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Parent-infant communication: A study of attitudes, perceptions, and performances

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The Ohio State University, 1993
PARENT-INFANT COMMUNICATION:
A STUDY OF ATTITUDES, PERCEPTIONS, AND PERFORMANCES

DISSERTATION
Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate School of
the Ohio State University

By

* * * * * *

The Ohio State University
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This project involved the ideas and support of many people. I am particularly grateful to the eleven mother-infant pairs who allowed me to come into their homes, and agreed to the use of the videotapes of their play together.

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CHAPTER I
INTRODUCTION

The past 25 years have witnessed a veritable explosion of interest in infancy, as evidenced by a confluence of developments in scientific, medical, social, and technical arenas. Never before have infants been more closely and systematically scrutinized by researchers, clinicians, and parents. This intense interest has led to dramatic advances in the ability to identify, assess, and treat a variety of handicapping conditions in their earliest stages of development. Further, it has resulted in a greater appreciation of the kinds of environments that foster or impede development and the degree to which the development of specific competencies is robust to variations in environmental experience and expectations (Teti & Gibbs, 1990). Finally, the predominant emphasis on the mother-child dyad has given way to an appreciation that early development occurs within a dynamic family system (Bronfenbrenner, 1979; Stern, 1977). This has furthered efforts to examine how mothers, fathers, and other adult caregivers interact with and influence infant development (Lamb, 1981).

The growing recognition that handicapped children are best served when intervention services are provided early in life (Shonkoff & Meisels, 1990), has spurred the development of a variety of infant assessment procedures that can be used to diagnose and develop treatment strategies. Given the
extensive interplay during the first year of life among different development
systems and the salience of social-environmental influences on infant
development, it is essential that early assessment be multidimensional and
family based (Bailey & Simeonsson, 1988).

Much of the research concerning infant assessment has focused on issues
of early child competence in such areas as language development, play skills,
gross and fine motor abilities, and personal-social skills as measured by norm-
referenced or criterion-referenced assessments. Research concerned with
sequences of early child development has been mainly devoted to the easily
observed behaviors or parental report of observable behaviors. Additionally,
much of the research has focused on the behaviors infants exhibit in clinical
contexts unfamiliar to them, with people they do not know, for only brief
periods of observation or interaction (Bronfenbrenner, 1979). While
information gathered from these types of assessment sessions is certainly
valuable, it is irresponsible to ignore the information that can be gathered
from more ecologically based interactions.

Parental report of infant functioning, and attitudinal measures about
developmental outcome can provide a valuable source of diagnostic
information when attempting to program for the infant at developmental
risk. Goldberg (1977) suggested that the more sensitive parents are at
interpreting early communicative cues used by infants the better they become
at predicting the outcome of an interaction. Therefore an important goal of
assessment should be to determine how effectively parents observe their own
Need for The Study

During the past two decades a significant increase of interest in infant development has been observed in the literature, as has the need to assess accurately the early developmental competence of these children. Yet while many norm-referenced and criterion-referenced assessments have been made commercially available to early intervention specialists (Ball, 1977; Bates, 1989; Bayley, 1969; Brazelton, 1973; Broman, Nichols, & Kennedy, 1975; Doll, 1965; Dubose & Langley, 1977; Frankenburg & Dodds, 1977; Griffiths, 1984; Knobloch & Pasamanick, 1974; Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984), they typically provide professionals with only a narrow picture of child functioning, and almost always do not attend to the critical role played by the parent in early communicative development. The passage of Public Law 99-457, a federal early intervention law, with its emphasis on the inclusion of family members as an integral part of intervention, has dramatically increased the need for and interest in measures of parental competence and dyad functioning (Farran, Clark, & Ray, 1990).

While parents have shown themselves to be a valuable source of clinical information about their children’s behaviors, this has been unrecognized by many existing infant assessment instruments (Rossetti, 1991). McCormick, Shapiro, & Starfield (1982) and Coplan (1982) have examined parental data with respect to observational accuracy. What they found was a relatively clear description of infant behavior, yet often an inaccurate interpretation of those behaviors on the part of the parent. Because parental perceptions and interpretations will modify the way in which a parent responds to their child, it has been recognized that assessment measures need to become more
sensitive toward these discreet judgments (Broussard & Hartner, 1971; Bloom & Lo, 1990; Olson, Bates, & Bayles, 1982; Walker & Thompson, 1982;).

When assessing an infant or other young preconversational child, it is important to consider the multiple influences that affect a child's development of competent communication. First, it is critical to realize that communication does not occur in an isolated state. Communication takes place in the context of setting, people and situation. The parent-child relationship is the primary environment that affects the developing child in many ways. The day to day experiences that infants encounter with their adult caregivers are related to how the caregivers respond to the children with their face, voice, body, and hands. This ongoing flow of adult engagement provides the developing child with a sense of human communication and relatedness (MacDonald, 1989; Mahoney, 1988; Stern 1977).

Parental perceptions and attitudes about early development also have tremendous impact on early interactive success. Bloom and Lo (1990) note that adult perceptions of infant competence enable them to conceptualize, and to react to, the infant as a communicative partner, and they seed the development of adult-infant interaction. Trad (1990; 1992) supports the notion that parental attitude toward and perception of infant behavior can greatly affect the reciprocal process through which the dyad becomes a true social partnership.

Broussard and Hartner (1971) have suggested that the early parent-child relationship is a dynamic process, that is continually being modified by the parent's perception of the child's behaviors. They propose that effective
assessment of young children needs to be based upon the assumption that the
".....mother-infant relationship develops into a cyclical system......The way the
mother relates to the child will be modified by her perception of his
appearance and behavior. His behavior in turn will be affected by her
handling of him (p. 432).” Broussard (1979) suggested that by having mothers
predict certain infant characteristics or behaviors, maternal perceptions of
infant competence would be sufficiently influenced to change the ways
mothers interacted with their babies. This in turn, according to Broussard,
would foster different levels of later child adjustment.

This growing body of empirical evidence underscores the need to examine
how practitioners can successfully assess the influence parental attitudes and
behaviors have on the social and communicative abilities of infants. There is
a burgeoning awareness within early intervention services that assessment
strategies must extend beyond measurement of child cognitive and motor
functioning. Infant assessments must begin to address the contributions of
the child’s temperament and social development (Bates, 1987; Beckman &
Lieber, 1992; Field, 1990 Lewis, 1987; Stern, 1977), the parent’s interactional
style (Bromwich, Khokha, Burge, Baxter, Kass, & Fust, 1981; Farran, Clark, &
Ray, 1990; MacDonald, 1989; Thoman & Browder, 1987), parent’s perceptions
of developmental competence (Bloom & Lo, 1990; Broussard & Hartner, 1970;
Trad, 1990; Trad, 1992), and the fit between the infants and their families
(Bailey & Simeonsson, 1988; Dunst, Trivette, & Deal, 1988).
**Purpose of The Study**

The general purpose of the present study was to examine and analyze parental behavioral, attitudinal, and perceptual roles with preconversational infants in terms of social-communicative development. The parent-child dyads examined represent a variety of developmental at-risk categories, including general developmental delays, and other established risk characteristics (i.e., Down Syndrome, Cerebral Palsy) (Meisels, 1992; Tjossem, 1976), as well as infants considered to be developmentally normal. A sample of infants and their adult caregivers was examined in an attempt to address the diversity of dyad functioning within the first year of life. The study was designed to reflect how adult perceptions and attitudes toward language development enable the parent to conceptualize and react to the preconversational infant as a communicative partner.

The study was also designed to evaluate a new assessment battery that examines parental perceptions and interactive styles with young preconversational children. The battery consists of three separate rating scales, the ECO Adult Communication Evaluation (ECO-ACE), The ECO Infant Social Communicative Survey (ECO-ISCS), and the Adult Communication Previewing Scale. Rather than looking at a single aspect of adult performance, this assessment battery examines the combined effect of parental perceptions, knowledge, and behavioral styles on the overall quality of the interaction, as perceived by both early intervention professionals as well as the parents themselves. While the quality of the interaction is certainly a critical issue in early intervention, the purpose of the study was not to assess the quality of the parent-infant interactions, but rather to
describe the interactive trends across a variety of parents and children, in an attempt to obtain a more complete picture of early parent/child relationships.

In conjunction with examining the efficacy and descriptive ability of each of the three assessment scales, special attention was given to parental performance on the ECO-ACE and responses on the Adult Communication Previewing Scale. A comparison of performance on these two measures was conducted to address a key issue of the study: "Do highly interactive parents preview differently than parents judged as being less interactive?" Therefore information obtained on the Adult Communication Previewing Scale for parents who on the ECO-ACE were judged by the investigator to be highly facilitative and supportive communicative partners for their children, was compared with that of parents perceived as less supportive communicative partners. This comparison should provide a qualitative description of how, through a process of adaptive previewing, infants are behaviorally supported by sensitive adult interactional partners.

**Factors of Interest and Research Questions**

Widespread research and theory have come to recognize that natural adult-infant transactions greatly influence many aspects of the child's developmental process (Goldberg, 1977; Greenspan, 1992; Sameroff, 1975; Trad, 1992). Subsequently the focus of infant assessment must be broadened to include the family context of development. Therefore the present study was guided by several general questions and factors of interest that address the critical role played by parents in early development. These questions are as follows:
1. What are the patterns of interaction that emerge for adult/infant dyads?
   a) To what degree are infants taking an interactive role with their parents?
   b) To what degree are parents actively interacting with their children?
   c) Do any patterns of adult interactive styles predominate?
   d) How do interactive patterns differ according to age and developmental status of the infant?
2. What are the interactive patterns between adults and infants across the interactive contexts of people play, object play, and caregiving routines?
3. What is the relationship between infant developmental level and adult interactive style?
4. How do parents view the process of communication development?
   a) How do parents describe their child's current social and communicative behaviors?
   b) How do parents describe developmental changes in their child?
   c) What do parents consider important for their child in learning to talk?
   d) How do parents predict future developmental changes?
   e) How do parents see themselves affecting their child's social and communicative development?
   f) What relationships arise between parental attitudes and interactive styles?
5. How does infant performance change in response to changes in adult interactive style?

Definition of Terms

Following are the terms that will be used in the present study and their operational definitions:

Previewing: According to Trad (1990) previewing is defined as a parental foreshadowing of imminent developmental and social changes for the infant. This intuitive response by parents to subtle changes in infant developmental status consists of three specific parental behaviors: (1) the caregiver's capacity to represent imminent developmental changes; (2) the caregiver's role as an auxiliary or support partner for the infant as he/she rehearses developmental changes; and (3) the caregiver's ability to return the infant to his/her current level of development when the infant has become satiated with the previewing exercise.

Infants at-established risk: According to Tjossem (1976) the established risk category includes infants who have chromosomal abnormalities and neurological or structural problems which result in the development of observable disorders, such as cerebral palsy and sensory impairments.

Limitations

A limitation of the proposed research is the small number of parent-infant dyads to be studied. Further, the possibility of experimenter bias exists as all data were collected by a single investigator. Additionally, the results of this
study can be generalized only to infants and parents with characteristics matching those of the infant-parent dyads included in the sample groups.

Summary

Over the past two decades, the focus of infant assessment has broadened from a predominant concentration on cognitive and motor development to include new emphasis on infant social and interactional status. While there is a plenitude of empirical evidence that supports the notion of infant assessment within the context of their familial and sociocultural system, little of this information has been translated into clinical practice. Thus there exists a great need to bridge research and practice in order to develop clinically useful assessment tools. Through better understanding the attitudes and behaviors displayed by parents of at-risk infants, assessment results can be translated into useful intervention program data that will address salient social and communicative issues within the infant-parent dyad.

The present study focuses upon the assessment of parental attitudes and perceptions surrounding language development, and the types of interactional styles parents use with their infants. Infant developmental status was examined in order to explore the relationship between child competence and parental interactive performance. Measures used in the study will provide practitioners with new ways of observing and conceptualizing parent-infant interaction.
CHAPTER II
REVIEW OF THE LITERATURE

The purpose of the present study was to examine a variety of behavioral and attitudinal characteristics exhibited by parents during social interactions with both developmentally at-risk and normally developing infants. The primary focus of the investigation is on parent-child interactions, and given that the dyad is considered to be the building block of sociability (Feinman and Lewis, 1991), there is great need for these types of investigations. Because infants depend upon their adult partners to support their emerging communicative bids, this investigation explore the role of both parent and child in the interactional process.

Parent-child interaction has received significant consideration in the literature, although little of the empirical data has been translated into clinically applicable assessment and intervention strategies. Much of the current research supports the notion that valid assessment and treatment designs need to analyze the behaviors of both children and the adults significant to their lives. However, dyadic assessment procedures as they relate to the interactive and communicative skills of young preverbal children and their adult caregivers have been left virtually unexplored.

The growing recognition that handicapped children are best served when interventive services are provided early in life (Shonkoff & Hauser-Cram,
has spurred interest in a variety of infant and adult assessment procedures that can be used to diagnose and develop treatment strategies. The following sections present an examination of the theoretical underpinnings and clinical strategies employed in the assessment of infants. Relevant to this study are the bodies of literature which describe the roots of infant assessment, recent developments underlying the paradigmatic shifts in infant assessment, the inherently social nature of parent-child interactions, the interactional strategies and behavioral styles employed by adults within the context of infant-focused interactions, and the literature examining the practice of adult previewing. Each will be reviewed here for discussion. Information will also be presented on the impact of parental perceptions, attitudes, and beliefs about early social communicative development and their role in that process.

Social interaction and the making of meaning:

Theoretical perspectives

Since the early 1960's an increasing amount of attention has been given by both researchers and early intervention practitioners to the importance of comprehensive infant assessment. This move toward systematic observation during the first two years of life has allowed researchers to study the nature-nurture controversy, describe core developmental processes, and examine how development is affected by variations in early experience. This intense interest in early development has also sparked a greater appreciation of the kinds of environments that foster or impede development and the degree to
which the development of specific competencies is robust to variations in environmental experience.

Infants enter the world with a formidable faculty to interact with others and engage in social exchanges. Their early emerging abilities and capacities for interaction are enhanced by the means through which the environment responds to their early social-communicative bids (Bruner, 1983; Garvey, 1977; Stern, 1977). Though there is a consensus among researchers that the emergence of socialization is a common phenomenon in children, there is great disparity in the ideas of how this process occurs (Miller, 1989).

Considerable theorizing about the nature of communicative development has been presented in the literature during the past two decades (Sameroff & Chandler, 1975; Bruner, 1978; Bronfenbrenner, 1979). Recent attention has been focused on the extent to which communicative processes are learned rather than innate, because it is assumed that abilities that are learned are sensitive to, and therefore potentially affected by, environmental manipulations (McCormick & Schiefelbusch, 1990). Therefore it is essential to address theoretical and empirical contributions of four critical schools of developmental thought: behaviorism, the cognitive science perspective, social-interactional perspectives of development, and the sociocultural views of infant development.

**Behavioral Theories of Development**

When considering the cognitive science debate in child development, it is critical to recognize that interest in the determinants of competence in young children is a relatively recent phenomenon. Cataloguing of early
achievements and methods of childhood assessment were not thoroughly explored until the early decades of the 20th century (Shonkoff & Meisels, 1990). One dominant figure in the emerging field of child developmental evaluation was Arnold Gesell. Gesell (1925, 1929) was a strong advocate of the primacy of biologically determined maturation. His maturational perspective of development ignored the relative impact of experience on the emerging child, rather focusing on the role played by genetic and physiological determinants. As this theory of human development was linear in nature, its conceptual legacy encouraged clinicians and other professionals servicing special needs children to predict long-term outcomes based on the rate of acquisition of specific developmental milestones in early infancy. Because development was viewed as a strictly biological process, the possibility of altering developmental outcome through early intervention was seen as futile (Hanson & Lynch, 1989).

The influence of the maturationist view of development was countered by concepts of behaviorism (Skinner, 1953; Watson, 1928). Behaviorists proposed that in the absence of significant brain damage, developmental outcomes in children were controlled largely by environmental forces (Shonkoff & Meisels, 1990). Behavioral theorists advocated the tenets of operant conditioning, classical conditioning, and environmental manipulation, with a strong emphasis on the importance of observable phenomena within the emerging child's environment. The behavioral concept can be summarized as a system emphasizing rewards and punishments: reward desirable behavior and punish undesirable acts. Through the observation of manipulable behaviors, the focus is directed
toward what is presently contributing to the child's behavior/problem, and on what can be done to change the behavior (Morris, 1985).

The Cognitive Science Perspective

During the 1950's and 1960's many researchers began to acknowledge that the distinctions between biological and social explanations for developmental outcomes were arbitrary, ambiguous and incomplete. It was during this period of conceptual change that Piaget (1962) introduced the concept of cognitive revolution. This notion recognized that biological and social factors in development mutually influence one another. Goldberg (1982) noted "Unless capacities for behavior are inherited, a behavior can never occur. But......the actual occurrence of behavior depends upon appropriate experience" (pp. 35-36). It was the recognition of this reciprocal relationship that existed between nature and nurture that laid the foundation for many of today's popular paradigms of intervention.

According to Corsaro (1984), one view of the socialization process of young children is as a passive internalization of adult skills and knowledge. This perspective, which is behavioral in nature, proposes that learning occurs as the result of the environment shaping an individual born with an innate general learning potential (Lindfors, 1987). Theorists adhering to this perspective propose that the child, who is relegated to a passive role, must be positively reinforced if desired behaviors are hoped to recur. Positive reinforcement is employed only for progressively more adult-like behaviors, thus allowing the child to move steadily toward a more complex social and knowledge base. While the child is seen as a passive participant in learning,
this approach stresses the importance of the adult caregiver, whose behavioral models and contingent reinforcements are seen as critical in the developmental process (McCormick and Schiefelbusch, 1990). As Corsaro (1984) notes "(within the behaviorist's view of development) socialization is basically unilateral, with the child shaped and molded by adult caregivers" (p.52).

The Social Interactional Perspective of Development

With the recognition of the essential transactional nature of the developmental process and the powerful influence of the caregiving environment, the need for addressing these relationships within the assessment arena has become increasingly clear. Sameroff (1975) observed that while biological factors may play an initiating role in developmental problems, it was the caretaking environment that determined the ultimate outcome. The degree to which the quality of the caregiving environment was demonstrated to influence the effects of biological risk factors provided substantial support for the development of intervention strategies to modify that environment (Greenspan, 1990; Shonkoff & Meisels, 1990).

Corsaro (1984) proposed a view of child development that suggested the process was interactional in nature, and emphasized the active role played by the child in the construction of social worlds. Theorists adhering to this school of thought propose that the child is able to organize, interpret, and actively use information from the environment in establishing positive, reciprocal relationships within a given culture (Fey, 1986; Vygotsky, 1978; Wells, 1986). The acquisition of more adult-like skills and knowledge results
from an active negotiation between interactional partners (Bruner, 1984). It is suggested that children are able to draw information and experiential knowledge from a wide variety of mediational sources in the environment, but that information is always interpreted, organized, and acted upon from the child's perspective (Corsaro, 1984; Gergen, 1985). The more effective children are at making use of environmental and personal resources during times of significant development, the more competent they are viewed as being (Waters & Stroufe, 1983).

Social interactional perspectives of development are highly diverse in nature, ranging from those that support specific adult goal directed behavior (Fey, 1986), to those that emphasize the importance of the child's place in the social network (Bronfenbrenner, 1979; Vygotsky, 1978; Wells, 1981; Wells, 1986). The diversity in the interpretation of this particular perspective leaves a definition of "social interaction" in a fairly nebulous state, and open to much variation in research application.

In general, social interactional theories of development direct their focus to how social competence emerges mainly from experience in interpersonal relationships (Bronfenbrenner, 1979; Hartup, 1989; Ingleby, 1986; Peck, 1989; Spangler, 1990; Trevarthen, 1979; Vygotsky, 1978). This paradigm supports the notion that what happens between social partners in interactional settings is perhaps the most critical factor in the development of social-communicative competence (Garvey, 1977; Hartup 1986; Lewis, 1984). It has been proposed that enduring social relationships are perhaps the cornerstone of development in childhood, and that the child's effectiveness of dealing with the world emerges directly from these early relationships (Cook-Gumperz,
Hartup (1989) further suggests that early relationships between parent (most typically the mother) and child set the stage for later social competence and interactive success.

Social interactionists argue that social development is basically a transformation of the mother (or more interactionally sophisticated partner) and child relationships into all other relationships (Lewis, 1987; Wertsch, 1979). It is thought that characteristics or features of the child or the interaction of the significant other and child, will provide a continuity from one interactional setting to the next (Cook-Gumperz, 1979). These characteristics or traits, in interaction with new experiences, are perceived as determining the social development outcome. Consequently, it has been suggested that early parent-child attachment has a significant impact on later social competence, therefore making the two-person exchange the primary unit of study (MacDonald and Parke, 1984).

One of the most all encompassing social interactional viewpoints of early development is presented by Bronfenbrenner (1979). He reported that human development can only be understood through the examination of multiperson systems of interaction that are not limited to a single setting and must take into account aspects of the environment beyond the immediate setting. Bronfenbrenner viewed the developing child as a dynamic entity that progressively moves into and restructures the environment or culture in which it lives. The environment is viewed as influential in the growth process, and is seen as accommodating the changing needs of the developing
person. This interaction between person and environment is viewed as a reciprocal exchange that is not bound by situational constraints (Lewis, 1987).

Although Bronfenbrenner's theoretical framework stresses the importance of social interactions between settings and social communicative competence, his primary focus is on the establishment and maintenance of the interactional dyad (Peck, 1989). A dyad is formed whenever two people pay attention to or participate in each other's activities, and is considered to be the most critical context for development. Bronfenbrenner (1979) identifies three different functional forms that a dyad may take: an observational dyad; a joint activity dyad; and a primary dyad. According to his theory of development, the impact of each dyad type increases as a "...direct function of the level of reciprocity, mutuality of feeling, and a gradual shift in the balance of power in favor of the developing person" (p. 59).

Another critical tenet of the social interactional perspective of development is that of ecological validity (Bronfenbrenner, 1979). The notion of ecological validity refers to the fact that subjects must be viewed in a situation that is similar to their natural environment in terms of the objects and activities provided for the interaction. While this still allows for observation of children outside of their naturally occurring culture, it is a vast improvement over a more traditional strange situation analysis of parent-child interaction (Main & Weston, 1981).

Vygotsky (1978) also proposed a more interactionally-based view of child socialization. He maintained that children not only act on their environments, but also participate in social worlds (Van der Veer & van IJzendoorn, 1985; Wertsch, 1979). To conceptualize the dynamic regulation
that takes place between developing children and their social environment, Vygotsky (1978) described the concept of the "Zone Of Proximal Development" (ZPD). Vygotsky defined the zone of proximal development as the distance between the actual developmental level of the child and that child's potential developmental level. Actual development was seen as the status of the child's cognitive and affective functioning based on already completed developmental cycles (Trad, 1992). The level of potential development was determined through problem solving under adult guidance or in collaboration with more capable peers (McCormick and Schiefelbusch, 1990). Therefore, the zone of proximal development may be thought of as defining functions or skills that have not yet matured but are in the process of maturation. Consequently, the interactional role of the more socially or cognitively adept partner may be defined as filling in the gap between the emerging child's' actual and potential development.

