allowed each infant and exploration by infants in relationship to age and sex, and (b) proximity

relationships to caregiver.

Scales were developed for rating overall competencies and characteristics in infant caregiving following an extended period of observation. Scale ratings were designed to be studied in relation to the more molecular and objective data collected by the Caregiver-Infant Interaction

Schedules. The Personal Characteristics Of An Infant

Caregiver Rating Scale measures (a) personality factors,

(b) attitude factors, and (c) interpersonal interaction factors. The scale format provides a continuum of descriptive ratings on each measure based upon observable behaviors in several modalities. The Infant Caregiver Communications

Rating Scale provides ratings on verbal and nonverbal, expressive and receptive, vocal and physical communications modes.

Research Questions

This study sought to answer the following questions:

- 1. Can research findings of mother-infant relations, supportive of infant development, be used to study caregiver-infant relationships in day care?
- 2. Do persons responsible for the care of infants in day care agree with the importance of optimal mothering characteristics to caregivers in infant day care?
- 3. Can differential responses by caregivers toward several infants in their care be described in terms of

time, context, and content of interactions?
Assumptions

This study is founded on beliefs about the importance of infancy and the care of infants. It is assumed that infancy is a critical period of development and that the interpersonal care given by the primary caregiver is related to infant development. It is also assumed that empirical evidence relating to competent mothering is relevant to multiple-caregiving in infant day care.

Delimitations of Study

This study was delimited to the design of observational assessment instruments for use in studying caregiver-infant interactions in day care. Instrument constructs and content were based on empirical evidence from mother-infant research. Instrumentation focused upon personal qualities and interpersonal competencies of persons caring for infants 18 months of age and under.

Limitations of Study

Instrument content was extrapolated from mother-infant interaction research because of the lack of basic research in infant caregiving in day care. Verification of important infant caregiver characteristics included as instrument content was established by 146 directors and infant caregivers in 62 licensed day care centers in North Texas. Evaluation of observability of behaviors was limited to videotaped

observations. This study, leading to the construction of instrumentation, provides tentative judgements regarding validity and establishes the framework for measurement of reliability. Instrumentation is experimental until further research has been done.

Subjects

Data sources for development of instrumentation included five primary caregivers and 19 infants in their care,
45 directors of infant care centers, and 101 infant caregivers. Observation of the five caregivers and 19 infants
yielded videotapes used for studying instrument design
and methodology. Data from the 45 directors and 101 caregivers were analyzed to evaluate the perceived importance of
mother-infant competencies to group care settings.

Definition of Terms

- 1. Caregiving—functioning of an individual or a group for the purposes of gratifying the needs and making possible the attainment of certain goals in relationship to the recipient of care (Beller, 1971).
- 2. Content validity--established by the systematic examination of test content to determine whether it covers a representative sample of the behavior domain to be sampled (APA, 1974; Anastasi, 1968).

- 3. Day care center--care for more than 12 children who are under 14 years of age for less than 24 hours a day (TDHR, 1976).
- 4. Infant--under 18 months of age (TDHR, 1976).
- 5. Interpersonal competence--capacity or ability to interact effectively with others (Jacobson, 1978).
- 6. Interpersonal interaction--mutual or reciprocal action or influence between two or more persons (Lambert, 1960).
- 7. Observational method--direct observation which includes observing and associated recording and analysis of naturally occurring things and events (Wright, 1960).
- 8. Primary caregiver--person who has responsibility for the care and supervision of a particular infant or group of infants (TDHR, 1976).

The importance of the mother-infant relationship to early development has been established by empirical research. As increasing numbers of infants are cared for in day care centers by persons outside the family, research efforts are needed in assessing interpersonal relationships with infants in day care settings. This study integrates mother-infant research findings into the development of assessment instrumentation reflecting important infant caregiving competencies and characteristics. The purpose of this study

has been to develop research instruments designed to provide data regarding interpersonal competencies and characteristics of infant caregivers and their interactions with infants in day care.

CHAPTER II

REVIEW OF LITERATURE

The review of literature was limited to the research relevant to the development of research instrumentation for the study of infant caregiving in day care. An evaluation of infant day care research is followed by a discussion of empirical evidence supporting the importance of the primary caregiver to infants. A survey of instruments designed for studying the human environment in day care presents the scope and limitations of current research tools. A research base for the development of instrumentation to study infant caregiving is provided by maternal variables found to be related to optimal infant development. These variables include those which are found related to overall infant competence, as well as variables related to infant vocalization, perceptual-cognitive development, and play behavior. child attachment and affective relationships are also considered. Studies in mother-infant interaction also suggest alternatives for research methodology and data categories in the study of caregiver relationships in infant day care.

Infant Day Care Research

The formal study of infant day care is a relatively new area of research. Only during the last few years, as

more mothers enter the work field, has the concept of group day care for infants become socially accepted or needed. The importance of infancy as a developmental period has long been recognized, which brings much speculation as to the effects of group care away from home upon the developing infant.

Knowledge about group care of infants is confined to research studies of infants in full-time residential care prior to the last five years. The studies revealed physical and mental developmental retardation, sometimes severe, among the children cared for in these institutions (Dennis & Najarian, 1957; Provence & Lipton, 1962; Spitz, 1973). Many have taken such studies to be an indication of inherent developmental danger in group care of infants. Lack of physical contact, social isolation, and other factors indicated by these studies give reasons for such retardation which could be avoided in a more optimal caregiving situation.

Longitudinal research has been in progress in several institutions where the care of the infant and very young child has been studied. The Children's Hospital in Washington, D.C., has given priority to the development of a method for the prevention of culturally determined retardation and dysfunction in cognitive, motivational, personality and social spheres (Morans, Meers, & Huntington, 1968). The Frank Porter Graham Child Development Project in Chapel Hill, North Carolina, provides a setting for active

intervention in the lives of culturally deprived children (Robinson, 1968). The Yale Child Study Center focuses on issues of study of maternal attachment, identification, ego development and body image development (Provence, 1968). Children's Center in Syracuse, New York, set out to design an appropriate environment which could offset possible detriments associated with maternal separation and possibly add environmental enrichment (Caldwell, & Richmond, 1968). A five year longitudinal study of infert day care programs in New York City has given emphasis to the effects on the child and family, especially as related to mother-infant separation (Rosenbluth, 1973).

Research findings reported in the literature have dealt with broad aspects of caring for infants during the day in groups. However, none of these aspects have been dealt with extensively or very specifically. The majority of studies assess possible detrimental effects to cognitive development and emotional stability of infants in newly established day care centers.

Research using standardized tests of mental ability has shown no detrimental effects to cognitive development due to enrollment in day care (Dusewicz, 1970; Keister, 1970; Robinson & Robinson, 1971; Fowler, 1971; Fowler, 1972; Fowler & Kahn, 1974). All of the researchers except Dusewicz used the Bayley Mental Scales, in combination with other

instruments, in their assessment. Such commonalities in methods increase the comparability of these research findings.

The effect of infant day care on the mother-infant relationship has been another interesting subject for speculation. Studies reported in the literature report no effect on attachment to mother (Caldwell, 1970; Portnoy & Simmons, 1978; Saunders, 1972) or effect on emotional stability in the infant (Keister, 1970; McCutcheon & Calhoun, 1976; Schwartz, Strickland, & Krolick, 1974). Blehar (1974) did find qualitative disturbances in mother-child relationships in day care children. The reason for this discrepancy in findings was not discernible from the literature.

A variety of unrelated studies concerned with different aspects of social development of the infant have also been reported. Fowler and Khan (1974) measured socio-emotional functioning of two to thirty month olds reared in day care in Canada and found no difference when compared with home-reared infants. Infants enrolled in day care at the Frank Porter Graham Center (Keister, 1970) showed no difference from home-reared infants in ratings on the Vineland Social Maturity Scale. A study by Schwartz, Strickland, and Krolick (1974) found that three and four year olds who had been in day care since they were infants rated significantly different on

social behavior traits than three and four year olds enrolled in day care for the first time, with day care participants less cooperative with adults and more physically and verbally aggressive. A two-year study of infants in day care found day care children significantly more noncompliant to mothers and with significantly more temper tantrums than a matched group of home-reared infants (Rubenstein, et al., 1979).

A longitudinal study by Kagan, Kearsley, and Zelazo (1978) focused upon various measures of cognitive, social and affective qualities during the first three years of life. Laboratory experiments which compared infants cared for in a day care setting with infants cared for in their own homes found no differences in attentiveness, excitability, reactivity to others, attachment, and later cognitive functioning.

The only study reported which gives particular emphasis to physical development and health aspects of infant day care was reported by Keister (1970). Optimal physical development was sustained in day care children. A significantly greater number of illnesses were reported among day care infants than among home-reared infants.

At the University of Kansas, research has focused on the technology of infant and toddler day care (Twardosz, Cataldo, & Risley, 1975). It was found that crib toys do not interfere with sleep habits. A feeding study with toddlers demonstrated that foods preferred by toddlers also encourage spoon use and are inexpensive to prepare.

Other projects have dealt with action research, designed to increase infant caregiver, or teacher, competence. A Checklist Assessing the Behaviors of Caretakers (ABC) was designed and tested for effectiveness by Honig and Lally (1973; 1974). A reliability study by Winkelstein (1974) tested the use of gestural imitation techniques in the infant curriculum, with research by Digby (1977) used to study the effects of the curriculum on caregiver behaviors.

The research projects thus far conducted have been able to demonstrate that infants and toddlers in day care centers develop normally and are not harmed or damaged in any apparent way. However, there is an obvious lack of measures, both general and specific, to assess the effects of infant day care. Instruments which can evaluate more general program criteria and can be generalized to a variety of day care and infant education settings are needed, as well as procedures which relate specific elements in the program to specific outcomes.

Most of the studies have dealt with discrete variables in global terms. The most common methods of data handling have included that of rating behavioral traits of infants and the use of standardized measures of cognitive and social development, with correlation often interpreted as causation. In most of the studies, relationships were logically deduced from attendance in day care to various outcome measures (Fowler, 1972; Schwartz et al., 1973; Robinson & Robinson, 1971).

Outcome measures have been interpreted to show lack of harmful effects of infant day care or to assess possible benefits of an early intervention scheme for environmentally deprived infants (Fowler & Khan, 1974; Dusewicz, 1970).

Several obvious weaknesses of such day care research can The relationships between infant day care and infant development are confounded with various aspects of the infants' environment outside day care, especially the confounding elements in the home environment, parenting, and health and nutrition factors in home and community. Most of the research was limited to a small sample of infants in a single day care setting, in most cases a demonstration or intervention center, with such results not generalizable to other day care settings. Day care settings often have little in common as far as the environment and care provided infants. Day care settings are often sources of instability. sequence to family mobility, out-of-home care often changes during the infancy period. Day care centers are notorious for . turnover in personnel, disrupting personal relationships as well as providing discontinuity of care patterns.

Research design has primarily been that of the "one-shot" case study where infants have been exposed to day care over a period of time and then tested for possible effects after this exposure (Schwartz et al., 1973; Dragsten & Lee, 1974).

This type of approach provides the basis for developing

research ideas and researchable problems, but cannot be used as a basis from which we can reach defensible conclusions about infant day care. In some cases, control subjects with home care are provided, but lack of random selection of subjects and frequent use of post hoc data result in lack of experimental validity (Robinson & Robinson, 1971; Keister, 1970). Comparison between subjects and test norm groups cannot substitute for randomization of subjects. Threats to validity are also seen in the selection of subjects from a single program, giving results with limited generalizability.

· Since developmental processes and their relationship to the day care setting are basically ignored in research, those findings reported are also confounded by maturation and relationships to it. Results of interaction between individuality in infant characteristics and the day care setting have not been accounted for, resulting in further lack of validity of results. In general, interpretation of research results have been intuitive in nature rather than data-based. Little provision has been made for basic data gathering which provides real knowledge about infant group settings and which gives theoretical underpinnings for providing optimal care. Research directions in infant day care need to focus on issues of the match of the infant to his environment, particularly the human environment, as human relationships are recognized as the focal point around which infants develop.

. Importance of the Primary Caregiver.

The importance of the primary caregiver in an infant's development is often overlooked, although several research studies have given evidence of the relationships between early caregiving experiences and competencies in later childhood. In a longitudinal study of environmental determinants related to human competency upon entering school, White and Watts (1973) found that ratings of competency of children at age six varied very little for ratings of competency of those children at age three. Further investigation pinpointed the period of 10 to 18 months as the most crucial in determining a child's later competency, especially in the areas of social skills and attitudes.

Yarrow et al. (1972) found the social environment highly significant in influencing infant functioning, independent of dimensions of the inanimate environment. Yarrow et al. (1973) found a relationship between mothering experiences during the first six months of life and selected intellectual and personal-social characteristics at 10 years of age. For boys, the Wechsler Intelligence Scale for Children IQ and several aspects of a child's relationship to others at 10 years of age were related to variables of maternal behavior at six months of age.

The long-term effects of the primary caregiver on child development can be noted in a report by Bayley and Schaefer (1964). Results of an analysis of data collected in the

Berkeley Growth Study between 1928 and 1954 showed maternal and child behaviors to be intercorrelated over an 18-year span of growth. The relationships to maternal behaviors was more significant for boys. Coping capacities of older children were found to be significantly related to early mother-infant interactions in a study by Murphy (1973) of 31 children and mothers. These studies and others contribute to the growing recognition of the impact of human relations in the earliest years of development.

In one of the few studies which has focused upon the infant caregiver in relation to day care variables, the Infant Day Care Study, a substudy of the four-year National Day Care Study (Travers & Ruopp, 1978), indicated that behavior of children and caregivers varied with staff/child ratio and group size, as well as caregiver education. In low-ratio infant groups, infants exhibited more overt distress and care-givers spent less time in teaching. Larger group size was related to less caregiver social interaction, less talking to and less teaching of infants. Greater education and more specialization of caregivers were related to higher frequencies of social interaction, more teaching of language and verbal concepts, and less severe distress exhibited by infants in their care.

Caregiver Observation Instruments

Observation schedules developed for the study of human environments in infant day care have varied in design and

purposes. They have included scanning of the overall environment, composite measures of infant functioning, and time-sampling of the caregiver's language behavior.

A scanning method used in the Cornell Infant Nursery was designed to provide quantitative data on the nursery environment as well as the infants' activities (Johnston, 1977). Using a time sampling plan, one infant is observed at a time. Recordings are made by checking off a list of categories of events which have occurred during a certain time period. Environment and activity variables are listed on separate code sheets for coding by separate observers. On each data sheet, variables are listed vertically, with six columns for recording data. After observing the target infant for 10 seconds, the observer checks off within a ten-second interval pertinent variables in one column. Caregiver variables included are (a) adult talking, (b) adult near, (c) adult in view, (d) singing, (e) looking at baby's face, (f) smiling, (g) face not visible, (h) touching, (i) holding, (j) carrying, (k) rocking, (1) physical play, (m) changing positions, (n) showing object, (o) putting object near, (p) giving toy object, (q) feeding, (r) changing, (s) social soothing, (t) soothing, (u) encourage motor activity, and (v) encourage perceptualcognitive. As expressed by the author, one of the limitations of the scanning procedure is that it was not designed to record interactions between infants and adults. In order to focus on

interactions, time intervals would have to be extended and other types of observation categories included.

Systematic observation and recording procedures have been developed for use in the New York Infant Day Care Study for use in family day homes as well as center day care (Shapiro, 1974). Observations are to be made for a typical day and focus on the infant rather than the caregiver. The caregiver is characterized only in terms of the observed infant. Several techniques of recording are used, which include: (a) a time line of the major events of the day; (b) a core time-sampling scheme which includes, after 30 seconds of observation, 60 seconds of coding seven consecutive observation coding units; (c) aspects of interaction during the noon meal; (d) aspects of the physical setting; (d) interactions involving learning, control, and language; and (f) summary ratings of the caregiver and infant. Analysis of data includes composite subscale measures which reflect cognitive stimulation, language facilitation, and affective measures, as well as infant behavioral responses to the caregiver. Also included is a composite score of environmental variables called the Infant Day Care Environment Index. This observational technique provides for a comprehensive baseline of information on the infant's caregiving environment in a variety of care situations. Shortcomings of this observational schedule include the lack of a comprehensive picture of the infant caregiver in relation to several infants at one time, as well as a sequential recording of an interaction across time.

The Caregiver Language Observation Instrument focuses on caregivers in day care but is limited to language behavior of caregivers (Weir, 1974). The observer looks for 10 seconds and records for 20 seconds, noting frequency and nature of language, as well as the identifying number for each child to whom language is directed. Though limited in scope, this instrument suggests a method for observing caregiver behavior in response to several infants at one time.

The recognition of the importance of the caregiver in the infant day care environment has led to the development of instruments designed to include the study of the human environment in day care. These existing instruments are descriptive and quantitative in nature. The scope of the caregiver's competencies and characteristics is limited, and the literature reveals no research basis for their selection.

Research Base for Instrument Development Assessment Variables

Research findings from the study of mother-infant interactions provide an empirical base for developing an assessment
of competencies in infant caregiving. Maternal measures
which have been found to be related to healthy infant behavior
and development can be assumed to be relevant variables for

consideration in evaluating primary caregivers of infants outside the home.

Maternal characteristics and infant competence. ality characteristics, control, involvement, responsiveness, and attachment are some of the many types of maternal influences found to be related to infant development. In a study of the mother-infant dyad (Stern et al., 1969), a sequence of relationships between personality characteristics of mother, modes of maternal behavior, and responses and development of the infant was defined. The nine factors resulting from this composite appear to be distributed along a continuum ranging from child-centered to mother-centered maternal functioning. Effective mothers were defined as those whose infants were lovingly responsive to them and accelerated in development. The characteristics these mothers seemed to have in common (a) attentive, loving involvement with their infants; (b) high levels of visual and vocal contact; and (c) play involvement. The mothers producing the more accelerated infants were characterized as self-confident and skilled in their caregiving and individualistic in style.

White and Watts (1973) found that infants assessed in their study as highly competent had mothers who differed significantly from mothers of infants judged less competent. Mothers of the more competent infants involved themselves in more mother-infant interactions. Even when their infants

were as young as 12 to 15 months, these mothers spent more time with "highly intellectual" activities and used interaction techniques which taught or were facilitative in nature. These mothers decreased their use of restrictive techniques as children grew older while mothers of the less competent infants increased their use. From the analysis of attitudes and values of mothers in the study, characteristics related to optimal development of children included a positive attitude toward life in general; enjoyment of infants in the one to three year range; an acceptance of the incompatibility of infant needs and preservation of possessions and household order; and the willingness to take risks for the sake of infants' curiosity and development.

Ainsworth and Bell (1972) studied infants' competence in direct dealing with the physical environment as measured by developmental competence on the Griffiths Scale. Positive relationships were shown between infant competence and maternal factors of sensitivity, acceptance, cooperation, and the amount of floor freedom allowed the infant. Amount of playing with the baby by the mother was also positively correlated with developmental scores of the infant. Frequency of punishment was negatively related to infant competence.

Level and variety of social stimulation (Yarrow et al., 1972) provided by a primary caregiver in the home have been found to be positively related to functioning of five-monthold infants. Infant functioning which related significantly to social stimulation included goal-directed behaviors, reaching and grasping, and secondary circular reactions.

Adult responses, contingent upon infant distress, were found to be significantly related to goal-directed behavior in the infant.

Mother-infant interaction patterns found by Gordon to be associated with high scores on developmental tests at 12 months included (a) mother's eliciting of infant responses, (b) mother's showing the infant how to do something and then stepping back to watch, and (c) eye-to-eye contact between mother and infant (Yahraes, 1977).

Other studies (Murphy, 1973; Stern et al., 1969) exemplify findings which support an optimal level of interaction, reporting a curvilinear relationship between development and degree of attention. In studying the development of coping ability in young children, Murphy (1973) found that optimal early mother-infant interactions were characterized by a balance of attention and autonomy, of interaction and letting the infant alone part of the time. Too much or too little attention, body contact, and talking to infants were found to be not good for infant development. These findings concur

with findings (Stern et al., 1969) which characterize mothers of slow-developing infants as exhibitionist, vigilant, and including both high and low levels of physical contact. Patterns of mothering have been found to be related to individual infant temperaments in different ways, indicating the need for flexibility in interaction patterns (Murphy, 1973; Milliones, 1978).

Maternal responsiveness and infant vocalization. Mother responsiveness and infant vocalization have been examined in several studies. Clarke-Stewart (1973) reported a high relationship between responsive maternal speech and children's competence in a longitudinal study of infants from 9 to 18 months of age.

Responsive mothers who ignore few episodes and respond with little delay have infants with more variety, subtlety, and clarity of noncrying communication (Ainsworth & Bell, 1972). During the second, third, and fourth quarters of the first year, infants of responsive mothers cried significantly less than infants of unresponsive mothers. Beckwith (1971b) also reported a positive relationship between mothers' ignoring of infants and frequency of infant crying. Infants who cried little had a wider range of differentiated modes of communication than did infants who cried often (Ainsworth & Bell, 1972). Amount of maternal play behavior has also been found

to be positively related to amount of infant vocalization (Clarke-Stewart, 1973; Yarrow, Rubenstein, & Pedersen, 1975).

Maternal behavior and perceptual-cognitive development.

In the last decade, perceptual-cognitive development of very young children has interested researchers and parents. A study of perceptual-cognitive development in infants 12 weeks of age (Lewis & Goldberg, 1969) also stressed the importance of maternal responses which are contingent upon the infant's behavior. Perceptual-cognitive development was found to be moderately related to the overall response of mother to infant's crying and vocalization and the amount of touching, holding, and smiling exhibited by the mother, and highly related to the amount of looking by the mother. These findings concur with other studies (Stern et al., 1969; White & Watts, 1973) which characterize effective mothers as being very responsive to and involved with their infants.

An investigation of the relationships between maternal behaviors, infant behaviors, and individual differences in infant IQ (Beckwith, 1971a) was made with the same infants at two interviews, during age ranges from 7.2 to 9.7 months and 8.5 to 11.3 months. The study revealed that low maternal verbal and physical contact within the home was significantly related to lower IQ on the Cattell Infant Intelligence Scale.

Maternal restriction of infant exploration was found to be related to decreased interest in attaining speech during the last quarter of the first year and was significantly related to lowering of IQ scores. Clarke-Stewart (1973) also reported maternal restrictiveness to be negatively related to scores on the Bayley Scale of Mental Development at 18 months. In this study the Bayley measure was highly correlated with the mother's non-physical stimulation-locking and talking. Responsiveness of the mother was also related to the child's Bayley score and to the child's speed of processing information, schema development, language, and social and emotional competence. Stimulation by mother to promote achievement has also been found to be related to Cattell IQ scores at six months of age (Yarrow et al., 1973).

Ainsworth and Bell (1972) have studied cognitive development in white middle socioeconomic status (SES) infants and black lower SES infants in terms of development of the concept of object permanence and scores on the Griffiths

Development Scale. Infants who had harmonious interactions with mothers sensitive to their signals and who had developed attachment relationships of normal quality tended to develop the concept of person permanence in advance of object permanence. At 8 to 11 months these infants were also advanced in the level of object permanence achieved. Harmonious

attachment relationship, as well as floor freedom, were highly related to development scores. Data are presented by Donovan and Leavitt (1978) which further support the hypothesis that maternal sensitivity is related to infant development of the concept of the object. Other variables in the social environment, as provided by the mother, which are shown to be related to infant measures of cognitive development include tactile, kinesthetic-vestibular, visual, and auditory stimulation; contingent responsiveness; and expressions of positive affect, smiling, and play (Yarrow et al., 1975).

In a study of videotapes of low-functioning mothers whose infants were at risk for delay, the mother's position — whether she faced, sat beside, or sat behind her infant — was found to influence the amount of stimulation she presented to her infant. The facing position was most favorable in influencing the child's cognitive language developmental quotients (Crittendon & Snell, 1979).

Maternal correlates with infant play behavior. Another area of consideration is the development of infant play behavior. According to findings by Clarke-Stewart (1973), the best single predictor of play behavior in infants was the amount of stimulation with toys and objects received from the mother at home.

Other researchers have studied quality of investigative behavior and exploratory play and its relation both to

maternal behavior and to the quality of infant-mother attachment relationships (Ainsworth & Bell, 1972). They found a significant relationship during the last quarter of the first year between frequent harmonious transactions with the mother, mother responsiveness to infant-initiated interaction, and the infant's greater exploration of toys and advanced behavioral schemata in play.

Mother-child attachment. In studying relations between the mother's behavior and the quality of the child's attachment, Clarke-Stewart (1973) found that optimally securely attached children were associated with homes where there was not constant exposure to a great number of people and where mothers were socially stimulating, responsive, and affectionate. In particular, the children's attachment was highly related to frequency of maternal social behavior.

In studying the use of mother as a secure base from which to explore, Ainsworth and Bell (1972) studied quality of infant attachment in relation to maternal ratings.

Infants rated as highest in actively seeking proximity and interaction with mothers all had mothers above the median in sensitivity to infant signals, acceptance, cooperation, and accessibility. In a study of early face-to-face interaction of infants with their mothers, mothers of infants later judged to be more securely attached were more often contingently responsive and encouraging of further interactions (Blehar, Lieberman, & Ainsworth, 1977).

Infant-mother attachment at 18 months was related, in followup studies, to quality of adaptation. Securely attached infants were more successful in problem-solving situations at 24 months (Matas, Arend, & Sroufe, 1978) and more competent in engaging problems and opportunities at ages 4-5 (Gove and Arend, 1979). Responsiveness in the caregiver-infant dyad is significantly related to toleration by the infant of brief separations from the caregiver during the first year and at 21 months (Cohen, 1979).

The early manifestation of infant obedience indicates progress in social development. In a study by Stayton, Hogan, and Ainsworth (1971), maternal variables of sensitivity, acceptance, and cooperation were all highly intercorrelated with infants' compliance with commands during the last quarter of the first year. Frequency of verbal commands, frequency of physical intervention, and amount of floor freedom permitted the infant were not found to be related to compliance with commands.

Interaction and positive affect. An obvious measure of effectiveness in interpersonal relations with infants is the degree to which positive affect or happiness is observed in the infant. Smiling and vocalizing and the absence of crying and fretting are seen as evidence of happiness. An infant's expression of happiness has been found to be most closely related to the mother's expression of positive emotions

(Clarke-Stewart, 1973). Mothers who vocalize and smile frequently have been found to have infants who vocalize and smile frequently. The more positive the maternal behaviors, the less frequently the infants fret and cry (Lewis & Wilson, 1972). Infant fretfulness has been observed to be related to maternal rejection and self-control. Lower levels of infant fretfulness are associated with maternal effectiveness in physical, social, and instrumental behaviors (Clarke-Stewart, 1973).

Research Methodology

A model for studying infant-caregiver interaction in day care can be derived from observational studies of mother-infant interaction. Observational research varies in method, time continuum coverage, material coverage, recording technique, and analysis procedure (Wright, 1960). A discussion of specimen recording, time sampling, event sampling, and trait rating methods, as they have been used in mother-infant interaction research, will follow.

Specimen recording methods have been used by Stayton et al. (1971) and White and Watts (1975) in the study of social environment factors which influence early development. Continuous narrative recordings were made detailing infant behaviors and interactions with the environment at scheduled time periods. Specimen recording has the advantages of providing for exploration into little-studied

areas while providing a comprehensive view of behavior and its context. Data can be qualified and quantified according to various analytical schemes with considerable accuracy and consistency (Wright, 1960). In the study by Stayton et al. (1971), bipolar scales were devised to assess motherinfant interactions and codes developed to assess maternal behaviors from continuous recordings made for four hours in the homes. White and Watts (1975) analyzed 10 minute sequences of narrative recordings for quantification of the kinds of experiences as well as percentage of time spent in various experiences by the child. To date, little provision has been made for basic data gathering in studying the infant day care environment. Recordings of all ongoing behavior in the day care setting would provide data upon which to base future research questions. Audio and video recording equipment are particularly well-suited for specimen recording and have resulted in intensive analyses of mother-infant interaction through stop-frame analysis techniques (Brazelton et al., 1974).

A method chosen by many researchers in the study of mother-infant interaction is that of time-sampling. Selected variables or behaviors are targeted for coding or narrative recording during short and uniform time periods. Beckwith (1971a) and Lewis and Wilson (1972) were among those researchers who checked off behavioral categories during

brief time segments and analyzed results in terms of frequencies of occurrence.

Coded observations or directed narrative recordings in both time-sampling and event-sampling methods are efficient and allow for the systematic control of observational efforts. Limitations inherent in these methods include the narrowness of perspective in recording predetermined behaviors or events independently from their contexts. In spite of these limitations, data derived from sampling specific aspects of the caregiver-infant interaction could provide important information regarding the task of multiple caregiving in day care.

An example of event sampling is the study by Yarrow et al. (1972) in which 60 categories of events in the social environment were monitored during a 30 second observation period and recorded during a consecutive 60 second period. Each event category represents a class of integral behavioral events. A distinction of event sampling is that it structures observations into natural units of behavior, providing fuller, more integrated data for study.

A method used for indirectly assessing mother-infant interaction is trait rating, in which ratings of selected dimensions of behavior are made to summarize a cumulative direct observation. Stern et al. (1969) rated mothers and infants in personality and behavior factors and analyzed

the ratings to infer relationships between maternal measures and infant responses and development. Other studies, such as one by Yarrow et al. (1973), relate early ratings of mother-infant interaction with indices of later child development. Trait rating procedures provide a stable technique for recording cumulatively observed data. It should be noted that trait ratings are often more a measure of personality than a description of behavior, but could prove valuable in discerning subjective impressions which elude more objectified measures of recording.

Data Classifications

A variety of data categories have been described by researchers in studying parent-child interaction. Data limits are based upon theoretical assumptions underlying the study and focus upon salient aspects of the interaction. An interaction is essentially a dialogue, or "conversation" between two individuals. At the simplest and most abstract level, both interactants can be regarded simply as sources of sound which at any given moment are either on or off (Bakeman & Brown, 1977). Communicative acts, those which serve as expressive cues to others or have an effect upon others, constitute the observable behaviors in an interaction. Communicative acts of mother and child chosen as data categories used by researchers have been both general and specific.

Ling and Ling (1974) observed the frequency of communication of children under three with their mothers. Checklist items were classified according to eight communicative modes:

(1) vocal behavior, (2) verbal behavior, (3) eye contact, (4) facial expression, (5) body posture, (6) action, (7) demonstration, and (8) gesture.

White et al. (1978) scored communicative acts of mother and child in terms of purpose and content. Various aspects of maternal speech content were examined in a comparison of younger and older infants with their mothers. Sherrod et al. (1978) studied differential aspects of maternal speech content within the context of mother-infant interaction at three ages. Observation codes used by Bronson (1974) included context, nature, and consequences. The timing and contingency of communicative acts between mother and infant have also received considerable attention from researchers in studies of variables which influence infant behavior and development (Lewis & Wilson, 1972; Yarrow et al., 1972; Ainsworth & Bell, 1972; Rosenfeld, 1973).

More inclusive data categories have looked at behavioral sets, which are essentially composites of communicative instances. Studies which examine sets of teaching behaviors of mothers have included those of White and Watts (1975), and Matas, Arend & Sroufe (1978). Others have

described behavioral sets which are essentially personality factors (Stern et al., 1969; Beckwith, 1971).

Emotional factors as well as situational variables which impact on the mother-infant relationship constitute another data source in relationship studies. Maternal and child variables which describe or reflect affect are considered in studies by Yarrow et al. (1973), Stern et al. (1969), and Clarke-Stewart (1973). The situational context of the caregiver-infant interaction is an integral part of many research observations. Lewis and Painter (1974) studied the nature of mother-infant interaction as a function of context by including caregiving activities within the coding system. James and James (1977) have developed an interactional scale which corresponds to the context of a visit to the pediatrician's office. Other studies have described parent and infant relationships in the context of manipulated environmental variables, such as the presence and absence of different persons in the room (Ainsworth et al., 1973; .Lamb, 1978) .