A Social Constructive Perspective of Development

With its theoretical roots drawn from an anthropological and sociological framework, the socio-cultural view of socialization presents a comprehensive and wholistic notion of social development. Socio-culturalists propose that people produce culture as they interact, thereby creating new roles for themselves within the context of each interactional setting they enter (Zarharlick & Green, 1990). Theorists operating from this perspective tend to look across time and contexts in an attempt to see and understand the infant's evolution of culture and subsequent understanding of the world.
By addressing the wider social world in which the context of interaction is explored, socioculturalists are able to appreciate the social history and cultural dynamics operating within specific interactional exchanges (Fernie, Kantor, Scott, Schwartz, Kesner, & Klein 1990). In recognizing the embeddedness of the child and his or her discourse within a variety of social systems, and by discovering the links between the various social worlds and interactive networks of childhood, it is possible to discover how meaning is made out of social constructions at work in the child's environment (Green & Wallat, 1981).

The notion of a socio-cultural model of development proposes that the basis of social behavior and development is found in the structure of the social system itself (Lewis, 1987). The roots of social development are thought to be found in the ongoing social structure of the system or culture that the emerging child experiences. Therefore, when the system or culture is altered or changed, the behaviors and relational patterns of the child will also change. The child's place and cumulative experience in the social network, rather than in a specific dyadic relationship, provides the framework for all social relationships (Corsaro, 1984).

The importance of peer interaction is central to the socio-cultural perspective of socialization. It is suggested that there is a facilitative effect of peer experience on very young children's abilities to combine discrete social behaviors into integrated interactions (Brownell, 1986). Through the ongoing observation of peer culture events, these behaviors can be viewed as meaningful exchanges within the context of the immediate social interaction. Research has shown that even young preschool children are sensitive to
subtle shifts in the behavioral and socialization demands of different contexts (Wallat & Green, 1979). This suggests that observations of children's social exchanges must go beyond the surface similarities/dissimilarities of exchanges, and look at the child's understanding of the rights and social demands of the situations (Florio & Shultz, 1979).

**Adult Interactional Styles**

During the early months of life, most adult caregivers finely tune their actions and sounds to what their infant is doing (Brazelton & Tronick, 1980; Bruner, 1983; Field, 1984; Kaye & Charney, 1980; Stern, 1985). Research has found that certain styles of adult interaction seem better to facilitate communication development in infants and other preconversational children. Various researchers have identified such adult characteristics as balance (Girolometto, 1988), behavioral and cognitive match (MacDonald & Gillette, 1988; MacDonald, 1989; Vygotsky, 1986), sensitive responsiveness and nondirectiveness (Mahoney, 1988), and emotional attachment (Brazelton & Cramer, 1990; Greenspan & Greenspan, 1985; Stern, 1985) as elements that comprise a style of interaction that is particularly productive with developing children.

The first two years of life is a time of rapid growth and change in terms of how children perceive, interpret, and interact with their environment. Historically, many researchers postulated that the infant entered the world as a "blank slate" and that the environment created the child's abilities and competencies. John Locke (1632-1704) proposed that children were born void
of thoughts and ideas. This view implies that the end product of child rearing (the child's total personality) is a product of his/her own effort, the efforts of the caregiver, and the impact of the immediate environment. However, more and more researchers have begun to realize the innate potential the infant has for social/communicative competence (Brazelton & Tronnick, 1980; Brazelton & Cramer, 1990; Newson, 1979; Burner, 1984; Trevarthen, 1979; Stern, 1977; Greenspan & Greenspan, 1985). Stern (1977) reports that by six months of age the infant has already established a basic repertoire for social exchanges. The infant knows how to invite and initiate social interactions, how to maintain and modulate the flow of these exchanges, and finally how to terminate or avoid social contact. Therefore the question arises as to what processes occur in children's early environment that allow them to become such effective communicators so early.

Trevarthen (1979) notes that establishing the process of communication in infants and young children is largely the responsibility of the primary caregiver, and requires that he/she be attentive to potentially communicative gestures and vocalizations that the infant produces. By synchronizing adult activity to infant capabilities, an interactional pattern of alternating reciprocal acts is established. Since most infants will spontaneously initiate interactions by looks or gestures, the role of the caregiver is essentially to follow the child's lead, take turns in a reciprocal manner, and to allow the infant to discover the predictable structure of early communicative exchanges.

Snow (1984) discusses the importance of early communicative exchanges, by noting that it is only through interaction with other people that the infant is able to receive feedback about the effectiveness of his/her communicative
and social behaviors. By having a caregiver imply meaning to various physiological states and actions, the infant is provided with the opportunity of learning early cause-effect relationships.

The importance of early social/communicative relationships is also discussed by Bronfenbrenner (1979). He notes that development must be viewed as a series of nested structures, with the infant and his/her immediate environment at the innermost layer. It is the establishment of this critical dyad that drives social communicative development in other social interactions. Bronfenbrenner defines the dyad as a two-person structure, in which the participants are observing and participating in each other's activities. The dyad, which is the most critical of all relationships, serves as the building block for future social communicative exchanges in a broader forum. Bronfenbrenner proposes three types of dyads as occurring in the parent/child interaction: the observational dyad, in which partners attend to and share a mutual focus of attention on the same activity; the joint activity dyad, in which both members participate in the same or complementary activities (this involves reciprocity, emotional attachment, and a balance of power); and finally the primary dyad, in which the partners continue to influence each other even when they are apart.

With these theoretical perspectives in mind, it is logical that the assessment of infants, toddlers, and their adult caregivers has been established based on the ideas of ecological validity, reciprocal interactions, emotional attachment, balance of power, and the active role of both parent and infant in the learning process (Mahoney & Powell, 1988; MacDonald & Gillette, 1988; Dunst & Trivette, 1987). These principles of interactive assessment typically
focus on a variety of adult principles and child competencies that encompass a wide range of both adult and child interactional abilities.

**Balance of Power**

According to Bruner (1975), Bronfenbrenner (1979), Kaye (1982), and MacDonald (1989), children need to be involved in balanced, reciprocal partnerships early in life in order to develop social and communicative abilities that will form the basis for later language learning. Bronfenbrenner (1979) identifies the critical nature played by joint activity pairs within the confines of the adult/child dyad. A joint activity pair occurs when both adult and child perceive themselves as doing something together. There are three critical elements that must be present in any joint activity dyad. First, each partner should be allowed to influence the other, which will lead to a sense of mutual feedback or interactional reciprocity. Second, a balance of power should be achieved within the dyad when the more developed partner gives increasing opportunities to the emerging partner to exercise control of the exchange (Goldberg, 1982; MacDonald, 1989; Mahoney, 1988; Vygotsky, 1978). Finally, both partners should reinforce one another by means of their social contact alone. It is this sense of affective attachment that perpetuates the social contact from which children learn.

As adult caregivers learn the interactive styles and patterns exhibited by the young children with whom they regularly interact, they begin to synchronize their own behavior to that of the child. They learn to time their responses and bids for attention on ways that maximize their effects on the developing child. These exchanges are the beginnings of mutually gratifying
social exchanges between adults and children, and will eventually lead to the development of a more traditional system of communication. Adult interactional style is a pivotal factor in child change, and adults learn gradually to add more complex physical, cognitive, and communicative information to each behavior that the child exhibits. By using movements, sounds, gestures, and words that correspond closely with those that the young child is currently making, an adult is allowed to enter the child's world, therefore providing a clear incentive for the child to reach into the interactive world of the adult.

**Interactive Match**

Matching, which refers to the more developed partner in the pair acting in ways that the less developed person can perform, and in ways that relate meaningfully to that person's immediate experiences (MacDonald, 1989), is a critical aspect in the development of social and communicative competence. Progressive matching, also identified by MacDonald as being integral to the successful development of communicative abilities, is the habit of interacting sensitively with children in ways that both ensure them social success and show them a next or novel developmental step.

There is substantial empirical evidence suggesting that adults often act and communicate in ways that far exceed the interactional, communicative, physical, and cognitive skills of the preconversational child (Garvey, 1984; Greenspan & Greenspan, 1985; Kaye, 1982; Mahoney, 1988). Brazelton (1990) notes that the success of an interactional exchange between adult and child hinges on the behavioral symmetry between the two. This symmetry
depends upon the ability of the adult to change to fit his/her communications to the abilities and interests of the child. When adults interact with children with thoughts, words, and actions that do not meaningfully relate to their immediate experiences or motivations (Snow, 1984), a situation is created in which the child is placed in a communicatively passive role (Lieven, 1984; MacDonald & Gillette, 1988; Mahoney, 1988). Further evidence of mismatching is found in adult communication to children with developmental delays, which is often less meaningfully related to the child's speech, motivations, or actions, than is adult communication to non-delayed children (Cross, 1978; Ellis & Wells, 1980; Girolometto, 1988). Thus, whether adults provide models beyond the child's reach or communicate outside of the child's experience, matching is a global strategy for assisting learning in naturally occurring events.

It is critical that the interactional system between adult and child be viewed as a reciprocal one, in which both members of the dyad are responsible for observing and adjusting personal behavior or behavioral expectations to the other member (Brazelton, 1988). In order to establish successful social communicative exchanges, adult and child behaviors must be mutually shaped, with each becoming more competent at influencing the other's behavior (Barnard & Carol, 1990). Mahoney (1988), in a study that examined the interactional styles of 60 mothers and their children with developmental delays, concluded that matching does relate to greater interaction and learning on the part of the child. He identified four factors that will increase the likelihood that children will participate successfully in social interactions. First, the interactional style adopted by the adult must be
compatible with the child's interests and interactional abilities. Second, to engage the child the focus of the interaction will be in keeping with the child's current interests. Third, the complexity of the adult's behavior should not exceed the child's capacity to process information. Fourth, the difficulty of the activity should not exceed the child's current level of competence.

Thus the recent literature in child development strongly suggests that an indispensable feature of adult interactional styles with young children is matching. There is significant cross-discipline support for matching as defined by acting and communicating in ways that the child is able to do.

Sensitive Responsiveness

A third interactive principle proposed in the developmental literature is sensitive responsiveness. According to Newson (1979), Stern (1985), Trevarthen (1979), and Goldberg (1977), learning proceeds in the most efficient manner when it is focused on the child's current knowledge and experiences rather than on the adult's goals and agenda. Sensitive responsiveness therefore refers to how effectively adults respond to the small and subtle behaviors that are the child's developmental steps (MacDonald, 1989). This type of contingent responding across all levels of social and communicative development requires that adults respond to primitive interactional bids made by the child (Goldberg, 1977), respond to emerging nonverbal communications (Bates, 1976; Sugarman, 1984), respond to the child's experiences and ideas about the world (Snow, 1984), and finally respond to the child's language and conversational topics (Cross, 1985).
Adult sensitive responding has become a central theme of a wide variety of scholarly approaches to early education and child development. According to MacDonald (1989) one unifying feature of many recent approaches to social and communicative development is that learning proceeds best when it is focused on the child's current knowledge and experiences rather than on the adults' agenda or choices of goals. This growing awareness of children as competent in generating their own directions for learning encourages adult partners to take more the role of sensitive responders, who are finely tuned to the current capacities and performance motivations of the children with whom they interact (Newson, 1979; Stern, 1977).

Mahoney (1988), in a study of 60 1 - 3 year old mentally handicapped children and their mothers, attempted to investigate the relationship between the manner in which the mother spoke to their children and the children's rate of language development. He found that maternal language could be characterized in one of three different styles when communicating with their children: mothers that were communicatively responsive to their children; mothers that communicated with their children using a very didactic or instructional style; and mothers who were unable to engage their children in effective communicative exchanges. Examination of the mother-child pairs revealed that children who had achieved the highest levels of communicative functioning had mothers who were responsive to their communication, while children at the intermediate and lowest levels of communicative functioning had mothers who were didactic and ineffective communicators.
By increasing their responsiveness to children's emerging communicative abilities, Mahoney (1988) proposes that "....adult partners may be influencing four factors that affect children's motivation to attain higher levels of communicative competence" (p.218). First, by interacting with partners who are responsive to child-initiated activities, children may develop a sense of interactional control that will influence later language learning. Second, as adult partners focus on and elaborate child initiated topics, children may expand their current areas of social and interactional interest. Third, adult acceptance of child-initiated activities and behaviors may lead to a greater sense of self-esteem for the child. Fourth, decreases in the rate of adult directiveness may increase the likelihood that children's actions during an exchange will be satisfactory and successful, which will lead to the greater possibility of future social interactions.

Child-Based Nondirectiveness

Bandura's (1977) social learning theory states that learning occurs through integrating four processes: motivation, attention, retention, and reproduction. This theory of learning suggests that adults who provide motivating social models, show the child what to do, then allow the child time to perform, have provided an environment where conditions for learning are optimal.

Mahoney, Finger, and Powell (1986) investigated the influence of parent interaction style on child development competence in young developmentally delayed children. In a study of 60, 1-3 year old mentally handicapped children, they looked at the relationship between child
performance on the mental scale of the Bayley Scales of Infant Development (Bayley, 1969) and three dimensions of maternal interaction style: 1) the degree to which the mother was child oriented and enjoyed interacting with the child; 2) the amount of stimulation the mother provided for the child; and 3) the degree of maternal control. The study revealed that maternal interaction style accounted for a significant portion of the difference in the children's current level of development. Mothers who rated high in child-orientation and enjoyment, and low in amount of control had children with the highest levels of developmental competence.

Mahoney et al. (1986) also offers evidence of the influence of maternal style on child development. They found that mothers may differ in their use of action requests depending upon whether the child is typically developing or mentally handicapped. In their study comparing mothers of typically developing and Down syndrome children, they noted that mothers of Down syndrome children use four times as many requests as mothers of normal children. These same mothers also used nine times as many requests for difficult actions. An integration of this comparative study with the findings reviewed above suggest that while it is least beneficial to the child's developmental competence to use a controlling style, this is the style mothers of handicapped children may more frequently adopt.

The tendency for parents of young, handicapped children to direct and control their behavior, may foster the development of outer-directed behavior in problem solving situations that has been identified in older mentally handicapped children by Zigler (1971). His research has shown that in general, mentally handicapped children are less likely to choose to
undertake a difficult problem than are their nonhandicapped peers. They also show lower self-esteem and tend to look outward more than trusting their own internally generated solutions.

These investigations suggest a mother can have considerable influence on a child's cognitive skill by providing motivating models of behaviors within the child's ability to perform. Time for the child to experiment with the behavior also appears essential. A directive style which substitutes adult verbal and physical direction for child initiated behavior may impede a child's motivation to learn through self-initiated behavior.

**Emotional Attachment**

Attachment patterns between infants and their adult caregivers have long been of enormous interest for researchers examining how young children learn to relate to others and subsequently organize emotional experiences based on the feedback they receive from early interactional partners. Much of the current attachment research has been guided by the notion that in order to fully understand infant behavior, the relationship between child and adult caregiver must be explored. By examining critical attachments formed in early life, researchers are provided with entree to the child's inner working models of self, others, and relationships (Stroufe, 1988).

It is through this understanding of how children form attachments in early life, that researchers are allowed to see the dynamic and socially sensitive nature of adult-child interactions (Eastbrooks, 1989; Greenspan & Greenspan, 1985; Lewis, 1987; Lewis & Feiring, 1989).
The importance of emotionally attached relationships between adult caregivers and young children has received renewed attention in the literature over the course of the past twenty years. Tronick (1989), Greenspan and Greenspan (1985), Stern (1985), Klein (1987) Lewis and Rosenblum (1977), and Kaye (1980) have all addressed the importance of the active social presence of adult caregivers in the early stages of infant and toddler development.

Goldberg (1977) challenged the traditional notion that infants were competent only in the developmental arenas of perceptual and cognitive skills. She asserted that infants must also be considered as active and competent contributors to their developing social relationships with adult caregivers. Goldberg defined the socially competent infant as one who is instrumental in establishing social conditions that are supportive of early development. She suggested that infants are preadapted to attend selectively to the social behaviors of others, and that in return they are able to elicit attention successfully from people in their environment. It is through this reciprocity of exchange in the early years of life that infants and their adult interactional partners develop a sense of mutual efficacy. This effective elicitation of environmental attention that infants and their adult partners to form a habit of interaction in which both experience ongoing success with each other.

Bowlby (1988) defines attachment as "....any form of behavior that results in a person attaining or maintaining proximity to some other clearly identified individual who is conceived as better able to cope with the world." (p. 26-27). It is through the formation of these attachment relationships that
children learn how to become habitual social interactors. According to MacDonald (1989), a strong attachment with an interactive partner is likely to result in "...greater interactive practice, deeper learning, and greater motivation for the child to engage in other social contacts as a way of life" (pp.27).

**Infant Developmental Competencies**

The importance of social-communicative competence within the first few years of life has become a central issue in current literature of child development. Child behaviors, parent behaviors, reciprocal influences (Stern, 1985; Bates, 1987), and various other intrinsic and extrinsic factors (Kaye, 1982) support the developmental process during the first two years of life (Bruner, 1984). Because the child/caregiver relationship is a dynamic one, consisting of many mutually interactive subsystems (Bronfenbrenner, 1979), it is important to investigate factors which either enhance or retard social communicative competence. Although it is impossible to determine which behaviors exhibited by either the caregiver or the developing child have the most profound effect on the developmental process, it is important to consider how certain behaviors may be contributing to the success or failure of the relationship.

The behavioral repertoires exhibited by both the child and caregiver within the interactional dyad are critical for understanding how communication and conversational skills function within the social relationship (Bruner, 1977; Girolometto, 1988; MacDonald & Gillette, 1988;
MacDonald, 1989). Within the first six months of life, an infant emerges as a social human being (Stern, 1977). He or she will have learned how to initiate interactions with adults in the immediate environment, how to maintain and modulate the flow of social exchange, and finally how to signal the termination of an interpersonal encounter. By employing basic signals and conventions the infant will learn to engage in simple social interactions. When the infant's parents respond reciprocally to these primitive actions, the infant begins to realize that he/she is able to influence responses from others (Greenspan & Greenspan, 1985), and that these sounds/actions can be used to maintain a back and forth exchange with an adult (Siegel-Causey et al., 1987).

MacDonald (1989) identifies the reciprocal elements of active child participation and adult interaction style that are reflected in five developmental competencies. These include: partnership in play; turntaking; nonverbal communication; language; and conversation. The following section addresses each of the five competencies in terms of how the parent and child mutually influence each other as they develop together in these areas.

Social Play

The first of the developmental competencies proposed by MacDonald, (1989) is social play. As adults and children become partners in social play, their interactions are characterized by mutual behaviors and attitudes that enhance the development of social relationships. This mutuality includes active participation by both interactional partners, joint activities that are balanced, and matched, shared decisions about the activities.
In social play activities, both the adult and child engage in a habit of joint activity routines. These routines allow the child to become more emotionally attached to the adult in a context that gives the child increasingly greater control and success (MacDonald, 1989; Bronfenbrenner, 1979; Stern, 1977). As children learn that staying with people is rewarding (MacDonald, 1989), they have more opportunities for learning social communication skills. MacDonald and Gillette (1987) assert that children will progress socially and communicatively to the extent that they stay in interactions that support these skills.

Children appear to be motivated to stay in interactions where they have a sense of control and experience social-communicative success (Bronfenbrenner, 1979; Mahoney, 1988). When adults act as balanced and matched play partners during joint activities, children tend to have more opportunities to lead the direction of play, and therefore to demonstrate more of their knowledge (MacDonald, 1989; MacDonald & Gillette, 1987).

**Turntaking**

The second principle of communicative success is based on the premise of interactional turntaking. When an adult and preconversational child develop a turntaking partnership, they must establish a back and forth exchange in which each person both initiates and responds meaningfully to the other person's social-communicative bids. This mutual give and take style is critical for the development of communication.

Turntaking underlies all levels of communicative interactions. Infants and their primary caregivers demonstrate habitual turntaking during the
infant's first months of life (Stern 1977; Brazelton & Cramer, 1990). Early turntaking involves a reciprocal, regulated interaction (Girolometto, 1988) in which each partner responds to and is affected by the other (MacDonald, 1989). However, many communicatively delayed children do not exhibit this skill. Research has shown that they rarely initiate social contacts with their caregivers, nor do they encourage their caretakers to sustain interactions (MacDonald, 1989).

Nonverbal Communication

A third tenet of communication development is recognizing the importance of nonverbal and early verbal communicative attempts. A communication partnership between an adult and child is characterized by a balanced, back and forth exchange of vocal or gestural messages. Two maxims are critical in a communication partnership: first, it must be recognized that any behavior can communicate; and second, children communicate long before they can speak and their nonverbal messages are vital to language learning (MacDonald, 1989).

Communicative exchanges serve several purposes in the adult/child dyad. Not only must the partners communicate for instrumental purposes, but they must also be sensitive to the social encounters. In these exchanges the preconversational child learns that his/her actions and sounds can influence and become communicative to sensitive adult caregivers. Playful, balanced interactions provide a foundation for the emergence of language (MacDonald, 1989).
The adult role in helping children to develop a habit of communicating is vital. By fine-tuning their communicative behaviors to match the child's, they are shaping the child's behavior towards a more mature communicative style (MacDonald, 1989; MacDonald & Gillette, 1986; MacDonald & Gillette, 1985). MacDonald and Gillette (1986) assert that "if adults realize that every new action has the potential for becoming a communication, they may become increasingly responsive in ways that translate the child's actions into communications" (pp. 259).

Language

The next step in social and communicative development is the attainment of a reciprocal language learning partnership between adult and child. When the adult and child become language partners they interact with words, phrases and sentences to communicate about shared ideas or interests. The partners are mutually focused as they share matched vocabulary and grammatical forms. They also share the lead in developing topics. MacDonald (1989) defines this type of interactional language as "...a system in which the child develops symbols for communicating from his own knowledge, meanings, communicative intentions, and motivations, aided by others whose language is matched to the child's capabilities, interests, and communications" (pp. 41-42).

Language partnerships evolve from play, turntaking and communicative partnerships. The adult and child continue to engage in regular give and take interactions, now using language. Through language partnerships children can put their experiences and meanings into words and topics. Thus,
children can show what they know, communicate with people, and continue to build social and interactive relationships (Cross, 1985; MacDonald, 1989; Snow, 1984). When adults use words that are matched and responsive to the child's experiences, ideas, and knowledge, the child is likely to be motivated to talk about something that interests him/her and thus stay longer in verbal exchanges (Lund & Duchan, 1988; MacDonald & Gillette, 1987; Snow, 1984; Wells, 1981).

Adults who match their vocabulary and grammar to the child's current level of understanding provide the child with a usable, relevant language model (Bruner, 1978; Lund & Duchan, 1988; Snow, 1984). Finally, when adults and children share the lead in topic initiation, each partner may develop a mutual sensitivity to the other's topics and learn more from each other (Lund & Duchan, 1988).

**Conversation**

The final stage of communication development is conversation. When an adult and child are conversation partners, they actively participate in habitual verbal dialogues. Both partners give and take as they share the lead in topic initiation and contribute to topic maintenance. They converse for more social reasons and less to control or to express wants and needs. Conversation may be defined in part by three broad reasons why children and adults communicate: to manipulate or have immediate needs met (instrumental); to establish a social relationship or connection with another person (social); or for self-stimulative or noninteractional purposes (self-directed) (Halliday, 1975; Piaget, 1952).
In a conversational partnership a child learns how to be a desirable conversational partner for others (MacDonald, 1989; MacDonald & Gillette, 1987). Conversational competence is an indispensable tool that the child will use to develop relationships with people, thus increasing opportunities to learn (MacDonald, 1989).