The diversity in approaches for studying mother-infant interaction provides the researcher with alternatives with which to approach the problem of studying caregiver-infant interaction in day care. A process must be developed which takes into consideration the variable context of the day

care setting as well as the variability within the persons studied.

Summary

A review of research literature from the areas of infant day care and mother-infant interaction establishes the need for the development of supportive research instrumentation and methodology. Infant day care research has been limited in scope and generalizability and has provided little baseline data about the unique aspects of out-of-home care of several infants and children by a surrogate caregiver. A comprehensive analysis of the interpersonal characteristics and competencies of the caregiver in interactions with infants is needed. Mother-infant interaction research provides empirical data upon which to develop an assessment profile of infant caregiving and methodological systems from which to develop research instrumentation.

CHAPTER III

PROCEDURES

The development of research instrumentation for studying interpersonal characteristics of caregivers in day care was based upon empirical data relating caregiving characteristics to infant development, perceptions of infant day care directors and caregivers, and videotaped observation of caregivers and infant interactions in day care. infant interaction research literature was analyzed in terms of maternal attributes and dyadic competencies shown to be related to healthy infant development. A profile of maternal behaviors generalized from the literature was used in the construction of a research tool designed to verify the extrapolation of mother-infant interaction research to the study of infant day care. Observability of infant caregiver interaction competencies was determined and design of assessment instrumentation procedures was facilitated through analysis of video tape recordings.

Mother-Infant Research Base

An intensive review of mother-infant research literature was made to determine significant factors in infant caregiving as well as to gather information regarding item categories and instrument design. An examination was made

of dyadic interaction studies as well as longitudinal motherinfant research which related maternal characteristics and interactions to infant well-being and healthy development.

From research findings evidence was sought for infant caregiving variables which seem to be indicative of optimal infant care. The variables and behavioral evidences, as indicated in the research, were summarized into a chart which categorizes the factors in terms of personality factors, attitudes and values, and competencies in interactions with infants (see Appendix B). These factors were broken down into component parts and meanings, as evidenced by behavioral descriptions in the literature. This step resulted in the listing of 50 statements which described general caregiving characteristics more definitively. These statements became the basis for the Important Characteristics in Infant Care Scale (ICIC) (see Appendix A). Research findings which were used as sources of data were documented by the development of a matrix which matches items on the ICIC Scale with researchers (see Appendix D).

Behavioral items were further clustered into general competency categories common to mother-infant literature (see Appendix C). These clusters provided a competency profile around which to design instrumentation.

Mother-infant literature and their corresponding

instrumentation, as well as infant day care observation schemes, were further studied for documentation of concepts, their definitions, descriptions, and observational cues. Observational instruments were studied in terms of their designs, time-sampling plans, and data coverage, as a developmental stage in designing a coherent system of evaluation.

Verification of Assessment Constructs and Content Sampling Procedures

The subjects providing field data were directors and infant caregivers in day care centers in Dallas and Tarrant County which are licensed by the Texas Department of Human Resources to care for infants under 18 months of age. Their perceptions of the relative importance of various caregiver characteristics were obtained through their response to a Likert-type scale mailed to their day care centers.

An introductory letter (see Appendix E), copies of the Important Characteristics in Infant Care Scale (see Appendix A), and a Child Care Background Information Form (See Appendix F) were mailed to 204 directors of child care facilities in Dallas County and 58 directors of child care facilities in Tarrant County. The letter introduced the study and asked the cooperation of the child care personnel in completing the Scale. Two copies of the ICIC Scale were mailed to each center licensed for 50 or less children, with

additional copies for centers licensed for more than 50.

A total of 672 forms were mailed, and stamped, self-addressed envelopes were provided. Participation was anonymous and voluntary.

The research sample used for the analysis of the ICIC Scale ratings consisted of those directors and caregivers who cooperated in returning the forms. The population of day care workers from which this sample was derived is variable in sex, age, ethnic, experiential, and educational background (see Table 1). Minimum standards for day care licensing in Texas require that the director of a day care center shall (a) be at least 18 years old, have a high school diploma or its equivalent, and one year of experience in family day care, group care, teaching, administration, or management; or have (b) a bachelor's degree from an accredited college or university; or (c) a Child Development Associate credential; or (d) an associate of arts degree in child development or a closely related area (DHR, 1976). Day care staff who work directly with children and who are counted in the staff-child ratio are required to be able to read and write and be 18 years of age or older, with the exception of those persons who have a high school diploma or are enrolled in state or federally approved career programs (DHR, 1976).

Infant day care research has not generally focused upon the actual makeup of the day care population. An exception

Table 1
Demographic Data on Rating Scale Respondents

Data Categories	Day Ca	re Directors	Infant Caregivers	
	<u>n</u>	7	<u>n</u>	z
Age Range				,
Under 20	. 0		7	6.5
20-29	7	15.6	31	29.0
30-39	12	26.7	21	19.6
40-49	13	28.9	20	18.7
Grer 50	13	23.9	28	26.2
Ethnic Background				
Black	7	15.6	18	16.8
Mexican-American	. 0		4	3.7
White	36	80.0	78	72.9
Other	2	4.0	. 7	6.5.
Years Experience		•		
First year	1	2.2	14	13.1
1-4 years	12	26.7	47	43.9
5-10 years	15	33.3	20	18.7
Over 10 years	16	35.6	20	18.7
Unreported	1	2.2	6	5.6
Education and Training				
None	0	• •	4	3.7
High school	17	37.8	60	56.0
Jr./Community College	12	26.7	15	14.0
4 year college	17	37.8	28	26:2
Graduate school	6	13.3	3	2.8
Montessori	1	2.2	0	• •
Child Development Associate	2	4.0	0	• •
Seminary	2	4.0	0	• •
On-the-job	39	86.7	. 85	79.4
Workshop	41	91.1	76	71.0

 $a_{\underline{n}} = 45$

b<u>n</u> = 107

CPercentage columns total more than 100% because respondents could mark more than one response.

is the National Day Care Study (Ruopp, et al., 1979).

Results from a national random survey of 3,100 day care

centers indicated that staff for infant and toddler groups

had a mean of 12.3 years of education and 4.5 years of ex
perience. Data show that infant and toddler caregivers have

less education than preschool caregivers in the same center.

Inferences from the findings of this study are limited in generalizability by the nonrandom and voluntary responses of the sample population, the urban setting of the day care centers, as well as the bias of persons who return forms mailed to them. According to data reported in the National Day Care Study report (Ruopp, et al., 1979), center-based day care for infants in Texas is atypical for the nation. Of all children served by centers nationwide, only 4.5 percent are under two years of age, compared to 17 percent in Texas, the largest infant and toddler enrollment in the nation.

Upon return, the <u>ICIC Scale</u> ratings were analyzed to determine the amount of agreement of the relative importance of each caregiver characteristic item and to determine any discrepancy between ratings of day care directors and infant caregivers. The Child Care Background Information form provided data which included age, ethnic background, years of child care experience, and kind of education or training in child-related fields. Data categories were chosen for their

implications in the development and use of infant caregiving assessment instruments.

Design of ICIC Scale

Perceptions of directors and infant caregivers of the relative importance of various caregiving characteristics were obtained with the use of the ICIC Scale. The ICIC Scale was designed to verify for use in day care research those characteristics and behaviors which research literature has designated as important indicators of optimal caregiving of infants by their own mothers. Findings from mother-infant interaction studies provided a research base of desirable caregiver attributes (see Appendix D). A synthesis of longitudinal research findings resulted in the categorization of caregiver characteristics (Jacobson, 1978) as the basis from which the ICIC Scale was developed (see Appendix B).

Clusters of caregiver characteristics were further refined through the addition of interactional measures derived from microanalytic laboratory research. These techniques are designed to examine the quality of interactional patterns rather than long-term developmental effects (Brazelton, Koslowski, & Main, 1976; Schaefer, 1977; Stern, 1974). Items were clustered, with more general items preceding more specific items, and in many instances, with more specific items describing the more general items. Items

were stated as simply as possible without distorting the meaning derived from the research data. (See Appendix C.)

A pilot study was conducted in which ten professionals. experienced in infant day care were asked to respond to the ICIC Scale. The participants included two persons employed as directors and three persons employed as infant caregivers in child care centers in Denton, Texas; the director of the University of Arkansas infant program in Fayetteville, Arkansas; and four graduates or graduate students in child development at the Texas Woman's University, two with experiences as directors of infant day care and two with experience as infant caregivers. Pilot study participants were asked to complete the ICIC Scale and to comment on the understandability and reading level of the items; the length and ease of use of the ICIC Scale; the observability of each item; and additional items which should be included. lowing the pilot study, items were reworded and further refined for greater observability and understanding. were then randomly assigned for order of sequence on the Scale for the research form.

The ICIC Scale was mailed to day care center directors and caregivers in Dallas and Tarrant Counties. Repondents were asked to complete the Scale by indicating whether the characteristics stated are: (a) Very Important, (b) Important, of (c) Little Importance, or of (d) No Importance.

The results were analyzed in terms of the extent of agreement by directors and caregivers on each item. The data provide judgements from persons in the field which verify the use of mother-child research data categories in infant day care research.

Analysis of Ratings

Data derived from ratings on individual items on the \underline{ICIC} Scale were used to validate inclusion of observable behaviors incorporated into the assessment system. Those characteristics which were rated as Important or Very Important by directors and caregivers in infant day care were included for observation within the caregiver-infant observation assessment system. Each item was analyzed by the application of the chi-square goodness of fit test to determine whether the observed frequency distribution of ratings of Very Important or Important and Little Importance or No Importance differed significantly from the hypothesized frequency distribution in which $H_0: P_1 = P_2 = .50$. Discrepancies between ratings given by day care directors and those of infant caregivers were determined by computation of a chi-square contingency table analysis.

Observation for Assessment Content and Procedures Recording of Videotapes

Videotape recordings of infant caregiving provided data for the analysis of the observability of caregiver

characteristics and for determining assessment procedures.

A time-date monitor attached to the camera of the videotape equipment provided permanent digital time readouts on the videotape for further time analysis of caregiver-infant interactions.

Observation sample. Five caregivers and the 19 infants in their care were observed and videotaped in the naturalistic settings of their day care centers in Denton, Texas, and Farmers Branch, Texas. Four caregivers were white females and one Mexican-American. Each cared for six or seven infants in one room with the help of an aide. Two caregivers worked overlapping shifts in a community college center; one caregiver was employed in a church-related center; and two caregivers worked successive shifts in a private day care center. The centers were chosen because of the willingness of the administrator in cooperating with the research study, lack of restrictions regarding persons other than the center staff entering the infant rooms, and their geographical accessibility.

In the community college center both caregivers were middle-aged females, one white and the other of Mexican-American background. The morning caregiver had been in the center since it opened approximately eight months earlier, at that time beginning a career in child care. The afternoon caregiver had worked in the center for one week and had

worked in day care with older preschool-age children prior to that time. The six children, four boys and two girls, varied in age from four months to 15 months at the time of videotaping. The caregiver in the church center was a white female in her thirties. She had worked in the infant room for about eight months and previously worked with different age groups and served as director at the same center. six children, four girls and two boys, ranged in age from two months to 18 months. The two caregivers in the privately owned center were white females in their twenties. morning caregiver had worked in the infant room for two weeks and prior to that time had worked in the toddler room. own son was among the children in her care. The afternoon caregiver had worked in the infant room for two months, with no prior experience or training related to day care. Four boys and three girls in the infant room ranged in age from two and a half months to 11 months.

Videotaping procedures. The community college child care facility was used as the primary site for videotaping of caregiver and infant interactions. A classroom next to the infant room was equipped with one-way windows and a sound transmission system, with speakers in the ceiling of the infant room. Videotaped recordings were made through the observation windows. Recording was made over several days time with a maximum of two hour sequences, beginning with

the opening of the facility at 7:30 a.m. and progressing through the day until closing at 5:30 p.m. The short sequences were chosen in order to improve the quality of recording. A composite of an infant caregiving day was made to provide examples of relevant personal and situational factors around which behavior is likely to vary. Videotaped recordings focused on the caregiver but included as much infant response as possible.

Videotapes of infant caregiving were also made in the church-related and private child care facilities during two one-hour segments in each center. The videotaping took place at times when the majority of the infants were awake and not involved in feeding. The researcher visited each infant room and observed as unobtrusively as possible for at least one hour on the day before videotaping. In preparation for videotaping, a portable videotape camera was set up in the infant room in a part of the room where it could be seen but not reached by the infants.

The researcher observed quietly and unobtrusively in the setting until the infants appeared to lose interest in the novelty of the videotape equipment and researcher within the environment. Care was taken not to interact with the caregiver and infants or to interfere in any way with the usual routine in the child care setting. Again, video

recording focused upon the caregiver but included as many infant responses as possible.

Additional data collected from each child care facility, for the purpose of clarifying and interpreting the recorded data, included descriptions of (a) the child care facility, (b) the primary infant caregiver or caregivers, and (c) the infants. A description of the participants in the videotape procedures included the approximate age range, sex, and education or training of each caregiver. Descriptions of the participating infants included the number of infants cared for in the room observed and ages and sex of infants.

Human subjects protocol was observed with informed consent letters sent to and signed by directors of participating infant care facilities, by participating caregivers, and by parents or legal guardians of participating infants (see Appendices G, H). Permission to videotape forms were signed by the participating caregivers and by parents or legal guardians of participating infants (see Appendix I). The purpose of the research was described to the participants as a study of the behaviors which take place between infants and their caregivers in day care. Directors and caregivers of participating facilities and parents of participating infants were notified of the opportunity to view the videotapes with the researcher after their completion, and of their

right to withdraw from the study at any time (See Appendix J).

Analysis of Videotapes

The viewing of videotapes provided a concrete basis for delineation of assessment content and procedures not adequately provided by study of the literature. Videotapes provided the researcher with observational data which could be screened for relevance, studied intensively, and viewed in multiple ways.

Approximately 16 hours of videotaped observations of infant caregiving in day care were used for study and identification of desirable infant caregiver behaviors defined in the literature. While the considerable amount of data collected provided an overview of variability of traits over time and setting, many hours of tape were repetitious, included only solitary activities of infants, or did not clearly focus upon specific caregiver-infant interactions. The 16 hours of tapes were viewed and notes made of identifiable episodes of caregiver-infant interactions. For research purposes of identification of behaviors and observation procedures the videotapes were edited to a 12 minute composite videotape designed to exemplify part of a day care day. Editing procedures began with screening of tapes for clarity of audio and video recordings. One-minute episodes were identified in which ongoing caregiver-infant interactions

took place within the context of multiple-caregiving--more than one infant was visible. One-minute episodes were further screened to include only those which (1) focused clearly on overt behaviors of the caregivers, (2) showed easily identifiable verbal and physical communicative acts of the caregiver, (3) showed reciprocal behaviors of infants.

Random selection of episodes were chosen, resulting in three separate one-minute episodes for each of four caregivers from three different day care settings. Various times of day and a variety of caregiving activities were represented by the selected episodes.

Observer training. Four graduate students, enrolled in an infant research class, viewed the composite videotape as a means of establishing observability of the identified caregiver characteristics in the multiple caregiving setting of day care. These observers had studied the mother-infant research literature, had observed in infant day care, and had been trained in mother-infant observation techniques with the use of videotapes. Training experiences in observing behavioral cues were varied. With the use of a film, in which assessment with the Neonatal Behavioral Assessment Scale (Brazelton, 1973) was made, a student trained in reliability familiarized other students with identification of behavioral items. In addition, students were trained by a previously trained observer in coding videotapes for analysis

of face-to-face interaction in infant-adult dyads (Als et al., 1977). Prior to observations of research tapes explanations and discussions of caregiver variables were given. Delineation and sensitization to variability in behaviors were emphasized.

Videotape observation. Observation of the 12-minute composite tape by students included the general identification of categories of behaviors. Behaviors which were not easily observable in quantifiable terms were also identified. Videotapes were also viewed for cues for instrument design, based upon: (1) the extent to which several variables can be observed within a short time span; (2) observability of characteristics from easily defined cues; and (3) quantity of time needed for identification of characteristics.

Clusters of caregiver characteristics (see Appendix C) as stated on the Important Characteristics in Infant Care

Scale were divided into four groupings (Table 2). Each graduate student was assigned a cluster grouping of caregiver characteristics to observe for three one-minute segments of tape for a single caregiver. Cluster groupings were rotated among the students for each caregiver segment. The students viewed the videotapes during 10 second intervals and then were given 10 seconds to tally each caregiver characteristic in their assigned clusters which appear on that segment of the tape. Each of 50 items within the clusters were

identifiable in one of two ways: (1) objectively, as discrete, easily defined behaviors; or (2) subjectively, from identifiable cues or overall impression based upon professional insight. Those characteristics which are more general personality or attitudinal characteristics and more easily identifiable following extended observation were identified as such.

The students viewed an additional three minute segment of tape showing a single caregiver to assess procedure in monitoring interactions of one caregiver with several infants within a short time span, using a prototype of the Caregiver-Infant Interaction Schedule: Nature. Observers were asked to code for each separate caregiver-infant interaction observing the following:

- 1. Initiation of the interaction--caregiver or infant?
- 2. Modality by the caregiver in the interaction-vocal/verbal, eye contact, facial expression, body posture or movement, or gesture?
- 3. Emotional or affective tone of the caregiver in each interaction--rated as positive or negative?
- 4. Caregiver utilization of playthings or objects to mediate the interaction?

This trial in observational coding provided evidence for the observability of multiple relationships within day care as well as assessment of observational procedures.

Table 2
Research Procedures for Observing Videotapes

						
	Caregiver	Caregiver	Caregiver	Caregiver		
Cluster	1	2	₂ 3	4		
Grouping	Students					
1	· A	ם ,	C	В		
2	В	A	D	С		
3	C	В	A ,	D		
4	D,	С	В ,	A		

Synthesis of Instrumentation

Investigation of research literature and videotaped observations provided information for the synthesis and design of research instrumentation for use in day care (1) to assess interpersonal characteristics and competencies of infant caregivers; and (2) to assess qualitative and quantitative aspects of interpersonal interaction between caregivers and infants. Data were assessed in order to develop a comprehensive system of assessment consisting of a battery of observational schedules and rating scales.

The profile of important infant caregiver characteristics, developed as clusters of content items from research literature (see Appendix C), was examined in terms of information elicited from videotape observations. These included:

(a) commonalities in observational cues; (b) overall observability of factors; (c) general and specific nature of factors; (d) time-sampling requirements of factors; (e) difficulties in observation of factors. As a result, groupings of interpersonal characteristics were organized into tentative observation schedule classifications.

Research studies and their related instrumentation were examined for delineation of variables and their relationships within observational settings. Prototype observational instruments suitable for use in the naturalistic setting of day care, were identified. Creative adaptations were made of instrument formats to suit content variables under consideration. Data were synthesized into instrument formats, based upon informal inferences from data as well as professional insight. Variables were classified and defined on the basis of previous research findings and instrumentation, with intuitive conclusions from videotape observations used as the basis of original design components. Relevant research questions and plausible analyses for descriptive and inferential research were hypothesized as guidelines in evaluating interactional schedules and rating scales.

Data included in the <u>ICIC Scale</u> and videotaped observations were synthesized into a two-part observational assessment system for studying infant caregiving which.

includes (a) observation and coding of caregiver-infant interaction variables and (b) scale ratings of caregivers. The Caregiver-Infant Interaction Schedules were developed as behaviors were broken down into more discrete variables from which a combination of interactive patterns can be derived. Statements which explicitly defined or described each variable were elaborated. Procedures for observing caregiver-infant interaction were determined and coding procedures established. The Personal Characteristics of an Infant Caregiver was designed for use in measuring more general personality and attitudinal factors which contribbute to infant caregiving competency. The Infant Caregiver Communications Rating Scale was developed for assessment of communicative competencies in infant caregiving.

Summary

Development of a system for observational assessment of caregiver-infant interaction in day care settings was based upon empirical knowledge, perceptions of day care personnel, and videotaped observations of infant caregiving. Interactive competencies and infant caregiver characteristics, identified in the study, suggest a framework from which the human environment can be studied. Instrumentation developed as a result of this study will provide researchers with tools for further study.

CHAPTER IV

RESULTS

The main objective of this study has been to construct valid research instrumentation for assessing interpersonal care of infants in day care. Findings from mother-infant interaction research literature have been used to identify interpersonal caregiver competencies and have provided content validity for items. The content of items, as extrapolated from mother-infant research, has been verified by ratings of infant day care personnel of the importance of characteristics for infant caregiving. The design of an assessment system was facilitated through observation of videotapes made in infant day care centers. Results of the study include ratings by infant day care personnel of the Important Characteristics in Infant Care Scale, established observability of infant caregiver characteristics, and the . design of observational instrumentation for assessing interpersonal competencies of infant caregivers.

Field Evidence

Analysis of Ratings

The <u>Important Characteristics in Infant Care Scale</u>
was designed for the purpose of verifying for use in day
care research those characteristics and behaviors which

mother-infant research has shown to be important for optimal infant caregiving. Items for the <u>ICIC Scale</u> were chosen to reflect a wide range of both broad and specific factors in infant care which are related to optimal functioning and development of infants.

Copies of the ICIC Scale were mailed, with an introductory letter and a Child Care Background Information Form to 204 directors of child care facilities in Dallas County and 58 directors of child care facilities in Tarrant County which are licensed to care for infants under 18 months of age.

Day care directors and infant caregivers in the centers were asked to rate the importance of the characteristics listed on the scale, based upon their beliefs about their importance.

The <u>ICIC Scale</u> was returned voluntarily from 80 day care centers, or approximately 30.5 percent of the centers contacted. Letters or forms returned from 18 centers indicated that infants were not cared for in the center. The scale was completed by 45 directors of day care centers licensed for infants and 101 infant caregivers in 62 centers, approximately 24 percent of the centers in the study. (See Table 3.)

Table 3

Number and Percentage Responses from ICIC Scale

Level of Response	<u>n</u>	8
No response	182	69.47
Returned form: No infants	18	6.87
Returned form: Completed	_62	23,66
Total Centers	262	100.00

Items were rated by the participants as being:

- (a) VI Very Important, (b) I Important, (c) U Undecided,
- (d) LI Little Importance, and (e) NI No Importance.

Each item on the scale was analyzed by the chi-square goodness of fit test (Marascuilo & McSweeney, 1977) to determine whether the observed frequency distribution of ratings of

(a) Very Important or Important and (b) Little Importance or No Importance differed significantly from H_O:P₁=P₂=.50, the hypothesis of equal proportions between those who believed the characteristics were important and those who believed they were not important. Ratings of directors and caregivers were considered together in analyzing the significance of the ratings. Each item gained significance at the .001 level. Significantly more respondents rated the items as Very Important or Important than of Little or No Importance. It

is concluded that the characteristics as described on the scale are considered by personnel in the population studied to be important for the care of infants in day care. (See Table 4.)

Items were further analyzed to examine for relationships between day care directors and infant caregivers in rating the items. A chi-square test of independence (Marascuilo & McSweeney, 1977) was used to test for differences in proportions between those persons who rated the items as (a) Very Important or Important and (b) Little Importance or No Importance. The test was used to determine whether the job roles of the respondent and responses are independent. Significant differences were found in response The chi-square test was significant at the .05 level for differences between ratings of directors and caregivers on Item 3--Let infants bring social exchanges to a close. A significantly greater proportion of directors rated Item 3 as Very Important or Important than caregivers. (See Table 4.) It is concluded that for this item, ratings were not independent of job roles. This finding may be related to differences in educational background of directors and caregivers and difficulties in understanding the item. Overall, the scale ratings have shown agreement between directors and caregivers in the importance of the Characteristics.

Table 4 X² Analysis of ICIC Scale Ratings

Items	X ²	x ² ^b	Items	x ² a	x ^{2^b}	
1	142.03**	.17	26	132.11**	.05	
2	136.03**	.15	27	123.46**	.71	
3	40.09**	5.67*	28	145.00**	.18	
. 4	140.03**	.16	29	135.03**	.72	
5	136.03**	.11	30	145.00**	.18	
6 7	124.26**	.11	31	145.00**	.18	
	116.37**	1.94	32	137.03**	.17	
8	133.03	.15	33	132.11**	.01	
9	122.46**	.12	34	111.80**	.53	
10	141.00**	.03	35	143.00**	.17	
11	145.00**	.16	36	134.00**	.18	
12	117.48**	.05	37	131.03**	.18	
13	130.25**	.32	38	134.11**	.03	
14	123.12**	.04	39	138.03**	.18	
15	111.29**	.28	40	145.00**	.18	
16	124.69**	1.09	41	140.03**	.18	
17	145.00**	.17	42	102.92**	.72	
18	98.45**	:13	43	139.03**	.17	
19	133.43**	.17	44	134.03**	.20	
20	129.44**	.08	45	137.03**	.16	
21	85.47**	.38	46	78.41**	2.86	
22	129.26**	.27	47	123.27**	.32	
23	136.03**	.18	48	139.00**	.32	
24	128.26**	.28	49	105.33**	.01	
25	123.46**	.12	50	139.03**	.17	

aGoodness of fit test
Test of independence
*p .05
**p .001

These findings provide tentative inferences as to the validity of empirical mother-infant interaction research findings to caregiver assessment content. The items extrapolated from mother-infant interaction research findings can be used with some assurance as to their appropriateness in the construction of instrumentation for infant day care research.

Characteristics of Respondents

Responses from the Infant Care Background Information

Form described the respondents' age range, ethnic background,

years of infant care experience, and education or training in

child-related fields (see Table 1). The discrepancy between

number of respondents answering the form and number of respondents rating the ICIC Scale is accounted for by the discard

of incompletely rated scales.

Age of both day care directors and caregivers was distributed fairly evenly across all age ranges above 20 years. Of the directors, 85 percent were over 30 years of age as compared to 55 percent of the caregivers. Approximately 26 percent of the caregivers responding were over 50 years of age. In the sample of caregivers surveyed in the National Day Care Study, only eight percent were 50 years of age or older (Ruopp, et al., 1979).

Ethnic background, as reported by the respondents, included black, Mexican-American, and white. The largest percentage of respondents were white for both directors and caregivers. The percentage distribution by race for caregivers was 16.8 percent for black and 72.9 percent for white. The National Day Care Study found 28 percent black caregivers and 66 percent white caregivers in their sample (Ruopp, et al., 1979).

Child care background was reported by checking years of of experience of working with children under 18 months of age and education or training in child-related fields. Experience in working with infants ranged from less than one year to over 50 years for both directors and caregivers.

Approximately 29 percent of the directors were in their first four years of experience in infant day care. Approximately 57 percent of the caregivers were in their first four years of experience.

Specific education or training in child-related fields was reported by all of the directors and all but four of the infant caregivers. Multiple training and educational experiences were reported by individual participants. Six directors and 40 caregivers reported only inservice or on the job training with no preservice education or training indicated. Education or training included high school, junior or community college, four-year college, graduate school, and specialized training including Montessori, Child

Development Associates, and seminary education, as well as inservice training.

Observational Evidence

Videotape Recording

Approximately 16 hours of videotapes were made of five infant caregivers in two day care centers in Denton and one in Farmers Branch, Texas. The tapes were used for the study and identification of caregiver interpersonal behaviors and characteristics, to determine observability of items as listed on the ICIC Scale, and to establish procedures for design of an observational assessment system for use in day care settings.

A community college child study center in Farmers

Branch, Texas, was used as the primary site for videotaping.

Videotapes were made which focused on two infant caregivers,

with recordings made throughout the caregiving day from 7:30

in the morning to 5:30 in the afternoon. Videotaping was

made through a one-way observation glass and specific times

of recording unannounced.

Videotaping of the primary caregiver at a churchrelated child care center in Denton, Texas, was made for
one hour in the morning and one hour in the afternoon.
Videotaping was made from one end of the infant room away
from the play area. The infants ignored the videotape
equipment and the investigator.

One primary infant caregiver was videotaped for one hour in the morning and a second caregiver videotaped for one hour in the afternoon at a private child care center in Denton, Texas. Videotaping was made from one end of the infant room, near the entrance. The oldest child, age 11 months, looked at and touched the videotape camera occasionally.

Videotape Observations

A 12-minute composite videotape was viewed by four graduate students, and caregiver items were tallied as observed. All but two items were observable from the 12-minute tape, (1) as discrete, easily defined behaviors, or (2) from cues or overall impression, based upon training as well as professional insight and opinion. The items not observed were (1) Not hurt or reject infants who misbehave; and (2) Give infants more and more freedom as they grow older. No signs of misbehavior were observed during the 12-minute tape, so response to misbehavior was not observable. The second item could only be determined through longitudinal study. For use in a time-sampling procedure, the item would need to differentiate the caregiver's willingness to give more freedom to older infants than younger infants.

A trial observation, using a prototype of the <u>Caregiver-Infant Interaction Schedule: Nature</u>, was made while viewing a

three-minute segment of tape showing a single caregiver.

Four graduate students were asked to identify each caregiverinfant interaction episode and code for (1) caregiver or
infant initiation of interaction, (2) modality used by caregiver in interaction, (3) emotional or affective tone of the
caregiver, and (4) presence of playthings or objects in the
context of the interaction.

A number of discrepancies were noted between observers. The number of interactions noted range? from six to eleven. The infant was indicated as initiator of the interaction in from one to three instances, depending upon the observer.

Observed communications modalities varied among observers.

Positive affect was noted by all observers, as well as mediation with play things. Conclusions made in an evaluative discussion by the observers included the following:

- A considerable amount of information about caregiver-infant interactions can be elicited in brief time spans, often in only a few seconds.
- Alternating observation periods with recording periods increased observation accuracy.
- Well-defined parameters are needed in determining the initiation and close of interaction episodes.
- 4. Reliable coding of the initiation of interactions would be maximized in a naturalistic setting.
- 5. Identification of several communicative modalities is possible by trained observers.

Design of Assessment System

A comprehensive assessment system was designed for study of the infant caregiver in day care. Interpersonal factors relating to caregiving were the focus of content measurement. A multi-modal assessment process led to the design of instrumentation which can be used to study the caregiver and the caregiving process in a variety of ways. Observational procedures relate to the variables studied and to inferential and descriptive data proposed as outcomes. The procedures, undertaken in synthesizing research data into a practical and comprehensive tool for observation, were pragmatic. Interpretation and inferences from existing data were made by the researcher in order to organize related information into a coherent whole.

The first steps undertaken in synthesizing data into instrument drafts were to consider (a) the outcome of field ratings of the importance of proposed caregiving variables, and (b) the observability of interpersonal characteristics as evidenced from videotaped observations in day care. The significant agreement by infant day care personnel as to the importance of interpersonal factors extrapolated from mother-infant research to day care was interpreted as an indicator that as many as possible of the variables included on the ICIC Scale should be included in instrument construction. The identification of most of these factors in

evidence for the appropriateness of content to observational assessment. Items identified as observable from the behavioral clusters in the ICIC Scale were categorized as (a) discrete, easily defined behaviors within a three-minute time span and (b) behaviors easily identifiable from cues or overall impression from cumulative observation over a twelve-minute time span. Discrete behaviors were assigned to the time-sampling observation schedules designed for the analysis of interactions. Caregiver characteristics identifiable from cumulative observations were assigned to rating scales for evaluating overall personal communicative qualities and characteristics of caregivers. Items which were identifiable only from cues or overall impression during the twelve-minute observation period were also included in the rating scales.

Notes were made of factors which were observable from related behavioral cues. This evidence from observation of videotapes was inspected in terms of previous research and instrumentation. Items were further categorized according to the general or specific nature of the characteristics. In developing a process for the assessment of caregiver-infant interaction, general factors were assigned to an observation schedule describing the overall nature of the interaction.