Adults can help children to become skilled conversational partners by modeling a conversation style of responsiveness, balanced turntaking, and social communication. There seems to be a positive effect on the child's conversational abilities when adults are responsive to their utterances (Kaye & Charney, 1981). Children can practice the basic skill of turntaking in conversations with adults who share the lead in topic initiation and topic development (Foster, 1985; Girolometto, 1988; Haslett, 1983; MacDonald & Gillette, 1987). Finally, adults who communicate with children for primarily social reasons increase the likelihood that the child will talk more and stay with them. A child is likely to experience success in conversations where there is little pressure to perform and there is a wide range of response options (MacDonald, 1989). Most importantly, "social reasons to communicate are the basic tools of enduring conversation" (MacDonald & Gillette, 1987, p. 8).

This body of literature reflects the notion that parents and children influence each other reciprocally as they develop together. Moreover, the interaction style of the adults can facilitate or impede on the child's responsiveness and consequent opportunities to acquire interaction and communication competencies. The literature also suggests that children with delays and their parents are more likely to establish negative styles of
interaction that interfere with partnership development across each of the stages of communicative competence.

**Individual Differences in Infant Development**

The importance of infant individuality in early social, communicative, and cognitive development has become a central issue in current literature of individual developmental differences. Child behaviors, parent behaviors, reciprocal influences (Stern, 1985; Bates, 1987), and various other intrinsic and extrinsic factors (Kaye, 1982) play an important role in the developmental process during the first 2 years of life.

With these developmental premises in mind, it becomes essential to consider the behavioral repertoires of both the infant and caregiver within their interactional dyad. Within the first six months of life, infants emerge as social human beings (Stern, 1977). They will have learned how to initiate interactions with adults in the immediate environment, how to maintain and modulate the flow of social exchange, and finally how to signal the termination of an interpersonal encounter. Infants learn to engage in simple social interactions by employing basic signals and conventions. The success of these interactions is dependent largely on the ability of the adult caregiver to interpret these primitive acts as meaningful communicative bids, and respond in appropriate ways. The ability to respond in a meaningful manner rests upon the extent to which the adult is able to match his/her abilities to those of the developing infant. The behavioral and emotional state of the
infant may also have important influences on the caregiver-infant interaction.

Given the dynamic nature of the interactional process between the adult and infant, the question of how the parameters of this relationship influence individual developmental preferences or patterns must be considered. It is the purpose of this section to explore the relationship between infant temperament development, and individual differences in early language acquisition. As parental behaviors and individual personality types are assumed to play an integral role in this developmental process, the influence of parental match dependent upon the interactional style and developmental preference of the child will also be examined.

The Developmental Process

The first year of a child's life is a time of rapid, dramatic, and clearly observable change. During this period, not only do significant physical changes occur, but numerous other traits and characteristics emerge which emphasize the uniqueness and individuality of each infant.

Immediately from birth, infants become partners in shaping their first and foremost relationships with their adult caregivers. Equipped with primitive social tools such as gaze, facial expressions, and body movement (Stern, 1977), the infant is able to establish communicative patterns, and emotional exchanges during social interactions with his/her immediate environment. These exchanges are what begin to shape the infant's earliest perceptions of the social world and his/her role within it. They aid in the establishment of interactional boundaries in which the developing infant is encouraged to
explore interpersonal exchanges from a variety of developmental perspectives. Two critical areas which begin to emerge during this period are early communicative abilities and temperament.

**Temperament**

Freud (1917) emphasized the importance of social experiences during infancy in shaping the development of temperament (used interchangeably with the term personality). He noted that as temperament development progressed through the oral and anal stages during infancy, "harsh or permissive treatment may result in later personality problems" (p. 35). Since the time Freud formulated this concept of temperament/personality development, there have been many challenges to and refinements of it by numerous other authors in the field (Rogers, 1961; Eriksen, 1963; Maslow, 1970; Skinner, 1971; Thomas and Chess, 1977). Currently there are two popular senses in which temperament is defined: constitution or biological characteristics inherent in the child, or in the sense of observable behavioral patterns. Formal definitions of the term temperament, which encompass both premises, refer to "more or less stable internal factors that make a person's behavior consistent from one time to another, and different from the behavior other people would manifest in comparable situations" (Snow, 1989, p. 48). Personality is therefore viewed as the sum total of the internal qualities and enduring patterns of behavior that allow the infant or toddler to bring unique social contributions to the world (Bates, 1987; Kagan, 1987; Snow, 1989).
During the first year of life infants are involved in an ongoing process of individuation that will contribute to their later identity as an autonomous person (Snow, 1989). According to Snow, one of the major components of personality that emerges during the infancy period is the self-concept, or sense of self. Stern (1985) describes four different senses of self that emerge during the first two years of life: (a) Emergent Self (0-2 months). Integration of diverse activities such as sensorimotor perceptions, memories, and other cognitive functions; (b) Core Self (2-6 months). Discovery of self as a different agent who has distinct experiences and a separate history from others in the environment; (c) Subjective Self (7-15 months). Discovery that others can and will share the infants' feelings; and (d) Verbal Self (15 months+). Infants notice differences and make comparisons between the self and others on various dimensions such as age, size, and gender.

Stern continues by asserting that the senses of self are not successive phases that replace one another, but rather remain fully intact and active throughout life in a coexistent state. While their initial phase of formation constitutes a sensitive period of development, maturation of the infants' observable capacities will result in a refinement in the organization of subjective perspectives about the self, others, and subsequent social experience. These perceptions, which are dynamic in nature, result from the sum and integration of experience across all developmental and interactional domains. Stern states that an infant's personality is shaped more by everyday interactions with adult caregivers than by dramatic life events or developmental stages.
The most widely quoted temperament writers, Thomas and Chess (1984), define temperament as stylistic qualities of personality, consistent patterns in how actions are performed. They emphasize temperament as early appearing, constitutionally rooted behavioral tendencies. It is further recognized that temperament is likely to affect personality outcomes only by affecting the social relationships that produce personality.

Thomas and Chess (1984) found that three basic temperamental patterns of behavior could be identified soon after birth. These categories were identified as: the Easy Child; the Difficult Child; and the Slow-to-Warm-Up Child. While Thomas and Chess found that the infants in their study could all be placed in one of the three groups on the basis of some basic temperamental characteristics, they note these categories by no means infer that temperament classification is a static process. It was discovered that most infants in the study displayed a wide range of behavioral styles that lie between the two extremes of easy and difficult, and did not fit neatly into a particular category.

Perhaps even more importantly than their identification of temperamental patterns of behavior, Thomas and Chess (1977) developed a list of nine components or specific dimensions along which aspects of temperament can be identified. These nine components are approach versus withdrawal from new experiences, eventual adaptation to change, positivity versus negativity of moods, intensity of emotional reactions, rhythmicity of biological functioning, persistence in the face of environmental counterforces, distractibility, activity level, and threshold of stimulation necessary for a response.
In keeping with Stern's perception of the developing sense of self, Thomas and Chess (1977) report that there is a significant environmental influence on biologically predetermined temperament traits. Behavior patterns can show a certain degree of instability over time in response to powerful social interactions, and still be seen as temperament. While the basic temperament traits of an infant remain essentially constant, behavioral expression can be expected to vary according to interactional expectations and specific genetic predispositions.

While the biological processes that are believed to underlie temperament cannot be ignored, a more pressing concern is the role of temperament as a socially relevant processes. How does this process influence early parent/child interactions, the formation of attachment security, and cognitive development? Most importantly, what effects does it have on the dynamics of the language learning process? If temperament does help to shape both attachment and continuing interactions with the social environment, what effect do individual temperament differences have on the type and/or quality of early language input? Temperament is an important thread in weaving a tapestry of early development. During the early months of life temperament measures have shown some systematic correlations with measures of social adaptation, which bears a direct influence on the development of a meaningful system of communication.

Language

Language development, according to Bates, O'Connell & Shore (1987), is a process that begins in infancy, and depends crucially on skills from a variety
of domains, including perception, cognition, motor development, and socialization. It is an interactive system of exchanging standardized symbols, such as words or signs, that are commonly accepted as meaningful within the constraints of a social communicative system (MacDonald, 1989). For adults, language represents a communicative link with a developing child and is used as a key to open the door to the child's inner world. Communication is at the center of the relationship between an adult and child.

Snow (1989) identified three major theories that encompass the traditional views of how human language is acquired. At one extreme lies the empiricist or behavioral theory (Skinner, 1957). According to this position, language is simply the product of experience. Skinner proposed that language, like other behaviors, can be explained as conditioned responses, with imitative abilities playing a key role in language acquisition. While this behaviorist theory has been embraced in the past, a major criticism of it is its failure to explain the creative use of language, the production and comprehension of novel utterance, and the rapid rate of language development during infancy.

The opposite point of view or theoretical consideration is found in what Snow (1989) refers to as a rationalist or nativist theory, which claims that language is controlled by biology. One of the leading early proponents of nativism is Chomsky (1968), who proposed that human infants are equipped at birth with a Language Acquisition Device (LAD). This device reportedly allows babies to sort out the underlying rules and principles of their native language. The theory assumes that, because of specific biological predispositions, a certain universality of language development exists. It is proposed that patterns of language acquisition are relatively static from one
individual to another, and that developmental patterns are remarkably predictable and similar among humans. According to this theory children normally pass a sequence of milestones at about the same age, regardless of the language or cultural conditions. It is also assumed that progress in language development during the early years is synchronized with progress in motor development. Thus the two functions appear to be controlled by the maturation of the central nervous system.

The third theory of language acquisition, which Snow (1989) refers to as "occupying the middle ground", is the cognitive development position. According to this theory, language development grows out of intellectual development, which is controlled by both environment and experience. During this stage the symbolic aspects of language begin to take on meaning for the developing infant. Piaget (1952) proposes that language development is rooted in the cognitive development that occurs during the sensorimotor period, the first two years of life. It is essential that the infant develop a strong sense of self as a distinct person separate from other objects and people and understand the concept of object permanence before the meaningful use of language will emerge.

Not all cognitive developmental theorists agree with Piaget's view that thought precedes language development. Vygotsky (1986) believes that language and thought develop at the same time, and eventually become interdependent. He reports that during infancy language and thought are considered as developing along parallel lines as they are both related to the same underlying cognitive abilities. At approximately twenty-four months of age, these two processes merge as the toddler acquires the capacity to
understand the symbolic meanings of words. Thus Vygotsky concludes that language begins to facilitate thought, and the two processes become interdependent.

While the three above-mentioned theories provide an interesting perspective on traditional views of the process through which language development occurs, they neglect to consider the influence of individuality on language acquisition. Many factors have the potential to impact the developmental process. Parental expectations and personality styles, birth rank, genetic influences, temperament differences, environmental constraints, language learning environment, cognitive abilities, and the degree of "match" (Stern, 1985; Bates, 1987; MacDonald, 1989) between parent and infant during social communicative interactions can all impact on the pattern preference in early language acquisition.

Emergent themes in current literature (Nelson, 1973; Peters, 1977; Benedict, 1979; Bates, Benigni, Bretherton, Camaioni & Volterra, 1979; Bretherton, McNew, Snyder, & Bates, 1983) emphasize the premise that clearly definable universal patterns of language acquisition have not been documented. Contrary to the assumptions of previous theorists, variability is maximal during these inherently prelinguistic or at least pregrammatical stages of development. Further, it appears that the individual styles exhibited during this period are maintained to a certain degree in the grammaticazation phase. While differences in the rate of development have always been expected, the idea that children differ in the types of early word combinations that they use, and in the ways they process adult utterances is relatively novel. Bates et al. (1988) challenged the assumptions of universality that had
been long held by child language researchers. It was noted that while certain quantitative differences could still be assumed, a qualitative universality could not be maintained even at the stage of first word combinations.

**Individual Differences in Development**

Infants come into the world bringing with them formidable capabilities to establish human relatedness. Each newborn differs in the ways in which he/she establishes these interpersonal bonds, and great attention has been paid to these differences and the possible implications they may have on later development. As researchers note these differences, the question is raised as to what they mean about the child. Are these differences in the infant's initial approach to the social/interactional world cues for differing response patterns by their adult caregivers? Does the kind of language input or attachment relationship provided in the first few months of life shape the infant's style of later verbal interaction or alter temperament/personality development? The following sections are aimed at the understanding of the role of obvious, early individual variations in specific behaviors.

**Language Differences**

In the field of child language development burgeoning evidence of the past 20 years supports the concept of individual differences in language development throughout the course of life (Nelson, 1973, 1981; Peters, 1977; Benedict, 1981; Bretherton et al., 1983; Bates, 1988; and McCabe, 1989). This focus on variation raises theoretical and conceptual difficulties for those individuals who would like to continue to view language as an insular
system that unfolds in a universal and orderly fashion. This now large body of research concerning individual differences not only supports differences in the rate of language acquisition at the single word stage, but also in regard to the styles preferred by young language learners. According to Nelson (1981), a growing number of researchers now emphasize that "important individual differences do exist in both the process and the structure of acquisition and in the speech children produce during the major period of language development".

In a classic study which investigated the strategies used by language learning children in the acquisition of early vocabularies, Nelson (1973) noted that lexical development appeared to be a dynamic process where variation in learning style was the rule rather than the exception. The study disregarded the previous assumptions held by child language specialists that all children begin to learn language by focusing on the names of objects. In her study, Nelson found that rather than following predictable patterns of lexical development, young language-learning children tended to use differing language styles. The two learning styles identified by Nelson were referential and expressive. Children identified as having a referential language learning style were found to use a greater number of nouns than pronouns, acquire large vocabularies earlier in life, readily imitate object labels or name objects, use language for referential rather than pragmatic purposes, and their multiword utterances were found to be combinations of nominal forms. On the other hand, children labeled as expressive were found to use pronouns more frequently than nouns, used more prosodic babbling and formulaic phrases, imitated or spontaneously used object labels with less consistency,
and used language for more pragmatic or interpersonal functions. It is also important to note that expressive children were found to use more inflection and function words in their early utterances, and were more apt to attempt imitations of adult phrases.

Studies which have attempted to duplicate/reinvestigate Nelson's (1973) findings (Nelson, 1981; Peters, 1977; Benedict, 1983; and McCabe, 1989) all concur that individual variation in language acquisition does exist, and that at least in part there are environmental correlates that support these differences. Which environmental conditions may influence language acquisition styles is not clear. Nelson (1981) suggested several alternate implications of individual differences in systems of child language acquisition. It was first suggested that individual variation may be a reflection of different rule systems being constructed by different language-learning children. Nelson also suggested that individual differences may be a reflection of different cognitive styles, which affect "performance variability, but not acquisition competence". A third possibility may be that individual language learning patterns are a reflection of alternative learning sequences or strategies, which may or may not be a function of temperament or cognitive style.

Factors Influencing Language Acquisition

While differences in acquisition of early lexical items have been well documented, little has been done to determine what factors influence these differences. Two popular assumptions that attempt to explain individual variations in language learning styles are environmental influences and
individual cognitive development. Furrow and Nelson (1983) emphasize the individual make-up of each child (biological/genetic). Bloom, Lightbrown, & Hood (1975) presented this explanation to account for individual variation in language acquisition:

"although [linguistic variation] may be environmentally conditioned to the extent that it reflects differences in parent interaction styles, it is more likely that variation in child speech is a function of individual cognitive development in interaction with different aspects of the linguistic code." (pp. 75)

Bates et al. (1979) suggested a three-factor theory of symbolic language development that could be explained both by the developmental history of each individual (ontogenetically) and/or the culture in which they were raised (phylogenetically). These factors included two cognitive functions and one communicative function. The two cognitive functions were labeled as analytic and gestalt.

Analytic processing, which is related to a means-ends analysis and use of language as well as use of specific language tools (Bates, Bretherton, & Snyder, 1988), is perhaps the more traditionally held belief about the language acquisition process. Gestalt language (Peters, 1977) has the characteristic of being wholistically produced without attention to the internal structures of the language forms. This type of language processing tactic appears to be aimed at the use of whole phrases or sentences in a contextually appropriate manner, rather than single words. According to Bates (1979), the third factor involved in the development of symbolic language is communicative intent. Bates suggested that it is only when these three factors or components become
integrated that language emerges. She concluded by stating that "individual differences may result when there is an asymmetric development in the different components".

In an attempt to examine both style and strategy differences, Peters (1980) identified four factors that may influence language acquisition: individual make-up of children (including temperament and cognitive styles); type of language input (caregiver/ significant other's language preferences); type of speech expected in the environment (stylistic expectations); and individual perceptions of speech functions (dependent upon whether caregiver speech models are expressive or referential).

Parity or birth rank has also been found to carry some influence over the individuality of language acquisition (Nelson, 1981; Furrow and Nelson, 1984). Research of this phenomena found that caregivers tended to use more gestalt or expressive language patterns with later born children, than with first or early born children. Gestalts or expressive patterns were characterized by being "wholistically produced without pauses between words, with reduced phonemic articulation, and with the effect of slurred or mumbled speech but with a clear intonation pattern enabling the listener to construct the target utterance in context" (Nelson, 1981; pp. 174). According to Nelson, these early acquisition patterns may be a reflection of the fact that younger siblings tend to hear language that is more pragmatic and expressive-centered around the activities they are actively engaged in. The use of this type of language pattern by caregivers is in sharp contrast with the referential or analytic styles typically used with a first-born in the process of acquiring early language.
Brown, Plomin, & DeFries (1981), in a study that investigated the separate effects of heredity and environment on differences in the rate of communicative development of 50 adopted, 1-year old children, found that maternal behavior related significantly to the communicative performance of the adopted infant. They reported that substantial variations existed among versions of "motherese" produced by parents and often older siblings of these children. Important characteristics of parental behavior such as discourse characteristics, verbal fluency, lexical preference, frequency of modeling particular grammatical and lexical forms, and parental language teaching behaviors were all thought to influence language development. While genetic considerations cannot be ignored, Brown et al., in the same article, report that "to conclude genetic influences preclude the additional sensitivity of some aspect of language to environmental influence is both unwarranted and misleading" (p. 706).

Nelson (1973) reported environmental structure and parental selection strategies as central to the issue of influence upon lexical development in young children. Environmental characteristics examined by Nelson which were positively associated with early language acquisition included experiences outside of the home, varied social environment, gender, patterns of interaction, verbal environment (form, content, and use of parental language), time spent in social situations versus passive interactions, and parental language in relation to child language (interests).

In the same study Nelson noted that perhaps the most influential of the factors was that of parental language style. She reported a significant relationship between maternal noun/pronoun ratio and that of the child.
This suggests that there is a certain degree of consistency between the language the child is exposed to and the language preferences learned. Context dictates the language learned within a particular social interaction. Each interaction not only dictates the function and content of the language but also which salient aspects will be learned first. Reconstruction of language to fit the developing system will also be dependent upon the social framework within which it is learned.

The acquisition of early language is a complex task, and it has been shown that different children approach the mastery of this system in different ways, by focusing on novel ways to combine various aspects of the language system. Individual differences displayed in the language acquisition process reflect the interaction of a complex system which includes the characteristics of the child and the characteristics of the learning context (Nelson, 1981).

**Temperament**

**Temperament Differences**

Infants begin to experience an emergent sense of emotional self from birth (Stern, 1985). They are predesigned to be selectively responsive to external social events and learn to be aware of self-organizing processes. By monitoring the processes through which they are able to engage adults in their immediate environments, and how those contact patterns are maintained or repeated, infants are given a first clue in how their behavior can affect the world around them. Social infants, or those who actively engage in interpersonal exchanges with the world, are more likely to be rewarded with a higher degree of positive emotional feedback, than are those
who tend to be more passive and withdrawn. Infants and toddlers who are perceived as being temperamentally difficult, are hypothesized as being at an elevated risk for later childhood behavior problems (Bates et al., 1979).

The origins of infant temperament have been explored from many perspectives throughout the years (Freud, 1917; Rogers, 1961; Eriksen, 1963; Maslow, 1970; Skinner, 1971; Thomas and Chess, 1977). Numerous researchers have attempted to determine the extent to which an infant's temperament is inherited or environmentally controlled. On the basis of available research, the genetic contribution is still uncertain (Snow, 1989), although some evidence suggests the possibility of a rather strong genetic influence on some specific aspects of temperament. Traits that appear to be inherited include shyness, emotionality, activity level, and attention span (Kagan, 1987). There are also indications that genetic influences on temperament become more evident as the infant grows a little older (Snow, 1989).

As it is impossible to identify early appearing, stable, biologically rooted personality traits that make a difference in the social environment, researchers must address the question of the role played by the early social environment of the infant. Many environmental factors have been found to either enhance or retard the development of infant temperament, and other subsequent areas of competence. Perhaps the most consistent correlates of infant and toddler emotional competence have been variables pertaining to maternal warmth and responsiveness (Bates et al., 1982; Pettit and Bates, 1984). This finding will be discussed in the following section.
Factors influencing the Development of Temperament

The emotional or temperamental state of the infant is thought to have important influences on the mother-infant interaction (Osofsky and Danzger, 1974). According to Osofsky and Danzger, there is only a limited body of research in this area; however, it is reported that age, gender, social class, and emotional factors all affect the caregiver-infant relationship. The relationship is also affected by the parity or birth rank of the child. The process of shaping the emerging temperament qualities of the young infant rests heavily on the interactive relationship between the infant and his/her primary caregivers. Research has found that there are consistent relationships between general and specific patterns of caregiver stimulation and infant behavior in corresponding areas (Osofsky and Danzger, 1974; Bates et al., 1982; Stern, 1985; Snow, 1989).

An infant's temperamental characteristics obviously have a significant impact upon interactions with caregivers and significant others in his/her environment. Difficult infants/toddlers are likely to evoke more negative social responses than those who are perceived as being calmer or more easy-going. The child who is personable and socially gregarious is likely to obtain more positive responses than a passive, shy one. The temperament and expectations of primary caregivers must also be taken into consideration in this process.

The way the temperament of the infant matches the caregiving style of the parents or significant others greatly influences the socialization process (Stern, 1985). This is referred to as the goodness of fit between child and caregiver (Snow, 1989). The more closely adult behaviors match the
temperamental style of the developing child, the better the quality of the social interactions will be. This is supported by findings from Osofsky and Danzger (1974), which indicate that attentive, sensitive mothers tend to have responsive babies. Conversely, it could also be said that responsive babies tend to enhance the attentive, sensitive behaviors exhibited by the mothers. The possibility of a mutually affective interactional relationship cannot be ignored.

In studies of the child's earliest social environment, the most important social construct has been maternal warmth and responsiveness (Bates et al., 1982; Pettit and Bates, 1984). The mother-infant relationship is thought of as being a dynamic, transactional system in which the mother, infant, and their social environment all contribute to the system's characteristics and its developmental products. The central issue evolving from the mother(caregiver)-infant relationship is naturally the role it plays in the development of social and cognitive competencies and personality traits.