Specific factors were defined categorically and included in

schedules for observation of (a) content variables, (b) contingency factors, and (c) factors relating to the spatial environment. General overall interpersonal characteristics and competencies of caregivers were designated to a rating procedure. Specific qualities and characteristics of caregiver communications were assigned to a separate, more discrete rating procedure. (See Appendix K.) Caregiver-Infant Interaction Schedules

Interactional factors were used as the basis for developing four separate observational schedules. These schedules can be used concurrently by a team of observers or consecutively by a single observer. The assessment process is designed to be easily managed yet provides comprehensive information regarding quality of care.

Content variables descriptive of the interactants and the interactive process were extracted from the synthesis of mother-infant interaction research findings. The evaluative summary sheet which corresponds to each interaction schedule summarizes the content area (see Figues 1A, 2A, 3A, 4A). The Caregiver-Infant Interaction Summary can be used to provide concurrent subjective ratings of caregiver interactive qualities or can be used to interpret to the field results of interaction schedule codings.

Ratings are provided which can be used to figure numerical

quotients. The ratings correspond to a system used by Ferguson (1975) which provides the following numerical ratings: 4--strong, frequent evidence, 3--moderate, occasional evidence, 2--weak, infrequent evidence, 1--no evidence, or negative case.

Schedule I was designed to provide a time-sampling approach to the assessment of frequency as well as qualitative nature of caregiver interactions with infants (see Figure 1). The coding system used in Observation of the Home Environment and Mother-Infant Interaction (Yarrow et al., 1975) was used as a prototype. Observations are to be made for short time periods, approximately 10-20 seconds, alternated with 10-20 seconds for recording. Interactions are coded sequentially, lengthwise on the schedule, with end of time interval indicated by circling the corresponding interaction number.

Data about the frequency of interactions, their initiation and close, are indicated by coding as follows:

C for caregiver, I for infant, M for mutual or simultaneous initiation or close of interaction, and U for uncertain or unobserved initiation or close of interaction.

These measures reflect quality of care as indicated by findings which describe frequency of interaction (Beckwith, 1971; Clarke-Stewart, 1973; Lewis & Goldberg, 1969; Stern et al., 1969; Yarrow et al., 1972), contingent responsiveness

FIGURE I

I: CAREGIVER-INFANT INTERACTION SCHEDULE: NATURE

- Directions: (1) Observe caregiver for 10 seconds.
 - (2) Record observations for 10 seconds.
 - (a) Source Indicate individual infant codes (e.g. I_a, I_b, etc.).

 Follow C (caregiver) code with infant interactant code.

 (b) Modality Code as many as observed.

 - (c) Circle # of interaction which completes each 10 second recording interval.

INTERACTION	sour	RCE	MODAL	LITY	AFFE	CT	PLAYTHINGS
#	C (care I (infa M (mutu U (unce	ant) ual	V (vocal/verbal E (eye) F (facial) B (body) G (cesture)		+ (pos - (neg.	itive) ative)	X (use in interaction)
	Initiation	Close	Caregiver	Infant	Caregiver	Infant	
1	C-Ia	Ia	VE	EB	+	+	×
2		7		• 			
3							
4	·	٠					
5				MPLE			
6			EtP	14			
7							
. 8				×			
. 9							
10				·		1	
11	**						
12							

Note: Experimental draft; not to be used without permission of the author.

FIGURE 1A

1A: CAREGIVER-INFANT INTERACTION SUMMARY: NATURE

Rating: 4 = strong, frequent evidence

3 = moderate, occasional evidence

2 = weak, infrequent evidence

1 = no evidence or negative case

Emotional and Social Involvement with Infants

- 1. Talks with infants.
- 2. Looks eye-to-eye with infants.
- 3. Smiles at infants.
- 4. Holds and touches infants.

Contingent Responsiveness to Infants

- 5. Lets infants begin social exchanges.
- 6. Lets infants close social exchanges.

Positive Mental Attitude

- 7. Seems happy.
- 8. Has positive tone of voice and expression.

Lovingness to Infants

- 9. Shows pleasure in being with infants.
- 10. Has positive interactions with all infants.

Mediation with Playthings

- 11. Offers toys and objects to infants.
- 12. Cooperates with activities begun by infants.

Ratings

to infants (Lewis & Goldberg, 1969; Milliones, 1978; Yarrow et al., 1972), and following the infant's lead in interactions as important in infant care.

The modality of communicative expression with which the caregiver interacts with infants is coded by (1)V--vocal/verbal, (2) E--eye contact, (3) F--facial expression, (4) B--body contact or posture, and (5) G--gesture. Modality factors relate to the infants' need for physical, verbal, and eye contact with the primary caregiver (Beckwith, 1971; Clarke-Stewart, 1973; Gordon, 1969; Lewis & Goldberg, 1969; Stern et al., 1969; Yarrow et al., 1972).

The importance of positive affect (Clarke-Stewart, 1973; Lewis & Wilson, 1972; White & Watts, 1975; Yarrow et al., 1972) in communications with infants led to inclusion of coding plus or minus to indicate overall affect of the caregiver within an interaction. A check of the caregiver's mediation of interactions with playthings provides a screening measure for studying the use of toys. In addition, important information relating to attentiveness and congruency of communications can be gathered from these observations (Stern et al., 1969).

The assessment schedule is designed to provide data relating to infant responses to interactions, including infant modality and affect. Infant response data provides the researcher with cues as to the caregiver's

competence in relationships with infants. The instrument can be used in part or whole depending upon the research questions being asked.

Schedule II is represented by a checklist of the content of the caregiver's interactions with the infants in her care (see Figure 2). The checklist was designed for analyses of multiple caregiver-infant interactions which can be analyzed in a time-sampling procedure. The scanning procedure used in the Cornell Infant Nursery to study infant variables was adapted for use in the study of caregiver variables (Johnston, 1973).

Format for Schedule II includes a vertical list of variables, with four large columns for recording data. Within each large column are smaller columns for individual infant data. Observers will be required to observe the targeted caregiver and check off in 10-second episodes the pertinent variables in each column.

Schedule II elaborates on aspects of Schedule I, providing more detailed and defined information concerning
the vocal, visual, tactile, and play involvement of the
caregiver with the infants. In addition, level of stimulation provided by the caregiver is monitored to provide
information about aspects of stimulation within an adultinfant relationship. Ratings for determining level of
stimulation are defined as follows:

FIGURE 2

II: CAREGIVER-INFANT INTERACTION SCHEDULE: CONTENT

Directions: (1) Observe infant room for 10 seconds.

- (2) Code responses for 10 seconds.
 - (a) Check each caregiver behavior observed during each 10-second time interval.(b) Check in column corresponding to infant interactant (e.g. A, B, etc.)

	SAN TAKES				-							n c													
1.7	INFANTS	A	В	С	D :	EI	G	A	В	С	D	2 1	? G	7	B	C	D	E	F (G	A	B	C	D E	F
0	imitate		1		-	+	1				П	T			\dashv	T	T	Ц						T	Ŧ
	nonsense		\perp	Ц	4	1	上	1			Ц	1	Щ	Ц	_	1	上	Ц				Ш			\perp
3 +	talk - here & now			Ш			\perp				Ш		Ш	Ш		\perp	上								
/	talk - instruct					\perp										I				2.5					I
-	talk - prohibit											T			\Box										I
	talk - punitive											T	П			T	T	П				\Box	П		T
	sing	*			T	I	T					1		3	I	I									I
-	see thing	7			T			3				1		П	T	T									I
	laugh												\Box		\Box	I									
1	smile		Г	П	Т	T	T						П		\neg	T	T	П		1				T	T
	look infant													П	T			П		- î					T
5	mutual regard		П	П	T	Т	Т		Г		П	Т	П	П	Т	Т	Г	П	T			П		T	T
1	scans	9	1	H	+	+	+		\vdash	Н		+	11	H	十	+	1	Н	\dashv			7			1
			\vdash		1	\top	1						\Box	H				П	7					1	T
,			П	П		T	T	No.		П		T	\top		T	T		П	7	T.				T	T
1	hold stationary				+	+	\top				+	+	\forall	H	+	\top	1	\sqcap	7	- 3		7		1	+
-	carry/move	-	+		+	+	+		-	H	+	+	+I	+	+	+	1	H	+	- 4	-	-	1	+	+
1	rock	-	Н		+	+	+		-	Н	+	+	Н	H	+	+	1	H	+	-8		-	-	+	+
1	touch	-	Н	-	+	+	+	7	-	H	+	+	+I	+	+	+	-	H	+	-	-	-	-	+	+
_	feed	-	Н	\vdash	+	+	+	-	_	\vdash	+	+-	Н	H	+	+	-	Н	+	-	-	\dashv	-	+	+
-	change	H —	Н	-	+	+	+			Н	\dashv	+	+	H	+	+	-	Н	+	-	-	-	-	+	+
	other caretaking	!	Н	-	+	+	+	-		\vdash	+	+	H	+	+	+	-	Н	+	100	-	-	-	+	+
_	sooth	I	Н	-	+	+	-	-		\square	+	+	+	1	-	+		\vdash	+		-	-	-	+	+
			Н	1	+	+	1			Ц	+	+	+	\sqcup	+	+	_	H	4		-	4	-	+	+
-	kiss	1	Н	-	+	+	+			H	+	+	+1	H	+	+	\vdash	H	+	-8	-	-	+	+	+
-	hug	3	Н	4	+	1	\perp	-			4	-	4	Н	+	-		H	+	- 4	-	-	+	+	-
_	punitive	8_	Ш	_	1	1	\perp				1	4	4	4	_	\perp		Ц	4	_	4	-+	-	+	ا
-	physical prohibit		Ш	1	_	1	1				1		1	Ц		1		Н	1	_	1	_	_	_	1
_	physical play							*											1					\perp	
-	touch with toy/object				I			1			\perp				T	I			I						
	show toy/object					I						L				L									
	put toy/object near			T		T					T	T	T	П	T	T									
	teach toy/object		П	1	T	T	П				T	T	T	IT	T	T	П		T		Т	Т	T	T	
	cooperate play	3				T		1			\top	1		H	1				T			丁		\top	
	encourage motor	- Forest		1	T	T	\sqcap				T	T		T	T	T		1	T		7	T	T	T	T
	encourage perceptual		\Box	1	1	+	П		\neg	7	十	T		1	T	1			7		7	十	寸	1	
	encourage verbal	4	\Box	1	+	†	\forall		-	1	十	+		H	+	+	\vdash	1	+	雷	+	+	+	+	T
	minimal/passive		\Box	1	\top	1	П		1	7	+	+	T	IT	T			1	7	T	\forall	\top	1	1	
	very low/passive	S.		十	T	T	П		_	7	+	T	T	IT	T		H	+	+		1	7	+	1	П
	low/brief active			1	+	1	\forall		\dashv	7	+	1	H	1	+	\top	\Box	+	+		+	+	+	+	П
	intermediate/active		1	+	+	+	H	1	-	+	+	+	+	H	+		\vdash	+	+		+	+	+	+	Н
_	high/active elicitation		\vdash	+	+	+	H	-	-	+	+	+	+	+	+	+	\vdash	+	+		+	+	+	+	\vdash
	- juy addive criticality		H	+	+	+	Н		-	+	+	+	+	+	+	\vdash		+	+	-	+	十	+	+	H
			\vdash	+	+	+-	+	1	+	+	+	+-	H	+	+	+	\dashv	+	+	-	+	+	+	+	Н
_			Н	+	+	+	H		-	+	+	+	+	H	+	\vdash	-	+	+	-	+	+	+	+	Н
_			H	+	+	╀	H		-	4	+	-	H	H	+	\vdash	-	+	+		+	+	+	+	Н
_	·		\vdash	+	+	+	Ļ	1	_	1	+	1		4	1	Н		4	+	¥,	4	+	+	+	Н
-			\vdash	+	+	+	1		4	4	1	<u> </u>		4	+	Н		+	+	N	+	4	4	+-	Ш
No.				-	1	1	1 %	3 1	- 1	- 1	1	1	1 (8		ł	1 1	- 1	- 1		163	1	- 1	- 1	1	1 1

Mote. Experimental draft; not to be used without permission of the author.

FIGURE 2A

IIA: CAREGIVER-INFANT INTERACTION SUMMARY: CONTENT

Rating: 4 = strong, frequent evidence

3 = moderate, occasional evidence

2 = weak, infrequent evidence

1 = no evidence or negative case

Disciplines Infants Appropriately

1. Does not hurt or reject infants for misbehavior.

Lovingness

2. Shows affection to infants.

Verbal Involvement with Infants

- 3. Talks to infants.
- 4. Talks to infants about the "here and now".

Visual Involvement with Infants

- 5. Watches the infants.
- 6. Looks eye-to-eye with infants.
- 7. Smiles at infants.

Tactile Involvement with Infants

- 8. Holds and touches infants.
- 9. Carries or moves infants around.

Mediation with Play

- 10. Plays with infants.
- 11. Offers
- 12. Puts toys and objects where infants can discover them.
- 13. Helps infants learn about objects.
- 14. Cooperates with activities begun by infants.
- 15. Provides activities which help infants learn.
- 16. Gradually increases the amount of stimulation.

Ratings

- 1) Minimal: Passive contact--passive contact between person and infant, without trying to direct the infant's attention and activities.
- 2) Very low: Passive physical contact--sustained passive physical contact between person and infant with a brief and perfunctory active stimulus.
- 3) Low: Brief active stimulation--brief active stimulation without sustained physical contact or mutual visual regard.
- 4) Intermediate: Active stimulation--stimulation involving substantial degree of stimulus change without attempted elicitation.
- 5) High: Active elicitation--active attempts to elicit infant's response by (a) engaging baby's visual attention, (b) actively encouraging motor skills, (c) responding to the infant's vocalizations.

(Yarrow et al., 1975)

A contingency response matrix, Schedule III, can be used to assess quality of caregiver attention and responiveness to both distressed and nondistressed infants (see Figure 3). A time-sampling plan is employed to code for distress (D) and nondistress (N) bids for attention from infants and the caregiver's ignoring (I), attention (A), or response (R) to those bids. The coding procedure was adapted from the Caregiver Language Observation

FIGURE 3

III: CAREGIVER-INFANT INTERACTION SCHEDULE: CONTINGENCY

<u>Directions</u>: Observe infant room for 10 seconds; code responses for 10 seconds. Mark horizontal line across time column after each time interval. Code in infant column, moving down page to indicate temporal sequence.

Code:

- D: Distress bid for attention by infant whimpers, fusses, cries, and vocalizations accompanied by unhappy facial expression.
- N: Nondistress bid for attention by infant vocal, other than whimpers, fusses, or cries which are not accompanied by unhappy facial expression.
- I: Ignoring of bid for attention by caregiver shut off, does not notice or pretends not to notice, marginal attention.
- A: Attention to bid for attention by caregiver looks, regards, notices, passive.
- R: Response to bid for attention by caregiver vocalization, touch, hold or move infant, smile, caretaking, active:
- I, A, R: precede by caregiver number if more than one caregiver in room.

			IN	IFANTS			
	. А	В	. с	ם	E	F	G
			DI	,	DA		
als.							
intervals				,			
ondir				TAMPLE			
second		*					
10							
			-				
			•				

Note. Experimental draft; not to be used without permission of the author.

FIGURE 3A

IIIA: CAREGIVER-INFANT INTERACTION SUMMARY: CONTINGENCY

Rating: 4 = strong, frequent evidence

3 = moderate, occasional evidence
2 = weak, infrequent evidence
1 - no evidence or negative case

Availability to Infants

1. Gives infants undivided attention.

Contingent Responsiveness to Infants

- Talks to or signals a response to each infant's bid for attention.
- 3. Notices and responds to each infant's communications immediately.

Sensitivity and Empathy

- 4. Comforts upset infants quickly.
- 5. Satisfies infants' needs when they arise.

Ratings

Instrument (Weir, 1974), with time substituted for language units as the observational parameter under consideration. The distress/nondistress state of the child as well as the ignore/attention/response state of the caregiver are coded in individual columns for each infant in the setting. Observers will code each bid for attention by an infant in successive rows moving vertically down the schedule to indicate temporal sequence. Consecutive bids for attention by more than one infant will be recorded on the same row. Definitions for coding the distress/nondistress state of the infants are those used by Yarrow et al. (1975): (1) D: Distress bid for attention by infant-whimpers, fusses, cries, and vocalizations accompanied by unhappy facial expression; (2) N: Nondistress bid for attention by infant - vocal, other than whimpers, fusses, or cries which are not accompanied by unhappy facial expression.

The contingency and frequency of caregiver responsiveness, known to be critical to infant development, provide an important measure of quality of infant care. The question of differential responsiveness to distressed versus nondistressed infants is especially relevant in a multiple care setting. (Hegland, 1979; Lewis & Goldberg, 1969; Milliones, 1978; Yarrow et al., 1972)

Data regarding spatial factors in caregiver-infant

interactions can be collected from Schedule IV (see Figure 4). On a predetermined, time-sampling schedule, code symbols are transposed on a square, drawn with lines dividing the space into quarters. The quartered space can be used to approximate the infant room or play space. The coding system is an adaptation of the proxemic notation system developed by E. T. Hall (1963).

· Circles indicate location of individuals in the room, with lines superimposed on the circles to show body orien-Postural indicators, for caregivers and infants include codes for standing (st), walking (w), and crawling (cr), as well as others. The closeness or potential for body contact of the interactants is noted by the proximity and connections between the circles. Important aspects of infant caregiving, including availability (Ainsworth & Bell, 1972), degree of social involvement (Clarke-Stewart, 1973; Stern et al., 1969; White & Watts, 1975; Zeskind & Ramey, 1978), and visual and tactile contact or orientation (Beckwith, 1971; Gordon, 1969; Lewis & Wilson, 1972; Stern et al., 1969; Yarrow et al., 1975), can be assessed by means of this system for analyzing spatial relationships. In addition, infant freedom to play alone (Gordon, 1969; Murphy, 1973; Stern et al., 1969; White & Watts, 1975), and move around (Yarrow et al., 1972), can be assessed. Restriction of movement is indicated on the schedule by a

IV: CAREGIVER-INFANT INTERACTION SCHEDULE: SPATIAL

Directions: Visualize room or play area divided into quadrant, taping floor if necessary. Code location of caregivers and infants and other spatial factors within quadrant of room where located.

			CODES			R	ООМ	
1. Ro	oom openings:	sketch	doors windows .					
2. Ca			arge circles with 1				F.	
3. In			circles with dentifiers. (a) (b) (c)			sq@—	-(a)	
4. Bo	ody orientati	. by	www line showing angle formed interactant's shoulders; ————————————————————————————————————	2	_	std—	· ·	
5. Po	stural ident	ifiers:	code.				PLE	
	Caregiver	si/ch	sit/chair or off-floor support				A*	1
		sq	squat			EXA		0
		st	stand .			E,		٥
		W	walk					
	Infant	pr	prone	·	-			
		ap	supine	11				
		sd	side	11				
		si	sit	11		` .		
		sq	squat	7	-			
		st	stand			(6)	(6)	
		W	walk			(b)		
		hk	hands & knees	Ì		pr	sp	
		cr	crawl	•				l
6 Ki	nesthetic fa	ctors.	show interactants					

touching (1) within reaching distance

7. Restriction of movement: draw box around infant circle.

Note. Experimental draft; not to be used without permission of the author.

FIGURE 4A

IVA: CAREGIVER-INFANT INTERACTION SUMMARY: SPATIAL

Rating: 4 = strong, frequent evidence

3 = moderate, occasional evidence

2 = weak, infrequent evidence

1 = no evidence or negative case

Availability to Infants

1. Is always where infants can see, hear, or get to.

Social Involvement

- 2. Lets infants play alone.
- 3. Holds or touches infants.
- 4. Allows infants to move around and explore.

Ratings

box around the infant symbol.

The factors included in the <u>Caregiver-Infant Interaction Schedules</u> can be analyzed in terms of a variety of research questions, including those relating to (a) frequency and patterns of interactions; (b) relationships between variables; (c) sequential nature of interactions; (d) contingency and reciprocity; (e) percentage and rank order occurance of variables; (f) comparisons between samples and individual relationships; (g) variability of interactions over time and settings; (h) relationships of infant age and developmental stage to interactional variables.

Rating Scales

In addition to schedules designed for the study of interactional factors, two rating scales were designed for the study of more general caregiver characteristics.

The Personal Characteristics of an Infant Caregiver Rating Scale measures diverse and more general personal characteristics of the primary caregiver which research has found to influence the infant (see Figure 5). The personal characteristics described by a five-point rating scale are global qualities assessed as important in infant mothering. The qualities are: (1) empathy (Stern et al., 1969), (2) sensitivity (Ainsworth & Bell, 1972; Brazelton et al., 1974; Donovan & Leavitt, 1978; Stayton et al., 1971), (3) lovingness (Stern et al., 1969), (4) positiveness (White & Watts,

FIGURE 5
PERSONAL CHARACTERISTICS OF AN INFANT CAREGIVER RATING SCALE

Direction	ons:	Circle the number which most closely	describes	the infant caregiver observed.	
EMPATHY		1 2	3	4	. 5
	1.	Shows understanding of		Ignores or fails to respond	to
		infants' needs by verbal		infants' needs.	
		recognition or fulfillment.			
		1 2	3	4	5
	2.	Accepts infants' feelings.		Rejects or punishes infants	
		.*		for feelings expressed.	
		1 2	3	. 4	_ 5
	3.	Is patient of infants		Is impatient, critical or	
		behavior.		punishing of infants' behave	lor.
		1 2	3	4	5
,	4.	Communicates easily with infants.		Is unclear and inconsistent	in
				verbal and nonverbal	
		T .		communications.	
		1 2	3	4	5
	5.	Allows infants' to share		Directs or interferes with	
		control and responsibility		infants' activities.	
		for their behavior and			
		activities.			
SENSITIV	/ITY	2	3	4	5
	6.	Listens attentively and		Is unattentive and fails to	
		responds appropriately		respond appropriately to inf	ant
		to infants' cues.			
			2		
	7	Shows awareness and satisfies	3	Does not respond to infants'	2
	. / .	infants' needs when they arise.		needs immediately.	
		thrancs needs when they arise.		needs immediately.	
		1 2	3	4	5_
	8.	Comforts upset infants quickly		Fails to soothe upset infant	8.
		and easily.			
		1 . 2	3	4	5
	9.	Begins interactions with infants		Pushes infants quickly into	
		slowly and gives infants plenty		interactions and demands	
		of time to respond.		response.	
		1 2	3	4	5
	10.	Takes time and shows interest		Does not give individual	<u> </u>
		in Individual infants.		attention to each infant.	

FIGURE 5-Continued

LOVINGNESS	Strokes and cuddles infants	3	<u>4</u>	5
.11	while giving care.		Performs caregiving tasks without affection to infar	
	antice giving care.		without affection to infar	ics.
	1 2	3	. 4	5
12	. Talks warmly with infants.		Sounds cold and uninvolved	1
	*		when talking to infants.	
	1 2	3		5
13	. Smiles and shows pleasure in		Has sober voice and face.	
	being with infants.			
1.5	. Watches and protects infants	3	Is neglectful in letting	5
1,	with vigilance.		infants get into trouble	
	***************************************		or harm.	
	1 2	3	4	5
15	. Redirects rather than punishes undesirable infant behavior.		Criticizes, punishes or rejects infants for undesi	wah la
	uncestrable intant behavior.		behavior.	Laule
POSITIVENE		3	4	5_
16	. Has pleasant and positive	*	Has unpleasant, negative to of voice.	one
	tone of voice.		or voice.	•
	1 2	3	4	5
17	. Λppears happy.		Appears sad or angry.	
	1	3		
18	. Has sense of humor.	3	Takes everything seriously	5
10	· ma sense of namor.		iando crai, ining delloudi,	•
	1 2	3	4	5
19	. Expresses joy in infant		Expresses neutral or negat	
ř.	behavior.	•	attitude toward infant beh	avior.
	1 2	. 3	4	5
20.	. Reacts calmly to infants'		Gets upset with infants	
	messiness or destructiveness.		messiness or destructivene	89.
CDID 01				•
SELF- 21.	Moves and talks in relaxed	33	Seems tense and strained i	
GORT TIPERCE	manner.		movements and voice.	
	,			
	1 2	3	4	5
22.	Responds deliberately to		Is jerky or jumpy in respon	nse
	stimulation.		to stimulation.	
	1 2	3	4	5
23.	Seems composed and serene.		Seems anxious and nervous.	
	_ ,		,	-
2.	1 2	3	Is incongruent and seems	
24.	Seems genuine and sincere.		insincere in communications	s.
×	*			- •
	1. 2	3	4	5
25.	Moves and speaks with energy.		Looks and sounds lethargic	and
	. *		apathetic.	

FIGURE 5-Continued

CHILD-	. *			
URIENTATION	1 2	3	4	5
26.	Is fully observant of		Is preoccupied or self-in	nvolved.
	infants' behavior.	× .	shutting out infants.	
	1 2	3	4	5
27.	Responds warmly to all		Is cold or openly reject:	ing to
	infants.		some infants.	
28.		33	4	. 5
	Is active in making contacts with infants.		Watches infants passively	y .
			*	
	<u>L</u> 2	3	. 4	5
29.	Shows concern with infants		Emphasizes order and prop	
	rather than things.		care of things over infar	
	*		feelings and developments	l needs.
,	2	3	4	5
30.	Meets infants' needs before		Delays responses to infan	its'
	own.		needs while fulfilling ow	m
	*		needs or interests.	
FLEXIBILITY	1 2	. 3	4	5
	Is spontaneous and open in		Maintains self control.	
	interactions with infants.			
			. ,	
22	1 2	3	Maintains same style and	
.34 .	Adjusts style and tempo		of caregiving with all in	
	or caregiving to Individual infants.		or caregiving with all in	itants.
	individual intants.			
	1 2	3	4	5
33.	Accepts and responds		Is impatient and unyieldi	
	appropriately to a variety		with infants whose temper	
	of infant temperaments.		are uncompatable with own	
34.	allows infants to determine		Directs and structures ri	gidly
	own schedules and activities.		infants' schedules and	,
	. ,		activities.	
	1 2	3	4	5
35.	Gives older infants more		Is more restrictive of in	fants
	Treedom of movement and		as they increase movement	and
	exploration.		interest in exploration.	

FIGURE 5-Continued

INTERI	PERSONA	I. COMPETENCE				
		1 2		3	4	5
	36.	Looks eye-to-eye with infants.			Only scans or looks at	
			40		infants' faces or bodies.	
		12		3	4	5
	37.	Follows infants' leads in			Always takes lead and contro	ols
		play and social exchanges.			play and social exchanges.	
. •		1 2		3	4	_5_
	.38.	increases amount of stimulation	n		Bombards infants with sudden	1
		given to infants gradually.			stimulation.	
				_		_
		1 2		3	4	5
	39.	The second secon			Does not respond to and	
		rhythm of play.			attempts to regulate infant	
		*			pace and rhythm to own.	
					,	_
	10	<u>1</u>		3	<u> </u>	
	40.	Has conversations which			Is passive in regard to	
		increase infant learning			infants' learning and discoveries.	
		and awareness.			discoveries.	

1975), (5) self-confidence (Stern et al., 1969), (6) child-orientation (Stern et al., 1969), (7) flexibility and adaptability (Murphy, 1973; Yarrow et al., 1975), and (8) interpersonal competence (Brazelton et al., 1974). Items following each global quality reflect aspects of that quality, as defined in the literature. Polar or negative characteristics were derived from definitional interpretations. The scale was designed to be used following extended observation of infant caregiving. Ratings of personal characteristics can be made following two or more assessments of interactional competence, as measured by the Caregiver-Infant Interaction Schedules I, II, III, and IV.

The Infant Caregiver Communications Rating Scale was designed to assess qualities described in the literature which define communicative dimensions of mother-infant interactions (Ainsworth & Bell, 1972; Beckwith, 1971; Blehar, 1978; Brazelton, et al., 1974; Clarke-Stewart, 1973; Donovan & Leavitt, 1973; Lewis & Goldberg, 1969; Milliones, 1978; Stern, et al., 1969; Yarrow et al., 1973). Verbal and nonverbal, expressive and receptive communications modes along with vocal and physical qualities were incorporated into a semantic differential rating scale (see Figure 6). The semantic differential is a combination of controlled association and scaling procedures (Osgood, 1955). It can be used as an evaluative tool by which raters are provided polar adjectival scales for which they

INFANT CAREGIVER COMMUNICATIONS RATING SCALE

Directions: From observation of an individual caring for infants, indicate your perception of the caregiver's characteristics. Place an "X" somewhere along the seven-point scale between each pair of adjectives.

VOICE QUALITIES AND EMOT	IONAL EXPRESSIONS	VERBAL AND NONVERBAL RECE	PTIVE COMMUNICATIONS
warm	cold	listening	unattentive
soothing	irritating	observing	nonobserving
pleasant	unpleasant	receptive	closed
smooth	jerky	following	controlling
relaxed	nervous	MACOUNTY DE AND DINGS	COAT ONALTMING
positive	negative	TACTILE AND PHYS	ICAL QUALITIES
confident	anxious		
cheerful	uncheerful	relaxed	
enthusiastic	apathetic	smooth	
sincere		energetic	
patient		consistent	inconsisten
		active	passive
VERBAL AND NONVERBAL EXP	RESSIVE COMMUNICATIONS	rhythmic	jerky
responsive	ignoring	touching	avoiding
accepting	rejecting		
congruent	incongruent		:
comforting	uncomforting		*

V

are to indicate the direction of their association and its intensity on a seven-step scale. The semantic differential provides the researcher with a large amount of data which can be statistically analyzed in various ways. Assessments of individual caregivers can be made as well as comparisons between groups.

The <u>Infant Caregiver Communications Rating Scale</u> is organized into the following categories: (a) voice qualities; (b) verbal and nonverbal expressive communications; (c) verbal and nonverbal receptive communications; and (d) tactile and physical qualities. Corresponding descriptive adjective terms were included on the semantic differential with their extreme or polar meanings—with more favorable characteristics listed to the left. Responses will be elicited from observers of infant caregivers which match caregiver characteristics to a one to seven scale of least favorable to most favorable.

Summary

The assessment system provides a comprehensive means of viewing the caregiver which also allows separate assessment of specific interactional and personal competencies. Using a time-sampling method in which a sign data system is employed, interactional competencies are observed from four viewpoints: (1) nature of the interaction, (2) content of the interaction, (3) contingency of responsiveness

within the interaction, and (4) interactional factors relating to the use of space. Personality characteristics, attitudes, and interpersonal competence are included on a five-point rating scale. The rating scale is designed to be used following an extended observation period, using a trait rating procedure. A semantic differential scale evaluates observable communicative dimensions of infant caregivers.

The four <u>Caregiver-Infant Interaction Schedules</u>, used as a battery of instruments, provides a practical tool for research investigations of the complex factors of adultinfant interactions. In addition, summary sheets designed to correspond to the instruments provide qualitative information to the field.

Data derived from field ratings and systematic observations provided the basis for the extrapolation of assessment characteristics from mother-infant research to infant day care assessment. An assessment system designed for research and study of interpersonal factors in infant care incorporates those caregiver qualities and competencies known to be related to the well-being of infants. This assessment system consists of four observation schedules for interactional behaviors and two rating scales. A multimodal design format provides an approach to the complex study of adult-infant interactions.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The purpose of this study has been to construct valid instrumentation for observational assessment of the interpersonal characteristics of infant caregivers and caregiver-infant relationships in day care. The increasing role of day care in providing care for infants has led to research questions related to supplemental primary relationships outside the home. The established importance of mother-infant relationship factors to infant development has led to the extrapolation of those factors to infant relationships outside the home.

A review of infant day care research has verified the need for research methodology focusing on the caregiver and interpersonal relationships in day care. The development of research methodology and assessment instruments has been based upon findings from mother-infant research. Maternal variables found to be related to optimal infant care lead toward overall competence in infants as well as promote verbal, perceptual-cognitive, and social development.

The development of a research instrument for studying interpersonal characteristics of caregivers in day care has

been based upon empirical data relating caregiving characteristics to infant development, perceptions of infant day care directors and caregivers, and actual observation of caregivers and infant interactions in day care.