Pettit and Bates (1984) found that two categories or classes of maternal characteristics can be identified as producing predictable effects on infant behavior. The first class, identified as routine, noninvolved, physical needs caregiving, did not produce subsequent competence in infant social interactive behavior, or responsiveness to parental vocalizations. The second maternal behavioral class, responsiveness and socially involved purposeful play/educational stimulation, was correlated with subsequent child competence in social exchanges. These factors, coupled with the temperamental difficulty of the infant, were found to play significant roles
in the development of individual differences in the mother-infant relationship.

The Caregiver-Infant Relationship

In both the areas of language acquisition and temperament development, the role of the primary caregiver is integral to the success of the infant toddler. While mothers are typically found to be the strongest elicitors of these attachment behaviors in infants (Cohen and Campos, 1974), relationships with various significant others are important to the overall developmental success. An infant cannot exist alone, but is essentially part of a relationship. Every infant exhibits pronounced individual differences from the moment of birth, and it is essential that a "fit" between the baby's individuality and the caregiver's capacity to nurture and teach be established (Brazelton and Cramer, 1990). The importance of individual differences to the parent-child relationship must not be underestimated. These differences will affect both the way an infant will participate in early interaction, and the way caregivers will respond.

Under ideal conditions both intrinsic and extrinsic factors influence the future development of the infant (Kaye, 1982). The experience of the infant or toddler with both of these sources adds to a developing sense of competence within the parameters of language and temperament. As the developing child receives feedback from the environment, these influences, in conjunction with an internal representation of the world, serve as precursors of emotional and later cognitive representations of competence, and subsequently contribute to the infant's developing ego (Brazelton, 1981).
When there is a "goodness of fit" (Snow, 1989) between caregiver and infant behaviors (be it language or temperament), each new act or competency has many rewards for both partners. Genetic endowment, however, determines the kinds of intrinsic and extrinsic feedback systems that are available. When either system is deficient (Brazelton and Cramer, 1990), the infant's control over affective and cognitive states can be impaired. If an infant is unresponsive to linguistic or emotional stimuli, or has a low threshold for the intake of stimuli, competence will not be achieved in that area. Further, if the environment is inappropriately responsive to the developing child, emotional or communicative interactions will not be rewarding. When interactional failure is consistent, the child may fail to develop in critical ways. However, when a rhythmic, coherent interactional configuration is established between caregiver and child, both partners are able to introduce the mutable elements of communicative and temperament development.

The influence of the parent-child relationship in both the development of communication and the definition of temperamental traits is striking. A child's first exposure to the world consists simply of whatever his/her primary caregiver does with his/her face, voice, body, and hands. The ongoing and ever-changing flow of the caregiver's acts provides for the developing child an emerging experience with the content of human communication and behavioral relatedness. These early experiences will eventually translate into the individual developmental preferences of the child, influenced by the social context in which they were learned.
Relation of Temperament and Language Development

A great deal of attention has been paid to both the individuation of the language acquisition process and the development/emergence of temperament in infants and toddlers. Most sources tend to agree that the internal make-up of each child has a significant bearing on individual expression of both of these socially relevant processes. Researchers recognize that the infant enters the world armed with an array of innately determined perceptual predilections, motor patterns, cognitive tendencies, and abilities for emotional expressiveness. The infant is not a blank slate, waiting for the world to shape or define his/her sense of self, but is rather a being with extraordinarily unique human social capabilities.

Yet the question still remains, how does the language acquisition process and temperamental repertoire combine to transform the infant from a dependent being to an autonomous individual? The common thread that appears to connect the issues of individuation between temperament and language, is the role played by the caregiver in the developmental process. While the biological predispositions of each child will have a bearing on interpersonal relationships, it is the behavior patterns of their caregivers that will function to extend the infant’s interactive network.

What has been referred to as the Goodness of Fit (Snow, 1989), or the Social/Communicative Match (Stern, 1977; MacDonald, 1989) is perhaps the single most important characteristic in the early child/caregiver relationship. The more closely adult interaction and behavioral styles match those of the developing child, the better the social interaction will be. The better this interaction is, the more competent the infant will become. The more
emotionally and linguistically competent the infant becomes, the more likely he/she will be to engage in a variety of social exchanges within the environment. It is these exchanges that will ultimately enhance the child's sense of self, or sense of relatedness within the social world.

Children tend to learn from predominant influences in their environments. Their learning experiences may be colored by their biological or individual cognitive strategies, but it ultimately appears to be their interactions with the world that shape their perceptions about social issues. There is a reported consistency between the interpersonal experiences a child is exposed to and the interactional styles he/she learns along this dimension.

The Theory and Practice of Previewing

The ability of adult caregivers to interpret infant behaviors, and to use these interpretations to acquaint the emerging child with upcoming developmental trends, may be referred to as the concept of previewing. In addition, previewing also allows adults to understand how young children predict and master developmental changes, and how they acclimate to continually maturing relationships with their significant interactional partners (Trad, 1992). It is through this process of anticipating upcoming changes in infant and toddler skills, that caregivers are allowed to validate current and future developmental achievements for their children.

With these tenets in mind, Trad (1992, 1990) defines previewing as ".... a self-perpetuating dyadic process during which the caregiver represents imminent developmental trends and translates these representations into
behavioral exchanges that introduce the infant to both the experience of what a future developmental change will be like and to the implications such changes will have on his relationship with the caregiver" (p. 14). Trad suggests that it is through the caregiver's ability to provide continuous contingent experiences relevant to the child's current developmental status, that the infant or toddler learns to adapt to and acquire new skills. Therefore the caregiver may be thought of an auxiliary supporter who facilitates the emerging child's experimentation with the interpersonal aspects of upcoming developmental events.

Inherent to the success of previewing activities is the ability of the adult caregiver to perceive precursory behaviors displayed by the child, then interpret and act upon these behaviors in such a way that will facilitate the developmental progress. It is this adaptability within the adult-child dyad that orients both partners toward impending and future developmental changes. Thoman and Browder (1987) suggest that it is only when adults learn to respond to and anticipate the natural rhythms of children's interactional styles that they are able to attune themselves to the child's imminent development needs.

**Previewing and Communication Development**

Language development serves as an ideal forum for tracing the importance and influence of adult previewing behaviors. From the moment of birth through the attainment of a mature language system, children rely on adults to stimulate and shape future developmental acquisitions. Empirical and clinical evidence gathered from observing dyadic interactions suggests
that the behaviors of adult caregivers have significant influence on the developmental destiny of the infant or toddler (MacDonald, 1989; Stern, 1977; Trevarthen, 1979).

During the first two years of life children gather a myriad of skills that enable them to communicate effectively with the world around them. As early as the first days of life, infants have been reported as physically responding in precise and sustained fashions that appear to be synchronous with the structure articulated in adult speech (Condon & Sander, 1974). Condon and Sander argue that this early synchrony between adult speech and infant body movement may stem from the fact that speech stimulates early representational skills, a key prerequisite for predicting interactional patterns with the caregiver.

Within the first months of life it is apparent that infants are armed with a variety of "social tools" (Stern 1977; 1990) that permit them to engage in sustained interactions with those in their immediate world. Through such behaviors as gaze patterns, vocalizations, and facial expressions infants learn how to initiate contact with others, maintain and modulate the flow of an exchange, and terminate interpersonal contacts. It is these basic signals and conventions that are the groundwork for all later interpersonal exchanges (Field, 1990; Garvey, 1984).

In addition to gaining insight into the interpersonal skills required for communicative success, children move rapidly through a host of linguistic changes during their early years of life. From being able to distinguish between different sounds (Bloom & Lo, 1990), to showing a preference for maternal vocalizations (Cohn & Tronick, 1987; Tronick & Cohn, 1989), and
finally to begin imitating sounds and gestures in a purposeful manner (Bates et. al., 1988), the first year of life offers a predictable sequence of behaviors that gradually lead to a more formalized language system. By the end of the first year of life children begin connecting consonant-and-vowel like strings of sounds in babbled sequences that appear to form precursory words (Bates et. al., 1988).

The next steps in linguistic development include the child's ability to recognize that specific words or sounds represent specific objects or people (Bates, et. al., 1988; Bruner, 1983; Garvey, 1984). From this concrete representation of the world, children then move toward an understanding that others are individuals with representational abilities separate from the child's (Stern, 1985). Finally, children acquire the ability to communicate and think in a symbolic and adult-like manner (Wells, 1981; 1986).

Through this brief overview of developmental attainment of language skills, the gradual sophistication of the child's representational and predictive abilities is apparent. Trad (1992; 1990) proposes that previewing fuels this developmental process by allowing the child to organize external stimuli and then appropriately anticipate the implications of social interactions.

In addition to the developmental capacities of the child during the first few years of life, the caregiver's role in encouraging predictive behaviors is crucial. Through dyadic interaction, adults encourage children to predict communicative events by providing adequate and appropriate stimulation within concrete interactional contexts (Bromwich, Khokha, Burge, Baxter, Kass, & Fust, 1981; Bruner, 1983; Stern, 1990). Trad (1990) proposes that when adult behaviors manifest representational and predictive qualities during
vocal exchanges with the child, they reinforce the child's abilities to represent and predict the social world they live in.

The idea of child-elicited social behaviors has been widely addressed in the developmental literature during the past two decades (Brazelton & Cramer, 1990; Newson, 1979; Trevarthen, 1979). Stern (1977) proposed that adult caregivers, especially mothers, behave in significantly different ways when interacting with their infants, than when interacting with other adults or more linguistically competent children. According to Stern, infant-elicited social behaviors have three distinctive characteristics that separate them from all other social behaviors. First, they are exaggerated in space and the extent of their display is maximal. Second, their performance is exaggerated in time and typically marked by a slow formation and an elongated duration. Finally, infant-elicited social behaviors are typically limited to a few selected expressions that are performed often and in a repetitive manner. These characteristics are reflected in adult use of vocalizations, facial expressions, and interactional patterns.

Recent studies have suggested that adult perceptions of child competence can have a considerable impact on the social success of early interactions. Bloom & Lo (1990), in a study of adult perceptions of infant vocalizations, examined the responses of 60 university undergraduate students to videotaped segments of vocal interactions between 24, three-month old infants and a female caregiver. The investigators proposed that observer perceptions of infant competence would be related to how well the infant and adult interactional partner mutually affected and effected one another. Measures of competence were related to the type of vocalization produced by
the infant, and how vocally responsive the infant was in turntaking exchanges with the adult interactional partner.

The study revealed a significant correlation between adult perceptions of infant competence and perceived infant attractiveness. Adults were found to prefer infants who produced syllabic sounds and were judged to be more easily engaged in turntaking activities. Furthermore, contributions of both the adult partner and the infant were judged as being critical to the overall success of the exchange.

**Previewing as an Assessment Paradigm**

Many factors influence the perception of infant competence during the process of assessing developmental status. However, it is the pattern of interaction between caregiver and infant that becomes the centerpiece of assessment for several reasons. First, observation of infant behavior during interaction with the caregiver provides a primary route for attaining insight into the infant's interactive perspective (Trad, 1992). Second, the dyadic interaction most accurately depicts trends in the strategies or skills used by both the caregiver and the infant to adapt to maturational changes (Bronfenbrenner, 1978; Goldberg, 1977). Third, behavioral patterns that emerge between infant and parent, provide researchers with observable information relating to the social relationship that is established within the dyad (MacDonald & Gillette, 1987; Trad, 1990).

Within the caregiver-infant dyad, social and interactional displays typically are manifested through facial expressions and vocalizations. According to Trad (1992), it is through the observation of the range of facial
and vocal displays that allows the observer to gain insight into the dyad's degree of developmental adaptability. It is by observing behaviors that serve as precursors to the development of a formal language system, that researchers may assess the developmental status of the infant as well as the skill of the caregiver in enhancing maturational changes.

Papousek and Papousek (1987) propose that adaptive caregiver-infant dyads display a high level of vocal cueing behaviors, where both caregiver and infant verbalize to exchange affective and cognitive messages. They suggest that during mutually reinforcing exchanges, the adaptive caregiver will typically modify the tone, pace, and frequency of his or her voice to enhance a positive mood during a vocal exchange with an infant. Caregivers whose behaviors are generally more maladaptive tend to rely less frequently on language during exchanges with their infants. As a result of a lack of vocal input, infants are not provided with the support they need for learning how to predict and master developmental changes (Moran, Krupka, Tutton, & Symons, 1987; Ross & Lollis, 1987; Trad, 1992).

Stevenson, Ver Hoeve, Roach, and Leavitt (1986), in a study of patterns of mother-infant vocal responsiveness, examined vocal characteristics displayed by both mothers and infants during social exchanges. Based on 30 minute observations of 25 mother-infant pairs (all infants were 4 months of age), the researchers counted the number of initiations and terminations of social contact made by both the mother and the infants. They concluded that infants were more likely to stay longer in bidirectional exchanges, if they were provided with visual attention, and vocal responses from their mothers.
In addition to observing specific behavioral characteristics, researchers need to also examine how the infant-caregiver dyad interacts when the previewing of imminent developmental change takes place (Trad, 1990). As has been explained, previewing refers to the caregiver's ability to represent upcoming developmental changes in the infant, assist the infant in rehearsing that skill, and then return the infant to the current developmental state at the close of rehearsal.

According to Bates (1980), and Sameroff (1980), maternal perceptions of infant competence may be more important than actual infant characteristics, because they are what ultimately influence maternal responses to the child. Given the potential importance of such perceptions, Power, Gershenhorn, and Stafford (1990), conducted two studies that examined maternal factors that may influence the development of perceptions of infant difficultness. During the first study, which was designed to explore some of the factors that contribute to maternal perceptions of difficultness, 58 mothers of 6-week-old infants responded to 10 open-ended questions, describing situations involving infant difficult behavior. Results of the study indicated that while mothers usually attributed infant difficultness to the situation or the infant's needs, occasionally they attributed it to their own behavior. They also found that mothers typically saw infant difficultness as the result of temporary discomfort rather than a personality or temperament trait. Finally, mothers frequently made attributions about the infant's desires and preferences based on infant difficultness.

During the second stage of the Power, Gershenhorn, and Stafford (1990) study, 51 mothers were followed longitudinally from 6 weeks to 4 months
postpartum. This study had mothers respond to a series of questionnaires that related to infant difficultness. The instruments included the Infant Characteristics Questionnaire, the Schedule-Demand Inventory, and a revised version of the maternal attribution questionnaire developed using the results from Study 1. Mothers were asked to complete these instruments at 5 weeks postpartum, and then again at 4 months. Results indicated that maternal inflexibility predicted later perceptions of infant difficultness. Results also suggested that mothers who interpreted difficult behavior in terms of infant interest and preferences, often came to the conclusion that their infant was unpredictable. This, according to Power et al., could hold numerous developmental implications. First, it may increase infant frustration if mothers attribute infant difficultness to a stable factor beyond their control. On the other hand, Power et al. suggest that it "may reflect an early recognition of the child's developing personality, initiative, and autonomy, and may actually lead to greater maternal acceptance and tolerance" (p. 434).

During dyadic assessment, the combination of direct observation of infant-caregiver interaction and the systematic measurement of caregiver perceptions and attitudes concerning infant development is critical for a variety of reasons. First, such information can provide new and ongoing insights into both infant behavior and the development of the dyadic relationship. Second, the information obtained can alert researchers, and early intervention specialists, to potential areas of conflict in the interactional dyad. According to Trad (1992), "as caregivers describe their perceptions (of the infant), researchers will be better able to understand how belief systems,
attitudes, and perceptions have insinuated themselves into the dyadic interaction." (p.p. 98).

**The Changing Face of Early Intervention:**

**The Role of Assessment**

The powerful influence of parents' attitudes and behaviors on the development of their infants is now widely acknowledged and has been underscored by recent research on parent/infant interaction (Stern 1977; Bullowa, 1979; Kaye, 1982; Stern, 1985). When mutually pleasurable interactions between parents and infants begin early, a chain reaction is set off that leads to a sense of parental competence and at the same time to optimal social communicative development in the infant. By achieving a mutually satisfying, sensitive, and responsive interaction with their infants, parents can create an environment in which their babies are able to develop to their fullest potential (Bromwich et al., 1981). Because the parent-child relationship is a dynamic one, consisting of many mutually interactive subsystems, it is important to develop a complete understanding of the role played by each partner in the dyad. It is recognized that the infants' early interactions with the social and physical environment are critical in the attainment of communicative competence (Holdgrafer & Dunst, 1986). The role assumed by the parent plays an equally influential role during this period of development.

Given what early developmental specialists have discovered about the interactive nature of early communicative development (Bromwich et al., 1981; Mahoney, 1988; Odom, Yoder, & Hill, 1988; MacDonald, 1989; Brazelton
the thrust of early intervention programs and assessment methods should be on describing and developing the quality and quantity of social interactions between infants and their parents. It is essential that professionals working with parents and their children recognize that the focus of early assessment must be on the process of human development and the formation of the most stimulative environment in which a child can grow (Bromwich et al., 1981).

Based on the information gathered by a host of early assessment and intervention specialists (Bromwich et al., 1981; Dunst et al., 1987; Mahoney, 1988; Berkeley & Ludlow, 1989; MacDonald, 1989), certain tenets of evaluative practices may be assumed. These ideas include: 1) parents of children at developmental risk must be provided with appropriate educational support in order to facilitate the communicative growth of their infants and toddlers; 2) Natural interactions are the source of communicative learning for infants and toddlers, and therefore communication must be assessed in the arena in which these natural interactions occur.

The concept of early assessment and intervention has undergone a tremendous transformation during the past two decades. Traditionally the goals of most early intervention programs were either to prevent or ameliorate an anticipated or existing deficiency among a target population of children (Bricker, Bailey, & Bruder, 1984). The efficacy of these programs has been primarily gauged using child progress as the principal means of program effectiveness (Dunst & Rheingrover, 1981). Bronfenbrenner (1979) noted that the focus on child outcomes as the principal index of program efficiency resulted in an ecologically restricted view of early intervention.
With the advent of P.L. 99-457 in 1986 (Brown, 1990), early assessment and intervention programs have increasingly focused on the patterns of interactions between parents and their at-risk infants or young children (Mahoney & Powell, 1988). The centerpiece of this law is its focus on family involvement, and the integral role played by the primary caregivers in the developmental process. Dunst (1985) notes that this law ".....not only provides the educational / developmental framework for services, but also acknowledges that successful assessment and intervention will require a meaningful parent-professional partnership" (p. 179). It is through this more socially based construct that broader-based measures of program effectiveness as well as more ecologically relevant outcome measures are suggested (Bronfenbrenner, 1979).

Theoretical arguments, empirical evidence, and societal needs have formed a strong rationale for intervening early in the lives of children identified at birth as being at-risk for later developmental delays. Hanson and Lynch (1989) consider four bases for this early intervention rationale: the importance of early environmental interactions; the prevention of secondary disabilities/effects; the needs of families of children who are disabled or at-risk; and benefits of early intervention to society. All play a critical role in the formation of an early intervention framework; however, the focus of this paper will tend to emphasize the first premise, that early environmental interactions play an integral role in the development of reciprocal and mutually gratifying parent/infant relationships.

With this conceptual framework in mind, early intervention can be defined as the provision of support to families of infants and young children
from members of formal and informal social support networks that effect both directly and indirectly parental, family, and child functioning (Dunst, 1985). Intervention should focus on the exchanges between the child, the settings in which she/he participates, and the significant individuals who interact with the child. The objective of treatment is not merely to change or improve the child, but to make the system work (Hobbs, 1975).

Relationships between parents and their young children have undergone critical re-examinations over the years, with increased emphasis being placed on the importance of the dynamic exchange which can occur between parent and infant (Dunst, 1985; Berkeley & Ludlow, 1989). Traditional early intervention programs have focused on child success, with the efficacy of intervention efforts gauged using indices of child change as the primary measure of success. However, recent research has led early intervention specialists to believe that intervention efforts must focus on the infant's caregivers in order to recognize the central importance of parents for the well-being and development of the infant (Seitz & Provence, 1990). Ultimately, early intervention must now attempt to reflect a transition of new knowledge about the process of human development into the formation of the best kind of environment in which a child can grow (Shonkoff & Meisels, 1990).

As a result of the quest for empirically supported paradigms of early intervention, a myriad of service models have been proposed by early intervention specialists (Dunst, 1985; Mahoney & Powell, 1988; Warren and Kaiser, 1988; Berkeley & Ludlow, 1989; MacDonald, 1989). While each model addresses the unique needs of the population it serves, Odom et al. (1988) noted that infant/parent intervention programs can be identified in general
terms according to the purpose of services provided. One general purpose of some early intervention programs is the prevention of eventual developmental delays. Common elements of these types of interventions are that they (a) occur before a handicap has been diagnosed and/or (b) are initiated before the infant is born or goes home from the hospital. Another purpose of some early intervention programs is to effect changes directly in behaviors, development, or relationships with primary caregivers. The rationale for these interventions is that these changes will lead to short-term improvement in infant's behaviors, skills or relationships, which may continue as the child grows older. A final purpose of early intervention programs suggested by Odom and his colleagues is to effect positive changes in the family system in order to create positive changes in the infant. By effectively assessing and then addressing the needs of the social system in which the infant is living and learning, family functioning may improve, and this may contribute to positive outcomes for the infant (Dunst et al., 1988).
CHAPTER III
METHODS AND DESIGN

The current literature in the field of early intervention supports the notion that there is a relationship between parental interaction style and child development outcome (Rosenberg, Robinson & Beckman, 1986). In spite of this recognition of the critical role played by the parent in the developmental process, there is an absence of sensitive measures that adequately identify parental variables that may either enhance or usurp the effectiveness of early intervention (Odom & Shuster, 1986). In the absence of procedures for assessing parental status, researchers have relied upon changes in child performance to measure the importance of family involvement in programs and have avoided the issue of directly assessing the interactional dyad and parental styles which may contribute to its ultimate success.

The present study examined the following factors and the relationship between these variables: developmental functioning of the infant, parental behavioral styles in play with their infant, parental knowledge and attitudes about communication development, and the reciprocal nature of infant-parent interaction. Infant risk status was considered in order to evaluate the relationship to infant’s behavior and parental perceptions of development. This chapter includes a description of the subjects used in the study, the
setting in which the observations will be conducted, the instrumentation, and the procedures of data collection and data analysis. A review of pilot project procedures is reported.

Subjects

Criteria.

The present study focused on two distinct groups of infants and their primary caregivers. One of the groups consisted of infants considered to be at established risk for later social-communicative delays. Infants considered to be at established risk for later developmental delays are described by Tjossem (1976) as those infants manifesting early appearing aberrant development related to diagnosed medical disorders. Infants included in this category are those who have chromosomal abnormalities (i.e., Down Syndrome) and neurological or structural problems which result in the development of observable disorders, such as cerebral palsy, cleft palate, and sensory impairments. The second group of infants included those identified as being typically developing, and who do not have histories of significant medical vulnerabilities.

The sample for this study included twelve infant-parent pairs. Six of the infants ranged in age from three to six months; the remaining six infants were nine to twelve months of age. The age groups were equally divided between infants considered to be at established developmental risk and infants judged as developmentally normal.