The mother-infant interaction research literature was examined to delineate caregiver attributes which help determine an optimal environment for infant well-being and development. A synthesis of longitudinal research findings resulted in the categorization of caregiver characteristics into personality factors; attitudes and values; and functional behaviors. These clusters of caregiver characteristics were further refined through the addition of interactional factors derived from microanalytic laboratory research. These behavioral clusters provided the research base for the development of the Important Characteristics in Infant Care Scale.

The scale was mailed to day care centers in Dallas and Tarrant Counties which were licensed to care for infants under 18 months of age. Day care directors and infant caregivers were asked to rate the importance of each caregiver characteristic as listed by items on the scale. Upon return, the ratings by persons in the field were analyzed to determine the relative importance of each caregiver characteristic item. Both directors and caregivers agreed overall with the importance of those characteristics for infant care as

listed on the scale. This kind of input from the field verifies the extrapolation of research findings in mother-infant research to infant day care research.

In the final stage of the research, approximately 16 hours of videotapes were made of five infant caregivers in two day care centers. The videotapes were viewed and noted for insights into the caregiving process and for a gestalt of the total human environment in day care. These 16 hours of tapes were edited to a 12 minute composite videotape exemplifying a typical day care day. One-minute episodes of videotape, showing caregiver-infant interaction, were chosen in a random fashion for each of four caregivers filmed.

Four graduate students viewed the composite videotape as a means of establishing the observability of the identified caregiver characteristics. Procedures for this process of analysis of tapes included random assignment of item cluster, viewing for very short periods, followed by tally periods, and included minute and more global examination of factors. This trial in observational coding provided evidence for the observability of multiple relationships within day care.

This research procedure resulted in the development of an assessment system which provides a comprehensive means for studying infant caregiving. Essential aspects of the caregiver-infant relationship are measured on the basis of various modalities and methodological indices with components organized into an overall design. A battery of measures provides researchers with a variety of specialized tools which allow focus upon specific research questions as well as a total evaluative system. A synergistic approach is represented in that the synthesis of various perspectives results in a more meaningful measure than when individual factors are viewed singly.

The infant caregiver observational system is designed to assess caregiving in terms of two basic aspects... caregiver-infant interaction and interpersonal qualities of the caregiver. Observational schedules were structured to study interactional factors related to: (1) the qualitative nature of the interactions; (2) content of the interactions; (3) responsive contingency of the interactions; and (4) the context or spatial factors of the interactions. This system provides for objective collection of basic descriptive data, which can be studied inferentially as well.

The qualitative nature of interactions between caregivers and infants are assessed as time-sampling data which
accounts for the initiation and close of interactions, as
well as the nature of communications and play. The vocal,
visual, tactile, and play content are further documented by
means of a checklist analysis of multiple caregiver-infant
relationships.

Time sampling of the contingency and frequency of caregiver responsiveness to distressed and nondistressed infants is provided by an assessment tool designed to evaluate the caregiver, as well as to provide basic data. Factors of caregiver-infant interaction which relate to the spatial environment are assessed by means of a proxemic notation system.

Additional scales were developed to provide evaluative, as well as comparative data in relation to observable personal characteristics of infant caregivers. A five-point rating scale is designed to measure a caregiver's personal characteristics of empathy, sensitivity, lovingness, positiveness, self-confidence, child-orientation, flexibility and adaptability, and interpersonal competence, as described on the scale. A semantic differential technique is used to elicit impressions by the observer of personal qualities of the caregiver which are known to be important. The qualities include dimensions of verbal and nonverbal communications.

Conclusions '

The usefulness of the infant caregiver assessment system developed and validated through this study needs further investigation. Further experimentation with observational and evaluative procedures will lead toward a practical means for assessing infant caregiving. Additional studies in analyzing reliability of observation will provide the field

with sound tools for basic research in the area of infant day care. Use and interpretation of the assessment system will require training or expertise in observation techniques, as well as sensitization to the important aspects of caregiver-infant relations.

The development of research instrumentation which is designed to study caregiver-infant relationships in day care meets important needs in the field. Concern with providing optimal care environments for infants can be partially met by providing a means for assessing the human aspects of that environment. Intensive investigations of the caregiver and the caregiver's interpersonal competence with infants will lead to more knowledgeable policy-making relating to infant day care, as well as to better qualified judgements in relationship to hiring and training of infant care personnel.

The development of a comprehensive assessment system for studying caregiving has many implications within the field. As a research tool, the instrumentation developed provides a means for studying more intensively the process and development of relationships in out-of-home and multiple caregiving of infants as well as evaluating the overall context of the day care environment. Implications for continued research include the analysis of caregiver styles, reciprocity between caregivers and infants, comparisons between different populations, comparisons of caregiver

interactions with various infants, and the development of competence in relation to sex, age, nature, and size of grouping.

Persons interested in the development of child care personnel are provided with a competency-based assessment system with which discrepancies between optimal and actual demonstration of competencies in the field can be explored. In addition, discrepancies between prescribed competencies and training for these competencies can be evaluated. As a practical tool in the field, the assessment tools could be helpful in providing a basis for the design and evaluation of training for child care personnel. The application could possibly be extended to be used in adoptive and foster home care, as well.

The research methodology used to construct an assessment system for studying infant caregivers represents a useful model for the design of assessment systems in other areas of child care and education. An assessment system was built upon empirical evidence, as represented by a synthesis of research findings; field importance, as determined by ratings of child care personnel; and established observability of assessment items, through observational judgements of child development professionals of videotapes. These research processes provide educators with a systematic

basis for making inferences about those persons in the field.

APPENDIX A

IMPORTANT CHARACTERISTICS IN INFANT CARE SCALE Copyright 1979

Your experience in infant day care had led you to believe that certain caregiver characteristics are important for infants ages 0 to 18 months. For each of the items below will you please indicate their <u>importance</u>. Circle the letter(s) which show how you believe:

VI - Very Important

I - Important

U - Undecided

LI - Little Importance

NI - No Importance

		Circle One VI I U LI						
1.	Talk to infants often.	VI	I	U	LI	NI.		
2.	Offer toys and other interesting							
	objects to infants.	VI	I	U	LI	NI		
3.	Let infants bring social exchanges							
	to close.	VI	I	U	LI	NI		
4.	Provide activities which help infants							
*	learn and achieve.	VI	I	U	LI	NI		
5.	Notice and respond to each infant's							
	communications quickly.	VI	I	U	LI	NI		

-						
6.	Give infants more and more freedom as					
	they grow older.	VI	I	U	LI	ΝĮ
7.	Let infants play alone some of the					
	time.	VI	I	U	LI	NI
8.	Cooperate with activities and ex-	ű.				
	ploring begun by infants.	VI	I	U	LI	NI
9.	Give infants undivided and loving					
	attention.	VI	I	Ü	LI	NI
10.	Be sensitive to infants.	VI	I	Ū	LI	NI
11.	Be relaxed with infants.	VI	I	U	LI	NI
12.	Talk to or signal a response to each					
	infant's bid for attention.	VI	I	U	LI	NI
13.	Be flexible and adaptable in caring					
	for infants.	VI	I	U	LI	NI
14.	Gradually increase the amount of					
	stimulation given to infants.	VI	I	U	LI	NI
15.	Help infants learn about objects.	VI	I	U	LI	NI
16.	Have a sense of humor.	VI	I	U	LI	NI
17.	Allow infants to move around and					
	explore.	VI	I	U	LI	NI
18.	Let infants begin social exchanges.	VI	·I	Ü	LI	NI
19.	Put toys and objects where infants					
	can discover and explore them.	VI	I	U	LI	NI

20.	Dress in comfortable, easy-to-care-					
	for clothes.	VI	I	U	LI	NI
21.	Carry or move infants around.	VI	I	U	LI	NI
22.	Always be where infants can see, hear,					
	or get to.	VI	I	U	LI	NI
23.	Not hurt or reject infants who					
	misbehave.	VI	I	U	LI	NI
24.	Satisfy infants' needs when they					
	arise.	VI	I	U	LI	NI
25.	Like all infants.	VI	I	U	LI	NI
26.	React calmly to infants' messiness					
	or destructiveness.	VI	I	U	LI	NI
27.	Be spontaneous and open to infants.	VI	I	U	LI	NI
28.	Show understanding and accept					
. ,	infant's feelings.	VI	I	U	LI.	NI
29.	Be child-centered rather than					
*	self-centered.	VI	I	U	LI	NI
30.	Feel infants are important and					
	valuable.	VI	I	U	LI	NI
31.	Smile often at infants.	VI	I	U	LI	NI
32.	Adjust to different personalities					
	of infants.	VI	I	U	LI	NI
33.	Meet infants' needs before own.	VI	I	U	LI	NI
34.	Look eye-to-eye with infants often.	VI	I	U	LI	NI

				122		
35.	Have tone of voice which sounds					
	pleasant and positive.	VI	I	U	LI	NI
36.	Show pleasure in being with infants.	VI	I	U	LI	NI.
37.	Watch the infants at all times.	VI	I	U	LI	NI
38.	Feel good about life.	VI	I	U	LI	NI
- 39.	Play with infants.	VI	I	Ū	LI	NI
40.	Show patience when infants are			8		
	uncooperative.	VI	I	U	LI	NI
41.	Care for infants' physical needs with					
,	self-confidence and skill.	VI	I	U	LI	NI
42.	Have social involvement with infants.	VI	I	U	LI	NI
43.	Feel and act happy.	VI	I	U	LI	NI
44.	Comfort upset infants quickly and	•			•	
	calmly.	VI	I	U	LI	NI
45.	Give lots of affection to infants.	VI	I	U	LI	NI
. 46.	Talk to infants about the "here and					
ē .	now" while caring for them.	VI	I	U	LI	NI
47.	Cooperate with activities and					
	exploring begun by infants.	VI	I	Ū	LI	NI
48.	Approach infants slowly and gently	¥.				
	and give infants plenty of time to		,			
	respond.	VI	I	U	LI	NI
.49.	Place valuable items out of					
	infants' reach.	VI	Ĭ	U	LI	NI
	and the second of the second o					

IT	IS	IMPORTANT	FOR	AN	INFANT	CAREGIVER	TO:

50. Hold and touch the infants.

VI I U LI NI

Please return to: Mrs. Arminta Jacobson

Box 23975, TWU Station

Denton, Texas 76204

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 _Day	Car	e	Director
Infa	ant	Ca	aregiver

APPENDIX B

CHARACTERISTICS OF COMPETENT INFANT CAREGIVERS

		Desired		Cues to Desirable
Car	egiv	er Characteristics		Caregiver Characteristics
I.	Per	sonality Factors		
,	A.	Child-centered	1.	Attentive and loving to
				infants.
			2.	Meets infants' needs before
				own.
	В.	Self-confident	1.	Relaxed and anxiety free.
		,	2.	Skilled in physical care of
				infants.
			3.	Individualistic caregiving
				style.
	C.	Flexible	1.	Uses different styles of
	*			caregiving to meet individual
a)		*		needs of infants.
			2.	Spontaneous and open behavior.
			3.	Permits increasing freedom of
				infant development.
	D.	Sensitive	1.	Understands infants' cues
		•		readily.
			2.	Shows empathy for infants.

		Desired		Cues to Desirable
Careg	iver	Characteristics		Caregiver Characteristics
			3.	Acts purposefully in inter-
				actions with infants.
II.	Att	itudes and Values		
	A.	Displays positive	1.	Expresses positive affect.
,*		outlook on life	2.	No evidence of anger, unhap-
		,		piness, or depression.
	B.	Enjoys infants	1.	Affectionate to infants.
			2.	Shows obvious pleasure in
		* .		involvement with infants.
	C.	Values infants	1.	Dresses practically and ap-
		more than pos-		propriately.
		sessions or	2.	Places items not for infants'
		immaculate ap-		use out of reach.
		pearance	3.	Reacts to infant destruction
				or messiness with equanimity.
			4.	Takes risks with property in
•		·		order to enhance infant
	**			development.
III.	Beha	avior		
,	A.	Interacts appro-	1.	Frequent interactions with
		priately with		infants.
*		infants	2.	Balances interaction with

leaving infants alone.

Desired		Cues to Desirable
Caregiver Characteristics		Caregiver Characteristics
	3.	Optimum amounts of touching,
	×	holding, smiling, and looking.
	4.	Responds consistently and with-
		out delay to infants; is always
		accessible.
	5.	Speaks in positive tone of
		voice.
	6.	Shows clearly that infants are
*		loved and accepted.
B. Facilitates	1.	Does not punish infants.
devolopment	2.	Plays with infants.
	3.	Provides stimulation with toys
		and objects.
	4.	Permits freedom to explore,
		including floor freedom.
	5.	Cooperates with infant-
*		initiated activities and
*		explorations.
	6.	Provides activities which
		stimulate schievement or goal

orientation.

Desired Caregiver Characteristics

Cues to Desirable Caregiver Characteristics

7. Acts purposefully in an educational role to teach and facilitate learning and development.

APPENDIX C: BEHAVIORAL CLUSTERS IN THE ICIC SCALE

EMOTIONAL INVOLVEMENT WITH INFANTS

- 1. Be child-centered rather than self-centered.
- 2. Meet infants' needs before own.

AVAILABILITY TO INFANTS

- 3. Give infants undivided and loving attention.
- 4. Always be where infants can see, hear, or get to.

CONTINGENT RESIGNSIVENESS TO INFANTS

- 5. Talk to or signal a response to each infant's bid for attention.
- Notice and respond to each infant's communications quickly.
- 7. Let infants begin social exchanges.
- 8. Let infants bring social exchanges to a close.
- 9. Cooperate with activities and exploring begun by infants.

SELF-CONFIDENCE AND ESTEEM

- 10. Be relaxed with infants.
- 11. Care for infants' physical needs with self-confidence and skill.

ADAPTABILITY

- 12. Be flexible and adaptable in caring for infants.
- 13. Adjust to different personalities of infants.
- 14. Be spontaneous and open to infants.
- 15. Give infants more and more freedom as they grow older.

SENSITIVITY AND EMPATHY

- 16. Satisfy infants' needs when they arise.
- 17. Be sensitive to infants.
- 18. Show understanding and accept infant's feelings.
- 19. Comfort upset infants quickly and calmly.
- 20. Approach infants slowly and gently and give infants plenty of time to respond.

DISCIPLINES INFANTS APPROPRIATELY

- 21. Show patience when infants are uncooperative.
- 22. Not hurt or reject infants who misbehave.

POSITIVE MENTAL ATTITUDE

- 23. Feel good about life.
- 24. Feel and act happy.
- 25. Have a sense of humor.
- 26. Have tone of voice which sounds pleasant and positive.

LOVINGNESS TO INFANTS

- 27. Give lots of affection to infants.
- 28. Show pleasure in being with infants.
- 29. Feel infants are important and valuable.
- 30. Like all infants.

PERSON-ORIENTED VS. OBJECTS-ORIENTED

- 31. Dress in comfortable, easy-to-care for clothes.
- 32. Place valuable items out of infants' reach.
- 33. React calmly to infants' messiness or destructiveness.

SOCIAL INVOLVEMENT WITH INFANTS

- 34. Have social involvement with infants.
- 35. Let infants play alone some of the time.

Verbal

- 36. Talk to infants often.
- 37. Talk to infants about the "here and now" while caring for them.

Visual

- 38. Watch the infants at all times.
- 39. Look eye-to-eye with infants often.
- 40. Smile often at infants.

Tactile

- 41. Hold and touch the infants.
- 42. Carry or move infants around.
- 43. Allow infants to move around and explore.

MEDIATION WITH PLAY

- 44. Play with infants.
- 45. Offer toys and other interesting objects to infants.
- 46. Put toys and objects where infants can discover and explore them.
- 47. Help infants learn about objects.
- 48. Cooperate with activities and exploring begun by infants.
- 49. Provide activities which help infants learn and achieve.
- 50. Gradually increase the amount of stimulation given to infants.