Criteria for infant selection for both the at-risk and normally developing children was as follows: (1) chronological age between three to six months and nine to twelve months; (2) no report of sustained behavioral difficulties;
(3) an expressive language age not greater than 15 months; (4) no previous experience with the Nisonger Center Parent - Child Communication Program (ECO Program). While it was not specified as to whether mothers or fathers were the parent participating in the study, it was requested that it be the parent considered to be the primary caregiver. Family demographics were not directly examined in the study; however, information on family configuration, ethnic background, and socioeconomic status was collected in order to add to the richness of the final case profiles (see Appendix F).

Subject Recruitment.

Subjects for the study were recruited in two ways. First, the investigator contacted local agencies that provide services for children in need of early intervention programming and their families. Agencies contacted by the investigator included the Franklin County Early Childhood Resource Network (ECRN), the Family and Child in Transition (F.A.C.T.) Clinic at the Nisonger Center, the Dayton Children's Hospital, and the Columbus Down Syndrome Association.

Subjects considered to be developmentally normal were recruited through referral. Parents were given flyers (Appendix A) which described the time and tasks required to participate in the study, and included the sign-up form. Families were also requested to distribute the flyers to other families they thought may be interested in participating in the research study. The investigator also contacted potential families by telephone in order to secure verbal agreement to participate in the study.
Selection Procedure.

The following procedure was adhered to in selecting the parent-child dyads to participate in the study. First, the investigator used expressive language age equivalents on the Rossetti Infant Toddler Language Scale (Rossetti, 1991) (See Appendix B) as the primary criterion for infant-selection. Children scoring three months below chronological age were considered as members of the risk categories whereas children scoring at or above chronological age were placed in the normally developing group. Second, medical records were reviewed when appropriate in order to determine specific risk categories and diagnostic labels.

Families meeting eligibility criteria were contacted by letter (see Appendix C) and a phone call to request their participation in the project, and briefly to inform them of the purpose of the study and the nature of the participation of their child and themselves. Parents were also sent a detailed written summary of the project and its purposes (see Appendix D), and their written consent to participate in the study was secured (see Appendix E).

Setting

The study consisted of one home visit for each of the twelve infant-parent pairs. Each interactive pair was videotaped in the living room of their home. During the videotaping televisions and radios were turned off. There were no other children, adults, or pets present in the room during the taping period.
**Instruments**

**The Rossetti Infant-Toddler Language Scale.** The Rossetti Infant-Toddler Language Scale, developed by Louis Rossetti (1990), is a criterion-referenced assessment that provides information about how children birth - thirty six months of age perform on various language-related tasks without reference or comparison to a normative group (see Appendix B). This tool, consisting of 93 items, was developed for use by Speech/Language clinicians to collect reliable samples of a child’s behavior on which to base conclusions about the child’s social-communicative development. The scale assesses preverbal and verbal areas of communication and interaction across six developmental areas: Interaction-Attachment, Pragmatics Development, Gestural Development, Play, Language Comprehension, and Language Expression.

The items presented on the Rossetti Infant-Toddler Language Scale are a compilation of author observation, descriptions from developmental hierarchies, and behaviors recognized and used by developmental specialists in the field of infant and toddler assessment. These items were selected as they were determined to reflect current information available about preverbal and verbal aspects of interaction and communication in young children (Rossetti, 1990). The items appearing on the scale were also determined by the author to be most representative of discrete developmental skills at critical stages of early development. Items are not included at each age range for each of the six developmental areas assessed by the scale; rather, they are included only when they are considered chronologically appropriate and developmentally discriminating.
The Rossetti Infant-Toddler Language Scale allows the examiner either to directly observe or elicit a behavior from a child or use the caregiver's report equally to credit the child's performance. Results reflect a developmental profile of the child's mastery of skills in each of the areas assessed at three months intervals from zero through thirty-six months.

**The ECO Adult Communication Evaluation (ECO-ACE):** The ECO Adult Communication Evaluation (ECO-ACE), an instrument developed by James D. MacDonald (1990), is designed to identify adult behaviors that contribute to the social-communicative effectiveness of adult/child interactions (see Appendix G). It is intended to serve as a comprehensive adult-focused assessment that provides information about adult interactional strengths and areas of need in social and communicative relationships with infants and other preconversational children. Adults are assessed across five areas of interactional style: balance, match, responsiveness, nondirectiveness, and emotional attachment.

Scoring of the ECO-ACE is based upon a five-point Likert type scale. The scoring scale is: 1 = never, 2 = seldom, 3 = occasionally, 4 = often, or 5 = consistently, with each judgment reflecting how often the rater observed specific scaled test items during parent-child interaction. Scores for each of the five domains addressed are then compiled to form a treatment plan profile that targets adult strategies for improving the quality of social and communicative interactions with young preconversational children.

Items for the ECO-ACE were initially drawn from a pool of approximately 200 items which were taken from the ECOScales (MacDonald, Gillette & Hutchinson, 1989), and developmental literature (Bronfenbrenner, 1979;
Bruner, 1983; Greenspan & Greenspan, 1985; Stern, 1977). The ECOScales were designed to allow observations of both productive and potentially problematic adult-child interactions. By drawing pertinent items from the ECOScales, the ECO-ACE provides a taxonomy of clinically observable behaviors that address interactive goals, child goals, adult strategies, and areas of potential interactive problems within the communicative dyads of preconversational children and their adult caregivers. While specific psychometric data is not available for the ECO-ACE, Appendix H presents an overview of the reliability and social validity data collected on the ECO Scales.

For the purpose of this investigation, reliability of the ECO-ACE was established during the pilot phase of the research study. Interrater agreement ratings with regard to the profile scores were calculated using a method developed by Rosenberg and Robinson (1985) for establishing agreement. In this method, each point of rater discrepancy on the 5 point Likert scale used to rate ECO-ACE items, was converted to a discrepancy of 20%. Thus, if one rater judged parent performance as 3 and another rater judged parent performance on the same item as a 4, the level of agreement between the two raters is said to be 80%.

The investigator and three additional raters, who were familiar with the ECO-ACE and considered to be typical users of the instrument, viewed a series of six 1-minute videotaped samples of parent-infant interaction. Three of the videotaped samples were taken from the pilot phase of the study and three from a bank of videotapes available through the Language Program at The Nisonger Center. Each rater viewed the sample tape twice, rated parent performance on the ECO-ACE items, and viewed the sample tape again to
allow revisions of the original rating. Comparison of the average scores for the four raters across all items of the ECO-ACE revealed an average agreement rating of 92.3%. Agreement ratings ranged from 82.4%, on the item "Responds to the child's interests", to 97.3% on the item "Follows the child's lead."

The ECO Social Communicative Survey: The ECO Social Communicative Survey (SCS) (see Appendix I) developed by James D. MacDonald (1989b), is an observation instrument which assesses the interactive competencies displayed by infants and other preconversational children. Analysis of an individual child's score provides the examiner with information about how young children interact, play, communicate, and talk within natural interactions with primary social partners.

The ECO Social Communicative Survey consists of 62 items divided into four categories: (1) social interaction and play, (2) communication, (3) language, (4) conversation and pragmatic skill. The instrument is designed to assess preconversational children who are described as being: (1) non-interactive, (2) interactive but not communicative, (3) communicative but not linguistic, (4) linguistic but not conversational, or (5) conversational in only limited contexts (MacDonald, 1989). This rating survey allows both parents and professionals to observe and record interactive and communicative behaviors displayed by the child across a wide variety of social contexts.

Each item on the ECO-SCS is rated on a five-point scale which is designed to reflect levels of social-communicative competence. A rating of "1" indicates a behavior that is never observed in the child's social-
communicative repertoire while a rating of "5" indicates consistent use of a communicative strategy.

Psychometric data is not available for the ECO-ISCS. Therefore, for the purpose of the present investigation, reliability of the ECO-Social Communicative Survey was established during the pilot phase of this research study, using the methods proposed by Rosenberg and Robinson (1984). As was the procedure in establishing reliability on the ECO-ACE, each point of rater discrepancy on the 5-point Likert scale used to rate ECO-SCS items was converted to a discrepancy of 20%. Thus, if one rater judged child competence as 3 and another rater judged child competence on the same item as a 4, the level of agreement between the two raters is said to be 80%.

The investigator and three additional raters, who were familiar with the ECO-ACE and considered to be typical users of the instrument, viewed a sample tape of six 1-minute videotaped parent-infant interactions. Three of the videotaped samples were taken from the pilot phase of the present study and three from a bank of video tapes available through the Language Program at the Nisonger Center. Each rater viewed the sample tape twice, rated child performance on the ECO-SCS items, and viewed the sample tape again to allow revision of the original rating. Comparison of the average rating scores for the four raters across all items on the ECO-SCS, revealed an average agreement rating of 87.5%. Agreement ratings ranged from 84.5%, on the item "Communicates back and forth with others", to 91.2% on the item "Responds to others with interest".

Based on rater response to the ECO-SCS items, the scale was reduced from its original 62 items to 33 items that were best felt to judge infant performance
in an interactive context. Items eliminated included those that two or more raters judged as "Not Appropriate" in describing the sample. The remaining items were re-examined by the investigator and the test developer, and recompiled into the final version of the ECO-Infant Social Communicative Survey (ECO-ISCS) (see Appendix J).

**The Adult Communication Previewing Scale.** The Adult Communication Previewing Scale, an attitude rating instrument, was prepared specifically for this study by the researcher. All items appearing on the scale were based on factors of theoretical interest, trends in current literature, and developmental scales currently used in infant/toddler assessment (Greenspan, 1992; MacDonald, 1989; Rossetti, 1990; Trad, 1991). It was also designed to collect information concerning commonly accepted parental attitudes and beliefs about the communicative process that are important to successful intervention (Papousek, Papousek, & Harris, 1987; Trad, 1990; Trad, 1991).

The rationale for developing the Adult Communication Previewing Scale came largely from many conceptual and clinical questions in early intervention that address the role played by adults and family systems in early social communicative development. Bailey and Simenonsson (1988) recognize the child as part of the larger family system, and therefore changes in the family affect the child, and changes in the child alter the family. This bi-directional nature of interactions appears to suggest a need within the professional community to develop a better sense of understanding how parents see themselves influencing their child's development. As
intervention with a child is likely to affect the family as well, understanding of family attitudes, beliefs, and knowledge about early development is critical.

Construction of the Adult Communication Previewing Scale was based upon methods of attitudinal measurement proposed by Henerson, Morris & Fitz-Gibbon (1987) and DeVellis (1991). First, approximately 45 attitudinal and perceptual statements related to language development were accumulated. These statements were drawn from a bank of video tapes of infants and toddlers during interactions with their parents and Speech-Language Clinicians, as well as the literature on parent-child interaction during early child development. These attitudinal and perceptual statements were reviewed by the investigator in order to select those that were felt best to target parental attitude, knowledge, and perception of language development, current level of infant functioning, and the role of the adult in the language development process.

The 45 statements were reviewed by a panel of four speech-language pathologists, all of whom currently worked in early intervention programs that focused on parent-child interaction. This panel was asked to sort the statements into five piles ranging from highly uninteresting (1) through neutral (3) to highly interesting (5). The investigator then discarded statements that were placed in widely differing piles, and those that were consistently judged as being highly uninteresting. Based this review procedure, 21 statements were retained for use on the Adult Communication Previewing Scale, and a pool of 24 possible interview questions were compiled (see Appendix K).
Following the peer review of the scale items, a pilot group of four parents were asked to respond to the 21 statements, and ten interview questions. The pilot group was composed of parents of both typically developing infants and infants considered to be at developmental risk, and represented parents from a variety of educational and socio-economic backgrounds. Responses were scored on a five point rating scale, one for strongly disagree and five for strongly agree. Total raw scores were computed for each parent by totalling the points corresponding to their responses to the scale items. A modified item analysis (Henerson, Morris, & Fitz-Gibbon, 1987) was then conducted in order to select the items that most effectively obtained information relating to parental perceptions about language development. Of the original 21 statements, 12 items were retained for the final version of the scale. These 12 statements were found to provide the best discrimination between high and low scorers on the scale.

The final version of the Adult Communication Previewing Scale consisted of two separate sections: an attitudinal rating survey and a standardized open-ended interview. The twelve rated attitudinal statements examined basic knowledge and perceptions parents hold about language development. The ten interview questions allowed the investigator to further examine parental ideas, attitudes, and perceptions about language development. See Appendix L for the completed version of the Adult Communication Previewing Scale and Interview.

The statements included on the rating survey addressed issues surrounding current developmental status of the infant, recent developmental changes, child learning styles, future expected developmental
changes, and adult roles in language development. Respondents were asked to indicate their agreement with each statement on a 5-point Likert type scale, with 1 = strongly disagree and 5 = strongly agree.

The areas addressed on the Adult Communication Previewing Scale focused on how parents predict or foreshadow the social implications of imminent social-communicative changes in their young children. The focal point of the scale was to determine how parents anticipate the trends of upcoming communicative changes, and then transform these perceptions into behavioral manifestations that can be shared with the child during interactive exchanges. In short, the scale was designed to explore what parents think their child's next developmental steps will be, and the role parents see themselves as playing in that developmental process (Broussard & Hartner, 1971; Greenspan, 1992; Trad, 1990; Trad, 1991). As adult perceptions of their importance and influence in the developmental process are paramount to interactive success, it is critical that assessment measures address how parents conceptualize their child as a communicative partner as well as address the role they assign to themselves during early exchanges.

The final section of the Adult Communication Previewing Scale consisted of a series of ten standardized open-ended questions (Patton, 1987) that concentrated on parental beliefs, perceptions and expectations about their roles as communicative partners to their developing children. These questions were worded and arranged for the purpose of taking each respondent through the same interview sequence and asking each respondent the same questions in the same words. Although the wording of
the questions had been predetermined, parents were allowed to supply their own words, thoughts, and insights in answering the questions.

While a standardized open-ended question interview format restricted the pursuit of topics or issues that were not anticipated when the interview was written, it did assist in limiting the focus of the interview to specific topics of interest. According to Patton (1987) another strength of the standardized open-ended interview is that it makes data analysis easier because it is possible to locate each respondent's answer quickly, and allows the researcher to organize systematically questions and answers that are similar. This type of interview format also minimizes interviewer effect and judgment during the interaction.

**Pilot Project Procedures**

A pilot study was conducted prior to the onset of the dissertation research project. The purpose of this pilot study was twofold. First, data collected during this period were used to establish interrater agreement ratings on the ECO Social Communicative Survey (ECO-SCS) and the ECO-Adult Communication Evaluation (ECO-ACE). Raters were also trained to criterion on these scales, and were used during the dissertation study to monitor researcher ratings on the parent-child interaction videotapes. A second purpose of the pilot study was to refine the Adult Communication Previewing Scale, which is an attitude rating scale that discriminates between productive and potentially detrimental parental attitudes toward language development.
Four infant-parent pairs were involved in the pilot study, with the families meeting the same selection criteria established for subjects participating in the dissertation research. Infant-parent pairs were seen for one clinic visit, which consisted of a videotaping of parent-infant play interaction and parental rating of a series of attitude statements (Adult Communication Previewing Scale). Three of these visits were conducted in the language play room at the Nisonger Center and lasted for approximately 60 minutes. One visit was conducted in the home environment, and also lasted for approximately 60 minutes.

Families were initially contacted by telephone and a verbal commitment to participate in the pilot study was secured. Once a verbal commitment had been obtained and a date had been scheduled for the taping, parents were sent a written summary of the project (see Appendix D), an ECO Social Communicative Survey (ECO-SCS) (see Appendix I), and the Rossetti Infant Toddler Language Scale (see Appendix B). Parents were required to complete both the ECO-SCS and the Rossetti Infant Toddler Language Scale and return them to the researcher prior to the scheduled clinic visit.

Each research visit began by securing written consent from the families for participation in the dissertation pilot study (see Appendix E). Once this approval had been obtained, videotaping of the infant-parent interaction began. The primary focus of this taping was to observe how the parent and infant interact with one another in two basic interactive contexts: play with people, and play with objects.

First, parents were encouraged to engage their infants in people-focused play. This allowed the researcher to observe the degree to which the adult
and child stayed together, interacting and communicating, serving as reinforcers for each other. Parents were given the instructions "I'd like to see the two of you just play by yourselves. Try to get your baby to play with you and stay with you. Don't try to get him/her to do anything in particular". Taping of people focused play lasted for 15 minutes, with the rating sample being drawn from the eighth - eleventh minutes of the interaction.

Immediately following the people focused interaction, parents were requested to engage in object-focused play with their baby. Parents were instructed to bring several toys or objects from home that they felt their child enjoyed interacting with. If the parent did not bring a toy, a selection of toys that lent themselves to back-and-forth play was provided by the researcher (Canadian Toy Testing Council, 1993; MacDonald et al., 1989; Petrie, 1987) (See Appendix M for a complete Toy Inventory). Parents were asked to select three or four toys they thought their child would be interested in playing with. Verbal instructions given to parents at this time were "Use the toys in any way your baby wants to use them. Try to let me see how the two of you would ordinarily spend 'fun' time together". Toy play was also taped for 15 minutes, with the rating sample taken from the eighth through eleventh minutes of interaction.

Following the videotaping parents were asked to rate a series of twenty-one attitudinal statements (Adult Communication Previewing Scale) that related to the context and process of language development. This group of statements included a variety of favorable and unfavorable items relating to language development and the role of the adult in this process (see Appendix K). Items were rated on a one to five scale, with a rating of "one" indicating
strong disagreement with the statement, and a rating of "five" representing strong agreement. Prior to rating the statements, parents were given the verbal instructions: "There are no right or wrong answers to these questions, so try to rate the items as honestly as you can. What I'm interested in is your initial reaction to each of the statements." Parents were not allowed to ask for clarification on any of the items while completing the rating task.

The investigator also conducted a standardized open-ended interview with two of the parents participating in the pilot study. These parents were asked a series of ten questions retaining to normal infant development, developmental delays, their infant's developmental status, and the role parents saw themselves playing in their child's social and communicative development. Interviews were audiotaped and then transcribed by the investigator.

Following each of the three clinic visits and the one home visit, the investigator reviewed the videotaped interactions and rated both adult and child performance. Adult interactive style was rated on the ECO-ACE and infant interactive competence was judged on the ECO-SCS. The Adult Communication Previewing Scale was reviewed, and recurring rating trends were noted and descriptive field notes data were compiled. The Rossetti Infant-Toddler Language Scale was reviewed according to the standards developed by Rossetti (1991) in order to determine the current level of developmental functioning of the infant.

Descriptive field notes were compiled for each of the four parent-infant dyads. These field notes contained concrete descriptions of the physical interactions between parent and infant, what was said by the parent,
vocalizations used by the infant, and how the parent and infant responded to
one another. The field notes also contained the researcher's insights,
interpretations, and working hypotheses about what was happening in the
interaction. Field notes were used to identify recurrent themes and
interactive trends within the dyad, to serve as a framework for preliminary
data analysis in the research study.

Following the completion of all stages of the pilot study, the data were
reviewed by the researcher and the principal advisor, and needed revisions
were made to the assessment tools and the study design. These revisions
were completed prior to the onset of the dissertation study.

**Procedures of the Research Study**

Data were collected on the twelve infant-parent pairs over a period of
three months from March - June, 1993. The investigator contacted potential
referral agencies during March and April, 1993, and collected a list of possible
research subjects. These parent-child pairs were contacted by telephone to
explore their interest in participating in the research study. Once families had
provided verbal consent to participate, the investigator scheduled the home
research visit for the parent and infant. The investigator then reviewed
medical and educational charts as appropriate for each child. Based on the
results of this review, children were assigned to the either the "established
developmental risk" group or the developmentally "normal" group.

Once subject recruitment had been completed, selected families were re-
contacted by telephone in order to confirm appointment times for the
research visit. This visit took place in the home environment and lasted for
approximately two hours. The visit consisted of a video-taping of a series of
three parent-child interactions, including people-focused play, object-focused
play, and a parent-selected activity. In addition to the videotaped interactions,
the visit included having the parent respond to the Adult Communication
Previewing Scale and participate in a formalized interview with the
investigator. The visit also allowed time for a brief investigator interaction
with the infant.

Once the research visit was scheduled, the investigator mailed selected
families a written summary of the project (see Appendix D) and their written
consent for participation in the study and future use of the videotapes for
research and training purposes was secured (see Appendix E). Parents were
also sent a brief family history form to complete (See Appendix F). Parents
also received a copy of the ECO-Infant Social Communicative Survey. They
were asked to complete this measure, and return it to the investigator along
with the written consent form and family history form in a self addressed,
stamped envelope prior to the home visit.

As parents were required to commit two hours of time to the research
study, baby-sitting services were supplied by the investigator if there were any
other children in the family. A $25.00 participation fee was also given to each
of the families.

The research visit was conducted in the homes of the families involved in
the study. All subjects were seen in the living room of their homes, the
television was turned off, and there were no other children, adults, or
animals present in the room. The visit began with a brief discussion with the
parent about the general goals and expectations of the study.
Immediately following the introductory discussion, parents and infants were videotaped for five minutes in unstructured, naturally occurring contacts, that were not considered part of the research sample. These spontaneous contacts consisted of any activity that the parent felt was one both she/he and the infant enjoy doing together. The purpose of these interactions was to give both parent and infant an opportunity to adapt to the videotaping process.

Upon completion of the warm-up activity, videotaping of parent-infant interaction for research purposes began. The primary focus of the home-based videotaping was to observe how the parent and infant interacted with and engaged one another during three normal activity routines: people-play, object-focused play, and an activity of the caregiver's choice. Videotaping of each of the three interactive routines lasted for five consecutive minutes. A three to five minute break was provided between each interactive context in order to avoid infant or parent fatigue.

It should be noted that all parent-infant pairs were videotaped in the same sequence of activities: object focused play, people play, and a parent selected activity. This allowed for a robust, and systematic description of parent-infant interaction across the elven dyads. The selection of activity sequence was based upon parent feedback during the pilot phase of the research project. Parents indicated that they felt the most comfortable beginning with an object focused activity, then moving into more people directed play.

The first interactive context videotaped was object-focused play. The investigator provided parents with a selection of toys that lent themselves to
back-and-forth social play interactions (See Appendix M). Toys that encouraged highly repetitive activity were excluded from the selection. Parents were required to select three or four toys they felt their infant would enjoy interacting with. The following verbal instructions were given to the parents: "Use the toys in any way you and your baby enjoy them. Don't be concerned about any specific ways of using the toys; just use them in any way that is fun for the two of you. Use as many of the toys as you want - don't feel you must use the same toy for the entire time. Remember you will be playing together for about five minutes."

During object-focused play the investigator gave parents verbal prompts to change the focus of their activity if they appeared to be using the same toy in a redundant or nonengaging manner for longer than one minute. The prompts used were; "You may try using another toy if you'd like" and "Why don't you try using something different?" The video camera was put on pause when these verbal prompts were used with the parent, and taping resumed once the parent selected a different toy.

During the second interactive routine, parents and their infants were videotaped engaging in people-focused play interactions, where each person was the primary object of interest for the other. Parents were given the verbal instruction "Now I'd like to see how the two of you just play by yourselves. You can play any game that does not involve toys. You don't have to try and get your baby to do anything in particular, just try to get him/her to play with you and stay with you. If you can't think of any game, I have a list that you might want to look at. Remember I want the two of you to play together for about ten minutes". See Appendix N for a complete list of developmentally

As in object-focused play, the investigator provided the parents with verbal prompts if they engaged in an activity that was considered to be highly repetitive or did not appear to be engaging for the infant. The prompts given were: "Do you want to try a different game with your baby?", "Why don't you try something different?", and "Would you like to look at the game list I have for some other ideas?". When the investigator used these prompts, the video camera was put on pause, and taping resumed once the parent had selected a new game.

The final interactive context that was videotaped during the home visit was one that was self-selected by the parent. The investigator provided only minimal guidelines for selecting the activity. The verbal instructions given to the parent were, "During this last activity I'm not going to tell you what to do. I want you to pick something that you feel you and your baby like doing together. It can be any activity that you want. You may use a favorite toy, sing a song, read a book, or anything else you like doing together. There are no right or wrong ways of doing things with your baby, so just show me how you have fun with each other. Try to keep your baby playing with you for about five minutes."

The investigator once again provided the parents with verbal prompts during this activity. Prompts were used if a parent engaged in a repetitive or noninteractive exchange with their infant. Prompts were also used if the infant was judged as disengaging from the activity for longer than 30 seconds. Prompts used were; "Can you think of something else that your baby enjoys
doing?", and "What else do you think would be fun for the two of you to do?" When the investigator used a verbal prompt with a parent, the video camera was put on pause, and taping resumed only once the parent had selected a novel activity.

Once videotaping was completed, the investigator had parents provide general comments about their perceptions of the success of the interactions. The investigator also asked the questions, "Do you think your baby played like she/he normally does? How was his/her play different?", and "Do you think that you played the way you normally do with your baby? What was different?"

Immediately following completion of the parent-infant interactions, the investigator was videotaped interacting with the infant. The investigator was videotaped for five consecutive minutes engaging the infant in both object-focused play and people-focused play. The investigator used the same toys and people focused games that the parent had used.

Following the videotaping activities the investigator administered the Rossetti Infant-Toddler Language Scale to each of the infants. This criterion-referenced scale was used as a means of determining the current level of linguistic and social functioning for each infant. Judgments of infant competence were made based parental report as well as on spontaneous and elicited samples of infant behavior.

Once the Rossetti Infant-Toddler Language Scale was completed, an assessment of parental attitudes and beliefs about language development was conducted using the Adult Communication Previewing Scale (see Appendix L). Parents rated a series of twelve attitudinal and perceptual statements
relating to information about language development and delays, infant behavior, and the role of the adult in the developmental process. The verbal instructions given to parents at the onset of the rating task were "What I'm interested in is what your initial reaction to each statement is. There are no right or wrong answers, so try to rate the items based on your initial reactions to them". Parents were not allowed to ask for clarification on any of the items while completing the rating task.

Upon completion of the rating scale parents participated in an in-depth personal interview with the investigator. A series of 10 standardized open-ended questions that focused on parental beliefs, perceptions, and expectations about their roles as communicative partners were presented (Patton, 1987). The interviews were recorded in audiotape format, and transcribed by the researcher immediately following the clinic interaction.

At the close of the interview, the investigator answered general questions parents had about early social and communicative development. General impressions about infant performance and developmental competence were provided by the investigator for the parent. An informational packet containing developmental information and interactional guidelines was also given to each parent (see Appendix O).

Approximately ten days after the research visit, a letter of thanks was sent to each participating family (see Appendix P). In addition to the letter, parents received a copy of the videotapes taken of their infant during the research project, and a check for $25.00. A letter of thanks was sent to each of the agency representatives who assisted in providing the names and addresses of potential research subjects (see Appendix Q). Upon completion of data
analysis, a summary of the results of the study was made available to these representatives and interested families of infants participating in the study.

**Interrater Agreement Ratings**

In order to evaluate the accuracy and objectivity of observational data collected on the ECO-ACE and ECO-SCS, the reliability of researcher ratings was verified through assessment of interrater agreement. Approximately half of the videotaped samples were made available to two raters trained to criterion in the use of the ECO-ACE and ECO-SCS, but unfamiliar with the infant-parent pairs represented in the study. The videotapes were randomized, so the raters were able to watch both infant-parent and infant investigator interactions.

The raters watched the videotaped interactions and simultaneously recorded behavioral ratings according to the predetermined operational interactional categories of the ECO-ACE and ECO-SCS. After the observations were completed, the observers' ratings were compared to those made by the researcher, and a percentage agreement score was calculated (Rosenberg & Robinson, 1985). High levels of interrater agreement (reliability) were taken as an indication that the researcher accurately rated the behaviors of interest. Percentage of agreement between the investigator and the two raters on the ECO-ACE were 90.5% for rater 1, and 91.4% for rater 2. Percentage of agreement ratings on the ECO-ISCS were 93.9% for the first rater, and 93.4% for the second rater.

Videotaped samples were also made available to members of the dissertation committee for their review and comment. This review provided
a further internal validity check on the consistency of scale ratings, as well as aiding in data analysis.

**Data Analyses**

Analysis of data was an ongoing process throughout the period of the proposed research study. Data were analyzed in terms of individual parent-infant pairs, as well as across all twelve dyads. Data were also examined in terms of differential profiles for normally developing infants and infants considered to be at developmental risk. Differential infant performance profiles based on both chronological and developmental age were also considered.

Based on the full five minutes of each of the videotaped interactions of infant and parent, measures of interactive style (adult) and interactive competence (child) were completed by the researcher. The ECO-ACE was used to identify specific adult behaviors that contribute to the social-communicative effectiveness of the interaction. Infant performance was assessed on the ECO-ISCS.

Based on the videotaped performances, descriptive field notes were compiled by the investigator for each parent-infant pair. Field notes consisted of two distinct sections: behavioral descriptions of parental interactional style, infant communicative behaviors, and the interaction between the two, and investigator interpretations of the observed behaviors. Investigator observations were guided by the major factors of interest of the research study.
The field note samples were drawn from the full five minutes of each of the three interactive contexts. The investigator watched each context sample twice, then compiled field notes based on one-minute increments for that interactive context. The entire five-minute sample was then viewed again to allow for revision of both the behavioral observations and investigator's interpretive comments.

Both qualitative and quantitative methods were employed in examining the data. Data analysis involved organizing the narrative information gathered according to the factors of interest of the study. This allowed the investigator to look for natural variations and recurrent themes in the data (Patton, 1980). In addition to the graphic and matrix displays, descriptive statistics, such as frequency counts, percentage of occurrence, and score ranges were also reported as appropriate to describe the sample.

Once descriptive field notes were completed, the investigator began data reduction by reading through the field notes and interviews and organizing the data into topics and categories related to parent-infant interaction (MacDonald, 1989). Next, data for each parent-infant pair were organized in a matrix display that identified major adult interactional styles and infant developmental competencies. By converging field notes into systematic categories, the investigator was able to look for recurring regularities in the data. Appendix R is an example of the matrix used at this stage of data reduction.

The next stage of data reduction involved creating a cross-classification matrix. This allowed the investigator to look for patterns that emerged in infant-parent interaction across the three interactive contexts, as well as
patterns displayed during infant-investigator interaction. The further reduction of the descriptive data also allowed the investigator to look at adult-infant interaction across the eleven dyads, and examine the extent to which the data that belong in a certain category "hold together or dovetail in a meaningful way" (Patton, 1987, p. 154). Appendix S provides a sample of the cross classification matrix used in this process.

Interview data were also examined for recurrent patterns and themes. Responses from each of the eleven mothers were organized on a matrix display that identified categories of responses on the Adult Communication Previewing Scale and Interview. Natural variations in responses across mothers were highlighted, with particular attention paid to the labels mothers used in describing their infants' social and communicative development. See Appendix T for the Parent Interview matrix.
CHAPTER IV
FINDINGS

This chapter presents a systematic description of mother-infant interactional dyads within the familiar environment of the home through the analyses of multiple data resources including videotapes, field notes, behavioral and attitudinal rating scales, and parent interviews. The study examined several variables present in mother-infant interactions to determine how these variables interrelate to create an optimal social learning environment for the infant. These variables were adult interaction style, infant competence, parent attitude towards language development, and trainability (infant performance with the investigator). They were examined through a combination of qualitative and quantitative methods. These variables also served as organizing frameworks for the collected data. To describe the nature of these social exchanges, a systematic analysis of five adult principles of interaction and five child social communicative competencies (MacDonald, 1989) were examined.

A review of the questions guiding the study is appropriate to aid in interpretation of the reported results:
1. What are the patterns of interaction that emerge for adult/infant dyads?

2. What are the interactive patterns between adults and infants across the interactive contexts of people play, object play, and caregiving routines?

3. What is the relationship between infant developmental level and adult interactive style?

4. How do parents view the process of communication development?

5. How does infant performance change in response to changes in adult interactive style?

The chapter is divided into two sections, beginning with a general overview of the families included in the study. The bulk of the chapter consists of profiles of each individual infant-parent pair. These profiles attempt to paint a picture of the naturally occurring interactions between parents and infants with respect to the variables included in the study. The profiles for the 9-12 month old infants are presented first, and then the 3-6 month profiles are reviewed.

The chapter contains eleven profiles, one for each participating family. Each profile has three sections, including parent-infant interaction, investigator-infant interaction, and parent interview. These sections summarize the data collected for each infant-parent pair and create a picture of the social-communicative relationship of each dyad. The data used were collected via the use of the Rossetti Infant-Toddler Language Scale, the ECO
Adult Communication Evaluation, the ECO Infant Social Communicative Survey, and the Adult Communication Previewing Scale and Interview.

The data will be presented in the form of narrative descriptions, excerpts from field note transcripts, and figures related to the ECO-ACE and ECO-ISCS. To enhance the readability of this chapter, a legend for the two scales is included here, in Table 1, rather than in the context of each figure.

Table 1: Legend for ECO-ACE and ECO-ISCS

<table>
<thead>
<tr>
<th>ECO-ACE ADULT INTERACTIVE STYLES</th>
<th>ECO-ISCS INFANT COMPETENCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Match = Match</td>
<td>S.P. = Social Interaction and Play</td>
</tr>
<tr>
<td>Balance = Balance</td>
<td>NVC = Nonverbal Communication</td>
</tr>
<tr>
<td>S.R. = Sensitive Responsiveness</td>
<td>LANG = Language</td>
</tr>
<tr>
<td>N.D. = Nondirectiveness</td>
<td>CONV = Conversation</td>
</tr>
<tr>
<td>E.A. = Emotional Attachment</td>
<td></td>
</tr>
</tbody>
</table>

General Overview of Parent-Infant Dyads

The study involved 11 infant-parent dyads, all of whom were videotaped in their home environments. The infants ranged in age from 3-6 months, and from 9-12 months. Five of the infants were determined to be at established risk for later language delays. The remaining six infants were typically developing. All of the infants were involved in some type of programming outside of the home, ranging from part-time day care to involvement in intensive early intervention programming. Six of the infants were only children, and four each had one older sibling. One infant had a fraternal twin brother.
Of the five infants considered to be at established risk for later developmental delays, two had been diagnosed as having Down syndrome, two had cerebral palsy, and one had neurological damage secondary to a diagnosis of Arnold-Chiari deformity. All of these infants were involved in either hospital-based or home-based early intervention programming.

Caregivers involved in the study were all European-American females, with an average age of 31.4 years. All but three of the mothers were full time homemakers. Of the mothers that worked outside of the home, one worked full time as a service assistant with the phone company, one was a preschool teacher, and one was a factory worker. Education levels of the caregivers varied. Over all of the dyads four mothers had M.S. degrees, six had B.A or B. Sc. degrees, and one held a high school diploma.

Infant-Parent Profiles

9 - 12 Month Old Infants

Matthew and Lori

Matthew was a 9.5 month old infant who had been diagnosed with cerebral palsy at 4 months of age. His fraternal twin brother, Jonathan, was typically developing. Matthew and Jonathan were the only children of Lori and Rick. Matthew had recently begun home based early intervention programming through the Franklin County Early Intervention Programming, and also had been seen for a complete developmental evaluation through the Nisonger Center F.A.C.T. clinic. He presented as a quiet little boy, with significant developmental delays in all areas of developmental functioning. Administration of the Rossetti Infant-Toddler
Language Scale, at the time of the home visit, revealed an age equivalent of 3-6 months in all areas of linguistic functioning including: interaction and attachment, pragmatic ability, play skills, language comprehension, and language expression.

Lori, Matthew's mother, presented as a friendly and outgoing woman, who could openly discuss her concerns about Matthew's developmental delays. She willingly shared information about the birth of the two boys, and was not hesitant to identify the differences she saw between Matthew and Jonathan.

**Parent-Infant Interaction**

Lori and Matthew displayed an open, but rather one sided relationship throughout the course of the research visit. They were observed in three interactional contexts: play with toys, people play, and an activity selected by Lori. Across the three interactive contexts it was observed that Lori was the primary director of activities, and Matthew took more of an observational role. Lori's interactive pace far exceeded Matthew's ability to engage and respond. Often Matthew would sit and quietly observe what his mother was doing, or would ignore her activities altogether.

Throughout the course of the three play activities, Lori presented with an interactive style that could best be described as directive and nonresponsive. The following episode describes Lori's behavior.

**FILED NOTE ENTRY - OBJECT FOCUSED PLAY**

Lori is sitting on the floor, and Matthew is lying on his tummy in front of her. Lori is holding a ball out in front of Matthew, and he is straining to reach it. Lori shakes the ball up and down, but does not
give it to her son. He continues to reach for it, and Lori smiles at him, but puts the ball down on the floor out of his reach. She turns to the other toys in the basket and says, "Let's see what else is in here. We've never played with some of these before." Matthew is not watching his mother, but rather is still focused on the ball on the floor. Lori lifts out a plastic chime clown from the toy basket, shakes it back and forth, and says, "Let's see what this one does!" She puts the clown on the floor in front of Matthew, and picks the ball up and puts it back in the basket. "Let's put this one away," Lori says as she removes the ball. Matthew watches as she puts the ball away, then turns his head away from her.

This episode demonstrates Lori's inability to acknowledge Matthew's primitive communicative bids as meaningful turns within their interactive exchange. She ignored his nonverbal cues that show he is interested in continuing the current activity, and switched to a game that he has not indicated a desire to engage in. Lori consistently missed Matthew's small gestures and sounds, and instead followed a more adult directed agenda during their play. What appears to be lacking in Matthew's communication was that he did not seem to expect to get a message across to his mother. He did not try to change or clarify what he wanted to communicate, but rather gave up, or ignored his mother altogether.

It also was observed that Lori had difficulty matching her language and play abilities to Matthew's. She used long complex utterances when talking to her son, asked a high proportion of questions, and rarely waited for Matthew to respond to her. The following episode represents a mismatched exchange, in which Lori dominates the interaction.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Matthew is lying on his back, reaching up for a ball that his mother is holding above his head. "Hey, look," Lori says in a highly
animated voice, "Here look! Look what I got!" She shakes the ball back and forth, "I got bubas for you." She continues to shake the ball back and forth, and Matthew is straining to reach it. "Bubas, yea bubas. You really like bubas!", Lori continues as she shakes the ball back and forth.

During this exchange, Lori again does not attend to Matthew's motivations for communication, and she uses utterances that are far too complex for Matthew's current level of linguistic functioning. According to MacDonald (1989) communicating partnerships can grow only in an environment of mutual back and forth exchange, that requires a commitment to active togetherness on the part of both partners.

The lack of active togetherness is apparent across all three interactive contexts, especially during the parent selected activity. Lori chose to read a book with Matthew, an activity that she said they "do all of the time, and he just loves it." The following episode is a description of the reading activity.

FIELD NOTE ENTRY - PARENT CHOICE ACTIVITY (BOOK READING)

Matthew is sitting on Lori's lap, facing away from her with a soother in his mouth. "O.K., it's time to read," Lori says as she opens the book, and holds it in front of her, away from Matthew. "Patrick, dinner time! Oh we'll change the name to Matthew today. Matthew, dinner time! Oh boy what are we having?" Matthew reaches up and bangs on the book with both hands. Lori ignores him and continues to read, "Mmmmmm, mama says, Noodles, mashed potatoes and peas. Look it Matthew peas! Ohh, what do you make peas for, I don't like them, I told you so." Matthew continues to look at the book, and occasionally tried to touch a page, but he is not vocalizing or moving in response to his mother's voice. "Mommy says peas are good for you little Matthew," Lori reads and then turns the page. "Then Matthew says, no they're not! They are little green balls of mushy poison!" Matthew is now pulling on the corner of the book, but Lori moves it out of his reach and continues to read the story. She does not look at Matthew.
Beyond the primary focus of active togetherness with actions and communications, many subtle signs of reciprocal interaction are missing. Lori and Matthew rarely exchange ideas within their social interactions. As partners, they do not develop a finely honed sense of give and take, or initiation and responsiveness on a consistent basis.

For his part, Matthew attempted to respond to his mother in a variety of nonvocal ways. He would move his arms and legs, smile, and watch her activities closely. Matthew's primary mode of responding to his mother was through gross body movements. He would vigorously kick his legs and pump his arms in an attempt to participate in his mother's play activities. The following episode is representative of Matthew's attempts to interact with his mother in a socially bound context.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Lori pushes the plastic turtle towards Matthew, and starts to move the chime clown away from him. Matthew looks intently at the clown, and extends his arms towards it. Lori stops, looks at Matthew, picks up the clown, and shakes it back and forth. She puts the clown down on the floor in front of Matthew, and pushes it back and forth several times. Matthew arches his back, kicks his legs, and waves his arms as he watches the clown closely. He continues this activity for several seconds, slumps down onto the floor, and looks away from the clown and towards the turtle.

Matthew's actions revealed his ability effectively to communicate his immediate wants and social needs to his interaction partner. He used movements, sounds, and eye gaze patterns to express a range of meanings and purposes within his play.

Not only was the above interaction a good example of how Matthew attempted to engage in social interactions with his mother, it also led to one
of the few instances of joint activity that occurred between Lori and Matthew. The following observation is a continuation of aforementioned play interaction.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

"Turtle?" Lori asks, and moves the turtle towards Matthew, making a growly sound. As she brings the turtle closer to his face, she moves faster and says, "Tickle, tickle, tickle!", just as the turtle touches Matthew's nose. Matthew smiles. Lori moves the turtle away from Matthew, pauses, then pushes it back towards him. When the turtle is right in front of Matthew, Lori smiles and says, "Get it!" She pauses, and Matthew reaches for the toy, looks at his mother and smiles. Lori slowly moves the turtle away from Matthew, and he vigorously pumps his legs and arches his back.

When viewed as a collective whole, the interactional episodes revealed an overall pattern of limited give and take between Lori and Matthew. Lori maintained a fairly directive and nonresponsive interaction style across all three contexts, and Matthew was a passive participant during play interactions. Lori and Matthew displayed minimal joint focus of attention, and typically did not engage in joint activity routines. What emerged was a pattern of one sided exchanges, where Lori presented herself as the dominant partner, and Matthew was relegated to the role of observer.

In order to examine further the degree to which different interactive patterns were displayed across the three interactive contexts, parent performance was rated using the ECO-Adult Communication Evaluation (ECO-ACE). This instrument measures adult interactive style across the five competencies of balance, match, nondirectiveness, responsiveness, and emotional attachment. It allows a rater to score adult performance along a five point continuum, with a rating of '1' indicating the lowest value of an
attribute occurring in the interaction, while a '5' indicated the highest value. Figure 1 shows Lori's average performance scores on the ECO-ACE across the interactive contexts of object focused play, people play, and the parent selected activity.

Infant performance across the interactive contexts of object focused play, people play, and parent choice, was measured using the ECO Infant Social Communicative Survey (ECO-ISCS). The ECO-ISCS rates infant social communicative competence across the dimensions of social play and turntaking, nonverbal communication, language, and conversation. Like the ECO-ACE, the ECO-ISCS allows a rater to score infant performance on discrete variables along a five point Likert-type scale. A rating of '1' indicates minimal occurrence of a desired behavior, and '5' indicates the highest occurrence of a behavior in an interaction. Figure 2 shows Matthew's average competency rating on the ECO-ISCS across the three contexts.

Investigator-Infant Interaction

During my interaction with Matthew, he presented as a much more outgoing, and responsive baby. By employing a more balanced, responsive, nondirective, and matched interactive style, I allowed Matthew to become a more active participant within our exchange. The following episode is an example of the type of turntaking exchanges Matthew and I engaged in.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY/PEOPLE PLAY

Matthew and I are lying on the floor facing each other, with the rolling mirror between us. Matthew is watching himself in the mirror, and his breathing is audible. I breathe heavily, and shake the mirror gently. He looks at me, reaches for the mirror, and continues to breathe heavily. I tap the mirror again, and smile at
him. Matthew watches me closely, then smiles and softly coos. I coo with him.

This episode described the importance of accepting any gesture or sound, no matter how primitive, as a communicative turn. By responding to Matthew's little sounds and movements in ways that were matched to his current level of performance, I encouraged him to stay longer in the exchange (Kaye, 1982.)

In addition to matching and waiting for Matthew, I tried actively to follow his lead in play. By letting him know that his sounds and actions were affecting my responses, I tried to provide him with a sense of being a competent and effective communicator. The following episode demonstrates how I tried to follow Matthew's lead.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

Matthew is holding the side of the mirror in his left hand. He shakes the mirror and looks at me. I lie down on the floor, so I am looking directly at him, take the other side of the mirror, and shake it. I pause and smile at Matthew. He shakes the mirror again, and vocalizes softly. I shake the mirror and vocalize in the same way he did. Matthew vocalizes and shakes the mirror a third time. I shake the mirror, but this time vocalize in a higher pitch of voice. Matthew stops, looks at me, smiles, and vocalizes again. I imitate him.

In this brief exchange, I showed Matthew how his sounds and actions could impact on an interactional partner. By changing the sounds that I made, I provided Matthew with a model that he could imitate. However, I responded to Matthew's messages more often than I initiated interactions, thereby showing him the value of what he is communicating.
FIGURE 1: PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS

FIGURE 2: INFANT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS
Figure 3 displays ECO-ISCS scores obtained for Matthew during his interaction with me. These scores represent Matthew's general level of performance during unstructured play, with a partner who is employing interactive strategies felt to support emerging communicative behaviors (MacDonald, 1989.) On the whole his scores reflect a more responsive, social, and communicative style than during play with his mother, especially in the areas of social play and nonverbal communication.

![Graph showing Infant Social Communicative Survey Profile](image)

**FIGURE 3: INFANT SOCIAL COMMUNICATIVE SURVEY PROFILE: PLAY WITH INVESTIGATOR**

**Parent Interview**

The parent interview consisted of having Lori complete the scaled portion of the Adult Communication Previewing Scale, and then respond to 10 open-ended standardized interview questions. Both portions of this instrument ask questions that relate to Lori's attitudes and perceptions about Matthew's
current level of linguistic functioning, his potential for change, and her role in the process of development. While Lori was able to describe accurately Matthew's social and communicative abilities, she reported that she employed a highly responsive and nondirective style when playing with her son. The following episode is Lori's description of her play style with Matthew.

FIELD NOTE ENTRY - PARENT INTERVIEW

I think that sometimes I talk to him too much, and not saying one word things, but uh, you know I think that by having me imitate him a lot I think that has helped him the most. I do that a lot these days. And then of course he knows his mom and dad love him, and that's important, that helps a lot.