APPENDIX D: RESEARCH BASE FOR ICIC SCALE

- 1. Talk to infants often.
- Offer toys and other interesting objects to infants.
- 3. Let infants bring social exchanges to close.
- 4. Provide activities which help infants learn and achieve.
- 5. Notice and respond to each infant's communications quickly.

x		Ainsworth & Bell 1972;1973
	х	Beckwith 1971
×		Blehar et al. 1978
x		Brazelton et al. 1974
x	x	Clarke-Stewart 1973
x		Donovan & Leavitt 1978
		Gordon 1969
	x	Lewis et al. 1969;1972;1974
*		Mahler 1975
		Milliones 1978
		Murphy 1973
		Stayton et al. 1971
×	x	Stern et al. 1969
		White et al. 1975;1978
x	x	Yarrow et al. 1972;1973;1975
		Zeskind & Ramey 1978
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	S IMPORTANT FOR AN INFANT GIVER TO:	Ainsworth & Bell 1972; 1973	Beckwith 1971	Blehar et al. 1978	Brazelton et al. 1974	Clarke-Stewart 1973	y u	n 19	Lewis et al. 1969;1972;1974	Mahler 1975	Milliones 1978	Murphy 1973	Stayton et al. 1971	n et al. 1969	te et al. 1975;1978	arrow et	Zeskind & Ramey 1978
6.	Give infants more and more																
	freedom as they grow older.		x							x					x		
7.	Let infants play alone some								e.								
	of the time.							x		x				x	x		
8.	Cooperate with activities																
	and exploring begun by																
	infants.	x											x				
9.	Give infants undivided and																
	loving attention													x			
10.	Be sensitive to infants.	×			x		x						x				
11.	Be relaxed with infants.													x			
12.	Talk to or signal a response																
	to each infant's bid for														-		
	attention.								x		×					x	

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		3ell 1972;19		1978	al. 1974	t 1973	witt 1978		1969;1972;1		78		1. 1971	1969	1975;1978	1972;	ney 1978	
	S IMPORTANT FOR AN INFANT	insworth & B	eckwith 1971	lehar et al.	T	Clarke-Stewar	y U	n 196	ewis et al.	Mahler 1975	illiones 197	Murphy 1973	Stayton et a	tern et al.	White et al.	Yarrow et al	eskind & Ram	
CARE	GIVER TO:	A	B	B	B	၁	Ď	Ö	L	M	M	M	S	S	2	K	Z	
13.	Be flexible and adaptable in																***************************************	
	caring for infants.											x				х		
14.	Gradually increase the																	
	amount of stimulation given																	
	to infants.			x	x			x										
15.	Help infants learn about																alle produce appropriate	
	objects.															x		
16.	Have a sense of humor.					x												
17.	Allow infants to move																	
	around and explore.															x		
18.	Let infants begin social								,				×					
	exchanges.	x			x				x							x		
19.	Put toys and objects where																	
	infants can discover and														-			
	explore them.														x			
			1															

	S IMPORTANT FOR AN INCANT	Ainsworth & Bell 1972,1973	Bookwith 1971	Blehar et al. 1978	ton et al. l	Clarke-Stewart 1973	Donovan & Leavitt 1978	H	et a	r 197	nes	Murchy 1973	n et al.	Stern et al. 1969	White et al. 1975;1978	et al. 1972;	Zeskind & Ramey 1978
20.	Dress in comfortable, easy-														x		
	to-care for clothes.														^		
21.	Carry or move infants																
	around.															x	
22.	Always be where infants can																-
	see, hear, or get to.	×															
23.	Not hurt or reject infants																
	who misbehave.	x				x								x			
24.	Satisfy infants' needs when																
	they arise.	x											a.				
25.	Like all infants.	x											x				
26.	React calmly to infants mes-																
	siness or destructiveness.														x	,	
27.	Be spontaneous and open to																
1	infants.					x											

- 28. Show understanding and accept infant's feelings.
- 29. Be child-centered rather
 than self-centered.
- 30. Feel infants are important and valuable.
- 31. Smile often at infants.
- 32. Adjust to different personalities of infants.
- 33. Meet infants' needs before own.
- 34. Look eye-to-eye with infants often.
- 35. Have tone of voice which sounds pleasant and positive.

	Zeskind & Ramey 1978								
	Yarrow et al. 1972;1973;1975				X	x		×	x
	White et al. 1975;1978			X		x			
	Stern et al, 1969	x	x	x		x	x		
	Stayton et al. 1969								
*	Murphy 1973					x			
	Milliones 1978								
	Mahler 1975						,		
	Lewis et al, 1969;1972;1974				x				x
	Gordon 1979							x	
	Donovan & Leavitt 1978					* *			
	Clarke-Stewart 1973								x
	Brazelton et al, 1974				-		2		
	Blehar et al, 1978								
	Beckwith 1971					٠			
	Ainsworth & Bell 1972;1973								

- 36. Show pleasure in being with infants.
- 37. Watch the infants at all times.
- 38. Feel good about life.
- 39. Play with infants.
- 40. Show patience when infants are uncooperative.
- 41. Care for infants' physical needs with self-confidence and skill.
- 42. Have social involvement with infants.
- 43. Feel and act happy.

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	×		Athiswot cii & Bett 1972,19
			Beckrith 1971
			Blehar et al, 1978
	*		Brazelton et al, 1974
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			Donovan & Leavitt 1978
			Gordon 1969
	×	x	Lewis et al, 1969;1972;1974
			Mahler 1975
			Milliones 1978
			Murphy 1973
			Stavton et al, 1971
x	x	×	Stern et al. 1969
x x x	×	x	White et al. 1975;1978
	x	x	Yarrow et al, 1972;1973;1975
x			Zeskind & Ramey 1978 .

- 44. Comfort upset infants quickly and calmly.
- 45. Give lots of affection to infants.
- 46. Talk to infants about the "here and now" while caring for them.
- 47. Cooperate with activities and exploring begun by infants.
- 48. Approach infants slowly and gently and give infants plenty of time to respond.
- 49. Place valuable items out of infants' reach.

Ainsworth & Bell 1972;1973	Beckwith 1971	Blehar et al. 1978	Brazelton et al. 1974	Clarke-Stewart 1973	Donovan & Leavitt 1978	Gordon 1969	Lewis et al. 1969;1972;1974	Mahler 1975	Milliones 1978	Murphy 1973	Staycon et al. 1971	Stern et al. 1969	White et al. 1975;1978	Yarrow et al. 1972;1973;1975	Zeskind & Ramey 1978
x				x								x		x	
x													x		
×		х											x		

IT IS IMPORTANT FOR AN INFINT

CAREGIVER TO:

50. Hold and touch the infants.

	Ainsworth & Bell 1972;1973
x	Beckwith 1971
	Blehar et al. 1978
	Brazelton et al. 1974
	Clarke-Stewart 1973
	Donovan & Leavitt 1978
	Gordon 1969
×	Lewis et al. 1969;1972;1974
	Mahler 1975
	Milliones 1978
	Murphy 1973
	Stayton et al. 1971
	Stern et al. 1969
	White et al. 1975;1978
×	Yarrow et al. 1972;1973;1975
	Zeskind & Ramey 1978.

APPENDIX E: LETTER TO INTRODUCE STUDY

Date:

To: Director, (name of day care center)

From: Arminta Jacobson

We would appreciate your participation in a research project related to characteristics of infant caregivers.

Would you and the infant caregiver(s) in your center please rate the importance of the characteristics given on the Important Characteristics in Infant Care Scale and check off the correct information on the Infant Care Background Information form. The rating and information forms are anonymous.

We will appreciate your assistance in asking infant caregivers to cooperate with the study and in mailing back forms from your center. A stamped return address envelope is enclosed.

APPENDIX F: INFANT CARE BACKGROUND INFORMATION

1.	Age: Under 20 40-49	
	20-29 Over 50	
	30-39	
2.	Ethnic Background:	,
	Black MexAmer. White	Other
3.	Child Care Background:	
	Years of experience working with children under 18	
	months of age:	
	First year 5-10 years	
	1-4 years Over 10 years	
ý	Education or training in child-related fields:	Į.
	None	
	High School	
	Jr./Community College	
	4-year College	
	In-service or Other Training	
	On-the-job	
	Workshops	
	Other (name)	
	•	
	Please check:	
	Day Care Director	
	Infant Caregiver	

APPENDIX G: INFORMED CONSENT FORM FOR DIRECTORS

Date:

To: Director, (name of day care center)

From: Arminta Jacobson

Thank you for your willingness to participate in the research study of competent infant-caregiving. The research is being conducted as part of my graduate studies at Texas Woman's University. Other graduate students at Texas Woman's University will be assisting with observation.

All information provided for this research study will be kept strictly confidential. Names of participants will not be released to anyone outside of this study.

If you have any questions regarding this study, please feel free to phone me at my home in Denton (817-387-4801). Your cooperation is greatly appreciated.

I have read the above letter. I agree to let the fol-
lowing member(s) of my infant caregiving staff be observed
while taking care of infants:
I understand that all information about these caregivers
my infant care program, and infants in care will be kept con-
fidnetial.
Signed Center
Address

APPENDIX H

INFORMED CONSENT FORM FOR CAREGIVERS AND PARENTS

Dear
Your infant's caregiver has been selected to participate
in a research study of infant caregiving I am conducting as a
graduate student at Texas Woman's University.
Will you let someone observe your infant for approxi-
mately two hours with his or her caregiver?
All information about your infant, the caregiver, your
day care center will be kept confidential. If you have any
questions regarding the study, please call me at 817-387-4801
Your signature below will indicate your agreement to
let your infant be involved in the research project. Please
return this letter to your infant's caregiver.
Thank you for your willingness to help.
Sincerely,
Arminta Jacobson
· · · · · · · · · · · · · · · · · · ·
Parent's signature Date

APPENDIX I: PERMISSION TO VIDEOTAPE FORM

TEXAS WOMAN'S UNIVERSITY

I, the undersigned, do hereby co	onsent to the recording
of my voice and/or image by	
acting on this date under the author	ity of the Texas Woman's
University. I understand that the ma	aterial being recorded
may be made available only for education	cional and research pur-
poses, and I do hereby consent to such	ch use.
I hereby release the Texas Woman	n's University and the
undersigned party acting under the a	uthority of the Texas
Woman's University from any and all	claims arising out of
such recording.	•
	·
Signature of participant	Date
Signature of guardian or nearest relative if participant is a minor	Date

APPENDIX J: LETTER CONCERNING VIEWING VIDEOTAPES

Date:

To:

From: Arminta Jacobson

The infant caregiving research project currently in progress in partial fulfillment of graduate requirements at Texas Woman's University is drawing to a close. The videotapes of infant caregiving for which you volunteered and in which you participated through your previous signed consent are now being edited. Composite tapes for use in research and infant caregiver training are under development. These tapes are available for your viewing if you so desire.

You may withdraw in whole or in part from this project at any time. The completed tapes will be available for training by August 1, 1979.

If you wish to view the composite tapes, please contact Arminta Jacobson, 2203 Jacqueline, Denton, Texas. Phone (817) 387-4801.

I have read the above letter. I understand that the videotapes of infant caregiving are available for my viewing and that I may withdraw in whole or in part from this project at any time.

Signed		Center	
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APPENDIX K; RELATIONSHIP OF ICIC SCALE BEHAVIORAL CLUSTERS

TO INFANT CAREGIVER ASSESSMENT SYSTEM

1	ANA		NTERACTION	RATING SCALE	
	NATURE	CONTENT	CONTIN. SPATIAL	PERSONAL	COMMUN.
,	Initiation Modality Affect Playthings	Vocal Visual Tactile Play Stimulation	Attention Response Frequency Orientarion Posture Kinesthetics Freedom	Empathy Sensitivity Lovingness Positiveness Confidence Child-Orient. Flexibility Interpersonal	Voice/emotional Expressive Receptive Tactile/physical
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ttention. ar, or			x x	x x	x
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	x x				x x
	-		,		x
	х				х
-	x			x x	x
				:	

BEHAVIORAL CLUSTERS

Emotional Involvement with Infants

- 1. Be child-centered rather than self-centered
- 2. Meet infants' needs before own.

Availability To Infants

- 3. Give infants undivided and loving attention.
- Always be where infants can see, hear, or get to.

Contingent Responsiveness to Infants

- Talk to or signal a response to each infant's communications quickly.
- Notice and respond to each infant's communications quickly.
- 7. Let infants begin social exchanges.
- Let infants bring social exchanges to a close.
- Cooperate with activities and exploring begun by infants.

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	NA'	TUR	E	Ç	10	TE	NT	C	CONTIN. SPATIAL							PERSONAL							:01	MUN.				
	Initiation Modality	Affect	Flaythings	Vocal	Visual	Tactile	Flay Crimilation	Attention	Response	Frequency	Orientation	Posture	Kinesthetics	Freedom	Empachy	Sensitivity	Lovingness	Positiveness	Confidence	Child-Orientation	Flexibility	Interpersonal	Voice/emotional	Expressive	Peceptive	Tactile/physical		
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Self-Confidence and Esteem

- 10. Be relaxed with infants.
- Care for infants' physical needs with self-confidence and skill.

Adaptability

- Be flexible and adaptable in caring for infants.
- Adjust to different personalities of infants.
- 14. Be spontaneous and open to infants.
- 15. Give infants more and more freedom as they grow older.

Sensitivity and Empathy

- 16. Satisfy infants' needs when they arise
- 17. Be sensitive to infants.
- Show understanding and accept infant's feelings.
- Confort upset infants quickly and calmly.
- Approach infants slowly and gently and give infants plenty of time to respond

Disciplines Infants Appropriately

- Show patience when infants are uncooperative.
- 22. Not hurt or reject infants who misbehave,

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							,	
		· A)	NALYSIS OF	INTERA	ACTION	RATING SCAL	ES	•
		NATURE	E CONTENT	CONT	IN.SPATIA		COMMUN.	
						tion	al cal	
		Initiation Modality Affect Playthings	Vocal. Visual Factile Play	Attention Response Frequency	Orlentation Posture Kinesthetics Freedom	Empathy Sensitivity Lovingness Positiveness Confidence Child-Orienta	Interpretability Wolce/emotional Expressive Receptive Tactile/physical	•
	Positive Mental Attitude				O L Z H	40041	1 2 m K L	
	23. Feel good about life.24. Feel and act happy.25. Have a sense of humor.26. Have tone of voice which sounds pleasant and positive.		x			х х х х	x x x	
€	Lovingness to Infants							
	 27. Give lots of affection to infants. 28. Show pleasure in being with infants. 29. Feel infants are important and valuable. 30. Like all infants. 	x x	х			х х х х	x x	134
	Person-Oriented Vs. Objects-Oriented							
	 Dress in comfortable, easy-to-care for clothes. Place valuable items out of infants' reach. React calmly to infants' messiness or destructiveness. 					x x x x	x	
	Social Involvement with Infants							,
• •	34 Have social involvement with infants.35. Let infants play alone some of the time.	ĸ	****		x	×		*
,		-				·	,	

Verbal

- 36. Talk to infants often.
- 37. Talk to infants about the "here and now" while caring for them.

Visual

- 38. Watch the infants at all times.
- 39. Look eye-to-eye with infants often.
- 40. Smile often at infants.

Tactile

- 41. Hold and touch the infants.
- 42. Carry or move infants around.
- 43. Allow infants to move around and explore.

Mediation With Play

- 44. Play with infants.
- 45. Offer toys and other interesting objects to infants.
- 46. Put toys and objects where infants can discover and explore them.
- 47. Help infants learn about objects.
- Cooperate with activities and exploring begun by infants.
- 49. Provide activities which help infants learn and achieve.
- 50. Gradually increase the amount of stimulation.

T	ANALYSIS OF INTERACTION RATING SCALES																										
ANALYSIS OF INTERACTION RATING SCALES NATURE CONTENT CONTIN. SPATIAL PERSONAL COMMUN.																											
MATORE CONTENT											CONTIN. SPATIAL PERSONAL										COMMUN.						
Intriation	Modality	Affect	Playthings	Vocal	Visual	Tactile	Play	Stimulation	Attention	Response	Frequency	Orientation	Posture	Kinesthetics	Freedom	Empathy	Sensitivity	Lovingness	Positiveness	Confidence	Child-Orientation	Flex1b111ty	Interpersonal	Voice/emotional	Expressive	Receptive	Tactile/physical
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