While Lori describes herself as imitating Matthew, the videotapes illustrated that her stated beliefs were not always translated into practice. Videotape transcriptions revealed that Lori employed a highly directive, questioning, and nonimitative play and language style with her son. Also, Lori often ignored Matthew's little communicative behaviors that could have been easily imitated.

Further evidence that Lori does not have a clear perception about her role in Matthew's communicative development is seen in her reply to the question, "How do you think Matthew is learning to communicate?" The following excerpt from the interview is her response to that question.

FIELD NOTE ENTRY - PARENT INTERVIEW

I think that he has become more aware of his surroundings, so I think he pays more attention to what is happening around him, and I just think that knowing what is going on is helping him say things. By recognizing mom and dad he's more, you know, moving the arms and legs and now he's decided that he likes to eat,
when he gets hungry he will go "AAAA" like that, or really cry hard and say "I want that bottle," and this is a child who never wanted to eat, so I think that he has gotten bigger and decided "Well yea, there are some things in life I want. I wanna eat, I wanna see my mom and dad, I wanna fuss at brother because I don't want him near me" type of thing. I just think that he's becoming a lot more aware of his surroundings.

This description of Matthew's interaction with the environment reveals that Lori views communication as a passive activity, that requires only an awareness of the world to learn. She does not appear to recognize the importance of active social exchange, and its impact on communicative development. This can have profound implications for how Lori attempts to engage Matthew in social exchanges. If to Lori, observing is the most important key to learning, then she does not need to let him become an active participant in any game they play.

Lori's observational approach to language development also has implications for her effectiveness as a 'previewer' with her son. If Lori does not recognize social exchange as part of the learning process, she will not have the opportunity to engage Matthew in interactions that will foster his ability to predict and successfully rehearse upcoming developmental changes. According to Trad (1990; 1992), it is through engaging in these types of previewing activities with his mother that Matthew will learn how to operate within a paradigm for predicting a reliable outcome amid developmental transition.
Joshua and Elaine

Joshua was a 9 month old infant, who had been diagnosed as having Down syndrome at birth. He was the second child in the family, and his older sister Ruth was a highly verbal and articulate 3 year old. At the time of the research visit Joshua had been involved in a home based early intervention program through Franklin County Board of Mental Retardation and developmental Disability for approximately 3 months. He was seen for therapy on a weekly basis by an early intervention specialist, who provided information for Elaine and her husband on a wide range of developmental concerns. Joshua had also been seen for a complete developmental evaluation through the Nisonger Center F.A.C.T. Clinic. The evaluation revealed moderate delays in gross motor ability, fine motor skills, and social communicative functioning. At the time of the home visit, the Rossetti Infant Toddler Language Scale was presented to Joshua. He earned an age equivalency score of 9-12 months in the areas of interaction-attachment and pragmatic abilities. All other areas of linguistic development, including play skills, language comprehension, and language expression, were found to be functioning at the 6-9 month level.

Joshua's mother Elaine was an outgoing and engaging woman, who had little difficulty discussing Joshua's developmental delays. However she did not refer to her son as having Down syndrome, she merely referred to him as "having problems."
Parent-Infant Interaction

Elaine and Joshua displayed a highly animated and responsive interactive style with one another throughout the course of the home visit. They were observed in three interactional contexts: play with toys, people play; and an activity selected by Elaine. In all three interactive contexts, Elaine and Joshua displayed a strong sense of emotional attachment, that was characterized by playful, mutually enjoyable exchanges. Although Elaine's rate of interaction often far exceeded Joshua's, the pair seemed to enjoy being together. Both mother and infant displayed a variety of attachment behaviors, such as mutual eye gaze patterns, touching, close proximity, and vocalizations directed at one another (Trad, 1992.) The following episode describes the type of social exchanges they had.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Joshua and Elaine are lying on the floor facing one another. Elaine puts a chime clown on the floor between them. Joshua smiles and vigorously pumps his arms and legs. Elaine shakes the clown, and asks, "Can you get it?" Joshua kicks harder, laughs, and reaches for the clown. Elaine laughs, shakes the clown harder, and asks, "Whatcha doin? Can you get it? Wiggle, wiggle!" She drops the clown onto the floor, and Joshua pushes himself up on his hands, looks at his mom, and they both laugh. Joshua looks back down at the clown, and tentatively reaches for it. Elaine pauses briefly, looks at her son, and asks, "What's it doing? Get it! Can you get it?" Joshua bats at the clown with his right hand, and it slowly shakes from side to side. "Whee!" Elaine exclaims in an exaggerated tone. Joshua looks at her and they both laugh.

This episode demonstrates that Elaine possesses a certain confidence when interacting with her son, that allows her to be playful and engaging. Even though she uses utterances that far exceed Joshua's current level of linguistic functioning, she is reinforcing in other ways. She smiles, laughs, and plays in
ways that he is able to easily imitate. She is rewarded by having Joshua respond to her both physically and vocally during their exchange.

Even though Elaine is responsive to Joshua, her choice of language models are complex in comparison to Joshua's current level of linguistic functioning. Elaine relies heavily on a questioning style throughout her play with her son. She often asks a series of questions that she obviously does not expect answers for. During questioning episodes, Elaine does not wait for even nonverbal responses from her son, and typically answers the questions herself. The following episode demonstrates how Elaine uses questions in play with her son.

FIELD NOTE ENTRY - OBJECT PLAY

Elaine takes a mirror out of the toy basket and holds it towards Joshua. "Look at this!" she says as she holds the mirror closer to him. Joshua stops rocking on his tummy, pushes himself up on his arms, and looks intently at the mirror. "Who's in the mirror? Can you see? Who's in there? Can you see?" Elaine asks as she moves the mirror closer to her son. Joshua slowly lowers himself back to the floor as Elaine moves the mirror closer to him, never taking his eyes off his reflection. When Elaine puts the mirror down in front of him, Joshua reaches for his reflection, and vocalizes, "AAAA." "Is that Joshua? Who is that? Where's Joshua?" Elaine asks in an exaggerated and high pitched voice.

Elaine's questions reveal that, overall, she was trying to encourage Joshua to interact with and respond to her, but she failed to give him the time needed to be an active partner within the exchange. Because Joshua was such a physical and vocal communicator, Elaine may according to Goldberg (1977) get more from him if she waited longer, and communicated in a way that was closer to his level of "talking."
While Joshua is a very vocal little boy, he plays a fairly responsive role in play interactions with his mom. Rather than trying actively to initiate or change play activities, Joshua waits for his mom to introduce topics, and he follows her lead almost exclusively. Occasionally he will try to change the course of play, but he does it in such an unobtrusive way, that Elaine often misses his signals that indicate his desire for change. The following episode describes how Joshua remains in a responsive role during play with his mother.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Joshua is rocking back and forth on his stomach. Elaine pushes the turtle along the floor towards him, and vocalizes "MMMMMM." As she moves the turtle closer to Joshua, Elaine asks, "That's pretty nifty don't you think?" Jacob grabs the turtle, and holds its head in his right hand. Elaine pulls the turtle away from him, and taps on its' back. She lifts a nesting block off of the turtle's back and says, "Look at that!" Joshua watches what his mother is doing. "Ah! Peek-A-Boo!" Elaine exclaims as she lifts the block up higher, and then drops it back down on the turtle. Joshua laughs. Elaine picks up the block and drops it again. Joshua laughs and rock back and forth. Elaine pauses, and Joshua reaches for the turtle. Just as he is about to grab the toy, Elaine moves it away, picks up the block again and cries "Peek-A-Boo!" Joshua stops and looks at his mother, but does not vocalize.

Joshua was not very involved in this play activity with his mother. She consistently led his play, and did not give him the opportunity to modulate the flow of the exchange, nor did she allow him to initiate social contacts. Bronfenbrenner (1979) and Stern (1977) have suggested that while it is important for a parent to provide ample opportunities for the child to respond within a social play setting, it is equally important that the child learns how to initiate contacts, and change the direction of activities.
Of critical importance to the interactive success of Elaine and Joshua’s play is the ability for the two to engage in joint activity routines. These routines provide a rich environment for mutual learning, in a reciprocal and balanced manner. The following episode describes an interactive exchange where both Elaine and Joshua were attending and actively responding to one another.

FIELD NOTE ENTRY - PEOPLE FOCUSED PLAY

Joshua is lying on his back, looking up at his mother. Elaine is leaning over him smiling. She grabs one of his feet, stretches it up to his face, and then lets it gently drop back onto the floor. Joshua begins to vocalize loudly, lifts his legs in the air and grabs his feet again. Elaine puts her hands over his, and vocalizes with him. Joshua rolls over onto his side, and says "BABABABABA!" "BABABABABA," repeats Elaine, as she puts her face close to his and smiles. "BABABABABABA!" vocalizes Joshua in an even louder voice. Elaine leans closer to him and asks, "Did you say BABABABABABA?" Joshua grabs for her glasses, and they both laugh.

This episode demonstrates how willingly Joshua responds to his mother when she matches her sounds to his, and balances the number of turns they both take. It should also be noted that during this exchange, even though Elaine did use questions when playing, she limited them to authentic ones, that were directly related to what Joshua was interested in doing at that time. By responding to his interests and motives for communicating, Elaine was able successfully to keep Joshua in a brief turntaking exchange.

On the whole the interactive episodes observed revealed a general interactive pattern that was an emotionally attached and mutually reinforcing exchange between Elaine and Joshua. While Elaine did provide a nonjudgmental play environment for her son, she tended to rely on questions and commands as her primary forms of language stimulation.
Joshua appeared to be interested in his mother, but often retreated to an observer role during exchanges. When Elaine and Joshua were able to establish a joint focus of attention, they proved to be highly reinforcing and responsive interactional partners.

A further description of the interactive patterns displayed across the three social contexts was compiled using the ECO-ACE and ECO-ISCS. Figure 4 examines Elaine's average ratings across the five adult interactive styles examined on the ECO-ACE. While she consistently scores in the mid to high range during the interactive contexts of Object Focused Play, and People Focused play, a decrease in skill success is seen in the self selected play activity. This may be due in part to fatigue on Joshua's part.

Figure 5 provides an overview of Joshua's average performance scores on the ECO-ISCS. It should be noted that Joshua consistently was rated in the mid- to- high range on the competencies of social play and turntaking, and nonverbal communication during the first two social exchanges, but during the parent selected activity, his ratings fell in the low to mid range for the same two competencies. Joshua's average scores did not change for the competencies of language and conversation.
FIGURE 4: PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS

FIGURE 5: INFANT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS
Investigator-Infant Interaction

During my interaction with Joshua, he displayed overt stranger anxiety, even with his mother physically present in the room. He was more reticent to engage in ongoing social exchanges than he had been when playing with his mother. Even by using a more balanced, less directive, and less question based interaction style, with Joshua, I was seldom able to engage him in extended social play activities. Any juncture request, no matter how subtle or playful, for Joshua to participate in the social exchange would cause him to withdraw from the situation. Withdrawal behaviors were characterized by crying, loss of eye contact, and physical distancing from the situation.

Joshua did not appear very involved in the majority of the play activities presented, but would occasionally watch as I played with toys. The following episode summarizes the type of interaction we engaged in.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

Joshua is lying on his stomach, with his head on the floor. I pick up the mirror, and gently shake it. Joshua looks up at me, so I pause and smile at him. He starts to cry and drops his head back down on the floor. I shake the mirror again, and Joshua stops crying and looks up at me. I put the mirror on the floor in front of him, he starts to cry, and drops his head back on the floor. I shake the mirror, Joshua looks up and watches me closely. I smile at him, put the mirror back on the floor, and he tries to roll away.

This episode clearly demonstrates the need for active involvement of parents in early intervention programs. By providing families of children with delays the skills they need to facilitate early social and communicative behaviors, the child receives greater opportunity to engage in social learning activities, with partners he/she feels comfortable and competent with.
A second observation I made of Joshua's social and communicative skills during our interaction was his inability to initiate or change activities once an exchange began. The following episode provides an example of Joshua's difficulties related to changes in the social interaction.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

I am holding half of a nesting cow over my mouth, and making a loud raspberry sound. Joshua is watching me closely, and when I stop, move the cow away from my face, and smile, he begins to cry, and drops his head to the floor. I make another raspberry, and he looks up at me and smiles. I pause, smile at him, and then quickly make another raspberry sound. He smiles and laughs. I start to make a third raspberry, but cough instead. Joshua drops his head down to the floor, and begins to whine. I make another raspberry sound, and as he looks up at me, I hold the cow close to him. He drops his head back to the floor, and cries.

This episode demonstrates Joshua's lack of flexibility within an interactional exchange. He uses sounds and gestures to send messages to me, but communicates for limited instrumental purposes. He does not express a range of meanings with his early communicative behaviors, and will not share the lead in play activities.

Figure 6 provides an overview of Joshua's ECO-ISCS ratings during the trainability interaction. The scores represent Joshua's general level of social interaction during unstructured play with an unfamiliar partner. On the whole, his scores reflect a less responsive communicative style than during play with his mother. It is felt these scores reflect a certain degree of stranger anxiety on his part.
Parent Interview

The parent interview consisted of having Elaine complete the Adult Communication Previewing Scale, as well as respond to a series of ten standardized open-ended questions relating to her perceptions of social and communicative development. During the interview, Elaine was able accurately to describe Joshua's communicative behaviors, and could also talk about what she was "supposed to do to help him learn to talk." The following excerpt describes how Elaine's feels she should be communicating with her son.

FIELD NOTE ENTRY - PARENT INTERVIEW

Well, I don't do a lot of baby talk with him, I will try to make his sounds back at him, but I don't do a lot of baby talk because I just
can't do that. Um, I just talk to him, you know, I ask questions, and I just pretty much treat him like a child. Um, not as much like a baby with a lot of baby talk, but I've been trying to work on that a little bit, because everyone says I need to do that, especially his teacher! She keeps telling me all these things I need to do, Like to go "babababa", and "MMMMMM," and then I try to do that "MAMAMAMA," and that's about it. I just don't feel comfortable doing this.

This episode reveals that while Elaine enjoys interacting with Joshua, she is not providing him with a strong model for developing a mental representation of his next developmental steps. While Elaine herself may be aware of what her son needs to do next, she is not helping him rehearse these upcoming skills in enactment types of exercises.

The following excerpt, which is in response to the question "What do you think Joshua needs next to become a talker?" describes Elaine's perception of her role in helping Joshua learn to talk.

FIELD NOTE ENTRY - PARENT INTERVIEW

Having us play with him, and showing him what's next to keep him going, to show him what's next. To keep him going that way I think. I think that he's going to need speech therapy eventually for help with his tongue. That's going to be a hindrance, but um, he's even doing better with that..............I think we have to get "Mama," and "Dada," down, I think that's going to be next. I think he's starting every once and a while, once in a great while you hear "Mama," that's what he needs to get down so then he can move on to other sounds. Sometimes I go like this (holds Jacob's lips together), so he gets the idea of getting those lips together, and um, just keep working with him, an trying to get him to look at me and imitate me. He needs to imitate me and have those lips together.

While Elaine describes the importance of imitation in her interactions with her son, the videotaped samples illustrated that these stated beliefs were not always translated into actual practice with her son. While Elaine did
present with a very playful interactive style, she did not show Joshua the "next steps" in communicative development. She also emphasized the importance of having him imitate her during play, yet she rarely provides any vocal models that Joshua could imitate with any degree of success.

Thomas and Mary Joan

Thomas was a twelve month old boy, who was diagnosed as having floppy baby syndrome (and possible hypotonic cerebral palsy), at three months of age. He was an only child, and the first birth within the family. Thomas was involved in a center based early intervention program, through Franklin County Early Intervention Programming. Thomas attended infant stimulation groups with his mother two mornings a week, and received both physical therapy and occupational therapy on an individual basis. He was not involved in any speech/language therapies at the time of the research visit. During the visit, the Rossetti Infant Toddler Language Scale was administered to Thomas, and he displayed significant delays across all areas of linguistic functioning. In the area of interaction and attachment Thomas earned an age equivalency of 6-9 months, which was his highest skill area. On all remaining areas examined including gestural abilities, pragmatic skills, play abilities, language comprehension and language expression, Thomas scored solidly at the 3-6 month level, with a strong scattering of skill success at the 6-9 month level.

Mary Joan, Thomas' mother, worked as a full time homemaker, and spent most of her time during the day taking Thomas to different therapies and
doctor's appointments. She was an involved and caring mother, who had read extensively about the potential developmental difficulties her son may encounter.

Parent-Infant Interaction

Mary Joan and Thomas exhibited a highly reinforcing, and mutually enjoyable social relationship during the research visits. They were observed in the three play contexts of object focused play, people centered play, and an activity that Mary Joan described as being one they enjoyed doing together. Across all three interactive contexts, it was observed that Mary Joan provided Thomas with a supportive and nurturing communicative environment. The following episode illustrates Mary Joan's interactional style.

FIELD NOTE ENTRY - PEOPLE PLAY

Thomas and Mary Joan are lying on the floor facing one another. Mary Joan takes Thomas by both hands, and jostles them back and forth. Mary Joan is smiling at Thomas, and making soft cooing sounds. Thomas begins to vocalize in a long excited string of "AHHHHHHH," sounds and moves his hands up and down quickly. Mary Joan imitates his sounds, and moves her body in the same way he is moving his. Thomas stops, vocalizes, looks at his mother and smiles. Mary Joan looks at him with a surprised look on her face, and says, "AH? AH, what?" She waits for approximately five seconds, and then Thomas starts to vocalize again.

This episode illustrates the well balanced partnership Mary Joan and Thomas have developed. Mary Joan gave Thomas ongoing and appropriate feedback on the sounds he was using, and she waited for him to both initiate and respond to her. By using the same sounds and actions that Thomas was using, Mary Joan encouraged her son to stay longer in play interactions with
her. She was an engaging partner, who reinforced Thomas' communicative attempts just in the ways she responded to him.

Mary Joan also communicated in a way that supported Thomas' interests and motivations during their exchanges. The following episode describes the reciprocal nature of the interactive relationship between Mary Joan and Thomas.

FIELD NOTE ENTRY - PEOPLE PLAY

Mary Joan is lying on her back and she sits Thomas on her stomach. His back is braced against her knees and his legs are stretched out on her chest. She is holding both of his hands, and smiling up at him. "Let's bounce!" she says, and moves her body up and down several times. She stops and looks up at Thomas with an expectant look on her face. Thomas laughs, and Mary Joan says, "More!" She bounces him up and down several more times. She stops and again waits for his response. Thomas laughs, but Mary Joan does not immediately begin to bounce him, instead she continues to look at him with an expectant expression on her face. "AHHHH," vocalizes Thomas, and Mary Joan bounces him up and down several more times. Again she stops and looks expectantly at her son. He looks at her briefly, then looks away without making any sounds. "All done," Mary Joan says as she lifts him off of her lap and sits up.

This episode illustrates how responsive Mary Joan was to Thomas's changes, and how willingly she responded to what she saw as being his focus of interest. She displayed a good balance between having Thomas initiate and respond during their interaction. She waited long enough to give him the opportunity to respond, but also changed to let him know that she expected more from him than just the same communicative behaviors again and again.

Throughout the course of all three play activities, Thomas seemed to be very interested and involved with what his mother was doing. In the
following episode Mary Joan engages Thomas in an unstructured game, that evolves out of a feeding activity.

FIELD NOTE ENTRY - PARENT SELECTED ACTIVITY (FEEDING)

Thomas is sitting in his highchair smiling at his mother. She is holding a spoonful of food in front of him. She slowly moves the food towards his mouth, then quickly pulls it away. Thomas laughs and vocalizes "AAAA." Mary Joan brings the spoon closer to him again, and Thomas turns his head away from her. Mary Joan laughs and Thomas vocalizes loudly. Mary Joan again extends the spoon towards Thomas, but he is smiling and vocalizing and does not try to take the food. Mary Joan puts the spoon down, and moves her face closer to his. Thomas starts to drool and make raspberries, which blow spit on his mother's face. Mary Joan laughs and in an exaggerated voice says, "Oh yuck!" She elaborately pretends to wipe her face off. Thomas vocalizes louder, drools more profusely. Mary Joan says "Oh Yuck" again, and Thomas laughs and drools more.

This episode demonstrates how Mary Joan was able to keep the interaction going, even if it meant not getting Thomas fed immediately. By demonstrating this playful style of interacting, Mary Joan effectively encouraged Thomas to participate in the exchange. For his part, Thomas looked like an interesting and willing partner in play, who responded willingly to his mother's words and actions.

When viewed as a collective whole, the interactional exchanges between Mary Joan and Thomas revealed an overall pattern of mutual reciprocity and joint activity exchanges. Mary Joan responded to and matched Thomas's communications in such a way that encouraged him actively to remain with her. She also responded more to his messages than initiating her own.

To examine further the patterns of interaction that emerged between Mary Joan and Thomas, their performances were rated on the ECO-ACE and ECO-
ISCS respectively. Figure 7 displays Mary Joan's average performance on the scaled variables of the ECO-ACE. Consistent with her performance with Thomas, she scored in the 4-5 point range across all five adult style measures. Her greatest strengths were seen in the areas of responsiveness, nondirectiveness, and emotional attachment.
Thomas' performance on the ECO-ISCS is consistent with the behaviors displayed by his mother on the ECO-ACE. He was observed to be a highly responsive child, who preferred social interactions to solitary play. Thomas was also able effectively to initiate and respond to his mother during social games. As shown in Figure 8, his greatest strengths were in the areas of social play and interaction and nonverbal communication.

Investigator-Infant Interaction

During my interaction with Thomas, he maintained the level of interest and responsivity that I had observed with his mother. He was a willing participant in play, and proved to be an engaging partner. The following episode is a description of his style of interaction with me.
FIELD NOTE ENTRY - TRAINABILITY

Thomas and I are lying on the floor facing one another, with the chime clown between us. He reaches for the toy, and bats at it, causing it to rock back and forth. As it rocks, he vocalizes loudly, looks at me, and smiles. I vocalize with him, and push the clown, so it rocks back and forth a bit faster. Thomas arches his back, and vigorously kicks his legs up and down. He hits at the toy again, vocalizing loudly. When the clown comes to rest, Thomas looks at me, and rapidly pumps his arms and legs.

This episode revealed that Thomas was able to maintain his responsivity across different interactional partners. He was aware of how his sounds and actions could affect another person, and therefore was willing to interact with me, even though I was an unfamiliar partner to him. This consistency of interactional competence across partners, indicated that Thomas had a well developed sense of how to express his wants, needs, and social desires through a variety of sounds and gestures.

Figure 9 displays ECO-ISCS scores obtained for Thomas during his interaction with me. These scores represent his general level of communicative success and social interest during play with an unfamiliar partner, who is using interactive strategies thought to support emerging communicative behaviors. On the whole, his scores reflect a general degree of consistency when compared to the scores obtained during his interactions with his mother. Thomas continued to present as a child who preferred social contacts to solitary play, and who could initiate, respond, and modulate the flow of a social exchange effectively.
**Parent Interview**

The parent interview consisted of having Mary Joan complete the scaled portion of the Adult Communication Previewing Scale, and then respond to a series of 10 open-ended standardized interview questions. Mary Joan's responses indicated that she saw herself as playing a pivotal role in Thomas' development of communicative abilities. The following comment is an excerpt from Mary Joan's response to the question "How do you think you are helping Thomas learn to communicate?"

**FILED NOTE ENTRY - PARENT INTERVIEW**

.....I think that I am an important person for him to learn with. I mean he's with me all day, so we have to figure things out. I try to play with him in ways that really grab his attention, and he seems to like it best when I'm silly and do the things he does. We have a
great time together! It seems as if when I'm really silly he tries even harder to talk to me. You know, it's like he knows that I'm doing this stuff just for him. It really gets him going.

This observation reveals that Mary Joan sees herself as having an important and influential role in her son's life, and this attitude is reflected in how she interacts with him. Her description of her role, is matched to her actions. She has recognized the importance of her behaviors and how they can affect her son's development. It is through this well developed intuitive sense of how her behaviors can create an atmosphere that she is able to support Thomas in predicting and rehearsing upcoming developmental changes.

Mary Joan's attitude of parent as a significant social partner is reflected in the following response to the question, "How do you affect Thomas's communicative and social skills?"

FILED NOTE ENTRY - PARENT INTERVIEW

I think that I am showing him how to take turns both in play and when he makes sounds. By having me do these things with him, I think that I show him how much fun it can be to play with other people. I think by giving him lots of attention, I have some kind of an impact on how he makes sounds. The more he makes, the more attention I give to him! I think I do this because I can really envision him talking some day, and I want him to know that no matter what he says or does, he will get a response or reaction from other people.

As revealed by this response, Mary Joan is aware of the kinds of developmental changes Thomas is approaching, and is attempting to prepare him for these changes. By being able to represent mentally what she expects her son to do next, she is able to incorporate those up coming developmental
changes naturally into her everyday interactions with him, which provides Thomas with practice of skills he is preparing to master. According to Trad (1992) and Bloom and Lo (1990), it is through this type of representation and enactment cycle or previewing activity that Mary Joan is able to become confident about predicting changes in her son, and at the same time is able to assist Thomas in becoming a more competent and effective communicator.

Mitch and Carol

Mitch was a typically developing 9 month old boy, who was very mobile. He had recently begun standing on his own, and would teeter precariously as he pulled himself up against furniture when trying to reach his favorite toys. Mitch was an only child, but his mother Carol was four months pregnant with her second child. While Carol did not work outside of the home, Mitch did go to a private babysitter two mornings a week, and had recently been enrolled in an evening child care facility two nights a week. He stayed at the center while his mother attended classes at the university. During the research visit the Rossetti Infant Toddler Language Scale was presented to Mitch. Based on direct observation of his communicative abilities and parental report, Mitch earned an age equivalency of 9-12 months in the areas of interaction and attachment, pragmatic abilities, and gestural skills. Play skills were found to be strongly emerging at the 9-12 month level as well. Language expression and language comprehension were found to be solid at the 6-9 month level, with limited skill success at the 9-12 month level.
Carol presented as extremely shy and reticent throughout the course of the research visit. She talked a great deal about the upcoming birth of her second child, and how difficult it would be to have two children under the age of two years at the same time.

Parent-Infant Interaction

Carol and Mitch displayed a highly passive and nonresponsive social interactive style throughout the course of the research visit. They were observed in three social contexts: play with toys; people play; and an activity that was self selected by Carol. Observation across all three interactive contexts revealed that Carol rarely initiated contact with her son, nor did she respond to the majority of his communicative interests. Mitch presented as a fairly self motivated child, who did not actively seek any type of social contact with his mother.

Throughout the course of the three play activities, Carol engaged in an interactive style that could best be described as nonresponsive. The following episode describes Carol's behavior.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Mitch and Carol are sitting on the floor facing each other. Mitch picks up the nesting animals, and begins to pull them apart. Carol is watching, but does not comment on what he is doing. Mitch drops the cow on the floor, and picks up the chicken. He turns the toy over in his hand, looking at it intently. He puts the chicken up to his mouth, begins to chew on it, and then looks around the room. Carol uncrosses her arms, and says in a flat, monotone voice, "It's like a cup." She reaches for some of the other animals, and pushes them in front of Mitch, and picks up half of the cow. Mitch drops the chicken into the cow she is holding and says "ADA." Carol drops the cow on the floor, and turns to look out the living
room window. Mitch looks at her, then looks away as well. Carol looks back at her son, and picks up the cow again and says, "This?" She drops the cow and Mitch, who is still not looking at her, picks it up and puts it up to his mouth.

This episode demonstrates Carol's lack of responsiveness to Mitch. She did not appear to be interested in what he is doing with the toys, and acts more as an outsider than a facilitator of play. Carol also responded inconsistently to Mitch's simple communicative gestures. She ignored his sounds and physical cues that tell her where his motivations lay, and instead tried to direct the course of play by introducing topics, but then not supporting Mitch by expanding the ideas.

The following episode further demonstrates the difficulty Carol experiences engaging in mutually reinforcing activities with her son.

FIELD NOTE ENTRY - PEOPLE FOCUSED PLAY

Mitch is standing in front of the sliding glass doors, and Carol is sitting behind him, but cannot directly observe where his attention is directed. "BAAA," vocalizes Mitch as he bangs on the glass door with both hands. He bangs on the door several times and says, "DOI." he drops a spoon he is holding on the floor and pushes it back and forth with his foot for several seconds. Then he bends over to pick it up, but immediately begins banging on the glass door with both fists, and vocalizes "BAAAAA." The he starts to bang on the glass with the spoon. Carol is sitting behind him smiling, but not trying to participate in his play. Mitch stops banging on the glass, and begins to study the spoon intently. He is leaning against the door with his with hand, but loses his balance and starts to fall. Carol quickly catches him, and sits him on the floor in front of her with his back towards her. Mitch immediately starts banging on the floor with the spoon and vocalizes "Abababababa."

Carol was not involved in Mitch's play. She observed what he is doing, but made no attempt to participate in his play, thereby depriving him access to any reinforcement about the effects of his communicative bids. For his
part Mitch appeared to be happy playing alone. He did not look to his mother for encouragement, instead found his reinforcement in solitary play activities. Even when she caught him when he started to fall, Mitch did not even look at his mother to acknowledge her presence.

Closer inspection of the play relationship revealed a genuine lack of reciprocity between Mitch and Carol. In the following episode Carol attempted to engage in play with Mitch, but her play activities were so mismatched to his, that the interaction does not develop into an easy back and forth exchange, which is critical to early social and communicative development.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Carol pushes a bowl holding three balls closer to Mitch, who is holding the nesting mouse in his hand. "Look, ballies," Carol says as she moves the bowl closer to her son. Mitch drops the mouse and reaches for the bowl. Carol lets go of the bowl, and takes another ball out of the basket and drops it into the bowl. Mitch looks at the bowl for several more seconds, but instead picks up the chime clown that is sitting on the floor in front of him. He moves the clown up to his mouth and starts sucking on it. Carol watches him, but starts pushing some of the nesting animal around on the floor.

While Carol tried to engage in play with Mitch, there was not a well developed sense of reciprocal interaction. Carol initiated play activities, but did not respond to Mitch's changes or interests in the play. Mitch would occasionally respond to his mother by adopting her activity, but he did not engage in any extended turntaking exchanges on any one given topic. Neither Carol nor Mitch showed that they enjoyed playing together; therefore, neither tried to act or play in ways that would keep the interaction
going. Their play seemed to take on a pattern of dead-end contacts, where only a single turn was taken on each topic or activity introduced.

Further evidence of this lack of active togetherness between Carol and Mitch was exemplified in the following episode.

FIELD NOTE ENTRY - PARENT CHOICE ACTIVITY (EATING)

Mitch is sitting in his high chair, and Carol is sitting on a chair facing him. She is holding a plate with his lunch on it. She takes a spoonful of food, holds it out to him and says, "MMM." Mitch takes the food and watches his mother. Carol looks away from him as she gets another spoonful of food. She gives it him, and Mitch looks around the room, vocalizing "AAAA." Carol watches him, but does not respond to his sounds.

This is an activity that Carol described as "the time when we have the most fun together. It's something Mitch really enjoys." Unfortunately, the videotaped samples did not support her description of the activity as being one that was mutually reinforcing and a time when Mitch was provided with support for his emerging communicative behaviors. Even when he vocalized, Mitch did not appear to be trying to elicit his mother's attention.

When looking at patterns of exchange that emerged between Mitch and Carol across all three interactive contexts, a recurrent theme of limited social reciprocity was observed. Carol maintained a highly nonresponsive and socially passive style of interacting with her son. She rarely initiated or responded to his actions and sounds, and appeared to prefer quietly observing him playing alone. When Carol did attempt to participate in Mitch's play, she did not try to extend the length of their exchanges. Instead Carol would typically introduce a new toy or topic, then passively observe while Mitch explored the activity on his own.
For his part Mitch was a vocal and physically active child, but appeared to prefer solitary play to social exchanges with his mother. He did not actively initiate or consistently respond to his mother in ways that would encourage her to stay longer in social exchanges with him. Mitch was also observed as staying only briefly on topics during play activities, and appeared to have sporadic interest in toys or topics introduced by his mother.

A further examination of the interactive nature of Mitch and Carol's interactive relationship was conducted using the ECO-ACE and ECO-ISCS to rate their observable behaviors during social exchanges. Figure 10 shows a profile of Carol's average score for each of the five styles measured across the three interactive contexts. It is important to note that Carol consistently scored in the lower range of the scale, indicating that she does not consistently provide a nurturing social environment for her son.

Figure 11 represents average ECO-ISCS ratings for Mitch across the interactive contexts of object focused play, people centered play, and the parent selected activity. Observation of Mitch's social communicative interactions along the parameters of the scale, revealed an interactive style that was predominantly solitary in nature during play exchanges with his mother.
FIGURE 10. PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS

FIGURE 11. INFANT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS
Investigator-Infant Interaction

During my interaction with Mitch, I found him to be much more responsive, and more willing to stay in extended turntaking exchanges than when he was playing with his mother. By employing a more animated, matched, and responsive interactive style, I was able to engage Mitch in socially reciprocal play, where we exchanged actions and communications spontaneously. The following is an example of the type of reciprocal play we engaged in.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

I reach for the cow that is lying on the floor between Mitch and me. I pick the cow up and put it on my head. I lean forward so Mitch can see the cow, and then pause for several seconds. He is watching the cow closely, so I tip my head to one side, and the cow falls off. I pick it up and hold it towards Mitch. He picks up the sheep, pulls himself up onto his knees, says, "Deee!", and puts the sheep on top of my head. I tilt my head to the side, and the sheep falls off. Mitch laughs, picks up the sheep, puts it on my head again and says "Deee!" "Up!" I say in an exaggerated voice. Mitch laughs, so I tilt my head to the side, the sheep falls off, and Mitch picks it up again.

This episode illustrates the importance of matching a child's actions and communications in order to provide a facilitative interactive environment that encourages the child to stay in active play exchanges with you. According to Garvey (1977), Hartup (1989), and Kaye (1982) children do not learn about communication in isolated or solitary play. Rather they rely on reciprocal social exchanges with partners who are finely tuned to their current social needs and interests. By acting and communicating in ways that are similar to what Mitch is doing, I establish an interactive environment that promotes a sense of competence and success within our exchange.
In addition to matching Mitch's actions and communications, I tried actively to follow his lead, but at the same time attempted to show him new and different ways of interacting with toys and people. The following episode is representative of how I tried to follow Mitch's lead.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY
Mitch is holding the chicken in front of his mouth chewing on it, so I pick up the sheep and pretend to chew on it. Mitch moves the chicken away from his mouth, and shakes it up and down. I also shake my sheep up and down. Mitch looks at me and smiles. I smile at him, then hold my sheep towards him, and gently tap it on the side of his chicken. I then move the sheep away from the chicken and smile at Mitch. Mitch laughs, leans closer to the sheep and starts to bang on it with his chicken.

In this brief exchange I show Mitch how to both lead and follow in a social play exchange. I imitate his actions with the toy, but then introduce a new aspect to our game, when I tap the two animals together. By responding to his play interests, then initiating a related but slightly different play scheme, I am able to show Mitch how he is affecting and can be affected by his social partners.

Figure 12 shows Mitch's ECO-ISCS ratings during his interaction with me. These score represent his general level of performance during object focused and people focused play with a partner who is employing interactive strategies designed to support early communicative behaviors and social abilities. In general, Mitch's average performance ratings reflect a more socially driven interactive style than was observed during play with his mother. The most noticeable differences were observed in the competency areas of social interaction and play and nonverbal communication.
**Parent Interview**

The parent interview consisted of having Carol complete the scaled portion of the Adult Communication Previewing Scale, and respond to a series of 10 open-ended standardized interview questions. Both portions of the instrument asked questions that related to Carol’s attitudes and perceptions about Mitch’s current developmental status, his imminent developmental changes, and the role she played in helping him learn about language. Carol experienced some difficulty in describing how her son communicated his wants and needs to her. She was able to identify physical behaviors, but did not recognize sounds as precursors to actual language.
development. The following excerpt describes how Carol perceives her son communicating.

FIELD NOTE ENTRY - PARENT INTERVIEW

Well I guess that Mitch lets me know what he wants mostly by pointing and crying, or waving his hand at what he wants. Um, by his facial expression, I mean as far as facial expressions, it's probably the best way I can tell his mood. By the way he sits, or like if I haven't gotten there quick enough, if I've gone to take a shower, in his crib he might just huddle in the corner to let me know that he doesn't like being left there. Or he'll bang on the wall and just get really mad.

While Carol attributed meaning to his physical movements or gestures, she did not identify any vocal behaviors that could be interpreted as precursors to a more formalized language system. The following excerpt is her response to the prompt "How do you think he communicates with sounds?"

FIELD NOTE ENTRY - PARENT INTERVIEW

Well he really isn't talking yet, but I guess he does communicate by crying. Sometimes he makes sounds but they aren't really words.

This statement demonstrates Carol's refusal to acknowledge Mitch's sounds as an important building block within a language system. According to Trad (1992) and Goldberg (1977), by not identifying, and subsequently responding to sounds as meaningful units of social exchange, Carol is denying Mitch access to an important part of early learning. If she does not perceive his sounds as meaningful, she cannot respond to them in such a way that will encourage him to evolve into an interactional language partner.
When asked to describe the role she sees herself playing in Mitch's development of communicative abilities, Carol reported that she tried to label objects and activities for Mitch to help him develop a better understanding of the world around him. The following episode is Carol's description of her style of language stimulation with her son.

FIELD NOTE ENTRY - PARENT INTERVIEW

Well I try to talk to him and tell him what I'm doing when I'm doing it. I try to talk to him as far as what we're doing at the time. Like, O.K., "We're changing your diaper," "We're putting your socks on." I play with him, I try to do what he is interested in, as far as if he's looking at something at the time, I try to figure out what he wants.

While Carol describes herself as talking to Mitch about the things he is interested in, or employing a type of self talk where she describes her actions and activities, the videotaped samples reveal that her stated beliefs are not always translated into practice. Videotape transcripts revealed that Carol primarily employed a passive, observational style with her son, and rarely provided him with language models that were related to his topics, interests, or motivations.

Lisa and Molly

Lisa was a gregarious, and socially outgoing 11.5 month old, with no history of any developmental or medical concerns. She was the second child in the family, and had a three year old sister, Suzanne. Lisa presented as a highly self assured child who had recently learned to climb down the stairs independently. Lisa has been involved in a variety of play group programs since birth, and currently attends a small informal neighborhood group three
mornings a week. This group consists of six other children who range in age from 12 to 30 months. Lisa currently is the youngest child attending the play group. During the research visit, the Rossetti Infant Toddler Language Scale was administered to Lisa. She earned an age equivalency score of 12-15 months in all areas of linguistic functioning, including pragmatic and gestural abilities, play skills, and language expression and comprehension.

Molly, Lisa’s mother, was a friendly and relaxed woman, who worked as a full-time homemaker.

**Parent-Infant Interaction**

Molly and Lisa were observed as having a playful, but often very one sided social interaction style throughout the course of the research visit. They were observed in three interactional contexts: play with toys, people play, and an activity selected by Molly, that represented an activity she felt she and Lisa enjoyed doing together. Across all three activities, it was observed that Molly primarily displayed a highly directive and controlling style with her daughter. Lisa’s interactions were characterized by brief contacts with her mother, and a high proportion of self directed play activities. She would often physically remove herself from the activity if her mother became overly directive, but could easily be brought back to play activities.

Observation of Molly and Lisa revealed that Molly used questions and directives as her primary language stimulation technique with Lisa. She would typically ask a series of questions in rapid succession that were not related to Lisa’s current interests. The following episode describes Molly’s behavior with her daughter during object focused play.
FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Lisa and Molly are sitting on the floor, with the nesting animals between them. Lisa is looking at another toy, the chime clown, while Molly arranges the animals in a line in front of Lisa. Molly picks up the mouse, holds it in front of Lisa, and says, "O.K., where does he go? Where does he go?" Lisa ignores her mother and reaches over and picks up the chicken, and holds it close to her chest. "O.K., where does he go?" Molly persists as she shakes the mouse back and forth in front of Lisa. Molly reaches over, takes the chicken out of Lisa's hands, and drops the mouse inside. Molly holds the head of the chicken in front of Lisa, and asks, "Does the chicken eat him? Huh? Does the chicken eat him?" Lisa looks away from her mother, and picks up the clown that is sitting on the floor beside her. Molly picks up the pig, drops the chicken inside of it and asks, "Does the piggy eat the chicken? Does he eat the chicken? What does he do?" Lisa looks at her mother briefly, then crawls away.

This episode demonstrates Molly's lack of awareness of how she is affecting her daughter during their play together. By asking such a high proportion of directive questions, and not allowing Lisa the time to respond, Molly has, in essence, communicated to her daughter that she does not need to be a participant in the exchange. According to Kaye (1982) this type of controlling adult style limits the opportunities that the child has to participate in the interaction, and this in turn limits the learning that will occur.

In addition to controlling the focus of the exchange, it was noted that Molly also controlled the initiation of topics in play with her daughter. The following episode describes Molly's behavior.

FIELD NOTE ENTRY - PARENT SELECTED ACTIVITY

Lisa in sitting on Molly's lap, facing her. Molly has a make-up brush and is pretending to put make-up on her daughter. Lisa tries to reach for the brush, but Molly holds it out of her reach, and puts it back in the plastic make-up case. Lisa whines, and tries to reach
the plastic case. "Oh you don't want that!" Molly says, and tries to hold Lisa on her lap. "Hey Lisa, where's your nose?" Where's your nose?" she questions as Lisa continues to struggle to get free. "Where' mommey's nose?" Molly asks, but Lisa does not pay any attention to her. Molly reaches over, takes the make-up brush out of the plastic case, but does not give it to Lisa. She runs the brush over her nose, and asks Lisa again, "Hey! Where's mommey's nose?" Lisa tries to reach for the brush. "Can you find mommey's nose?" Molly persists. Lisa begins to whine, and tries to climb of her mother's lap.

This episode illustrates Molly's complete refusal to recognize Lisa's communicative signals, and depicts how she places her daughter in a highly passive and responsive role during play. In this exchange Molly uses questions almost exclusively to initiate and continue the interaction. She does not attend to Lisa's interests, but rather continues to demand attention to an activity that is not motivating for her daughter. By using questions to control the direction of the play, and therefore ignoring her daughter's sounds and actions, Molly does not allow Lisa to experience success relating to the effectiveness of her communicative bids.

In response to her mother's highly directive and controlling style, Lisa expresses a limited range of meanings and purposes in her communication. The following episode demonstrates the lack of variety in Lisa's social and communicative repertoire when interacting with her mother.

FIELD NOTE ENTRY - PEOPLE PLAY

Lisa and Molly are sitting on the floor. Lisa is holding a small purse on her lap and is trying to get the zipper undone. When she can't do it, she throws the purse on the floor, looks at her mother, and says "UH!" Molly picks up the purse, opens it, then pulls the zipper shut and says, "See how that's done?" She hands the purse back to Lisa, who tries to open it again, but can't. Again Lisa throws the purse on the floor, shakes her head from side to side, and says "AAAA." Molly again opens and closes the purse the several times
before she gives it back to her daughter closed. Lisa picks up the purse, shakes it, throws it on the floor and crawls away.

This episode demonstrated Lisa's frustration and lack of communicative success with her mother. Her initiations were for instrumental purposes only, and she did not actively work to maintain her mother's interest in the activity.

Another pervasive difficulty observed in Lisa and Molly's play interactions was the lack of joint activity and mutual reciprocity in their exchanges. The following episode illustrates a typical exchange between the two.

FIELD NOTE ENTRY - PEOPLE PLAY

Molly and Lisa are sitting on the floor beside one another. Molly is holding a book, and Lisa has a purse hanging around her neck, which she is trying to open. Molly opens the book and begins to read. "The little lamb had gone to play," she began, "He wandered off and lost his way! There's his house Lisa," she says as she points to the picture. Lisa is pulling at her purse, and not looking at her mother. "Here's mommy and daddy. Look here's mommy and daddy lamb," Molly continues to point to the book, but doesn't look at her daughter. Lisa continues to play with her purse.

A weakness in this interaction revolved around the lack of give and take in play. Lisa and Molly rarely imitated one another, or even seemed to notice each other as they played side by side, but attending to different activities. Waiting, signaling, and expecting did not occur simply because their parallel play style could continue without using these strategies.

When viewed as a collective whole, the interactional episodes observed between Lisa and Molly revealed an overall pattern of limited give and take, adult directiveness, and a low rate of response from Lisa. By and large, the interactions between Lisa and Molly were adult directed, and highly
controlled in nature. Lisa was not provided an active role within play exchanges, and her communicative bids were often ignored by her mother. Molly displayed a controlling and directive style, that did not allow Lisa any freedom within the exchange to experience success as a communicative partner.

In order to examine further the degree to which different interactive patterns were displayed across the three interactive contexts, parent performance was rated on the ECO-ACE. Figure 13 illustrates Molly's average performance scores across the three interactive contexts of object focused play, people play, and the parent selected activity. Her scores for the competencies of match, responsiveness and nondirectiveness consistently fell in the 1-2 point range, which was compatible with observations of her interactive performance. Scores for balance were typically higher because of her frequent, and at times dominating, style of initiating contacts with her daughter.

Figure 14 displays Lisa's average performance ratings on the competency areas of the ECO-ISCS. She consistently presented with a low profile across all four competency areas of social interaction and play, nonverbal communication, language, and conversation.

**Investigator/Infant Interaction**

During my interaction with Lisa, which included object focused and people focused play, she presented as a much more social and responsive child. By employing a more playful, balanced, and nondirective interactive style with Lisa, I allowed her to become a more active participant within our
exchange. The following episode describes Lisa's behavior during a play activity.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

Lisa is looking at the nesting animal on the floor in front of her. I pick up the cow, hold it over my mouth and vocalize "AAAAA." loudly. Lisa smiles, and I hold the cow towards her. She puts her face close to the cow and sighs loudly. I move the cow back in front of my face, and sigh like she did. Lisa smiles and reaches for the cow. I hand it to her, she holds it over her mouth and says, "AAAA." She then hands the cow back to me, and I imitate her sounds.

This episode demonstrates how social and responsive Lisa can be when her partner gives her the opportunity to participate in the exchange. By playing in a way that Lisa can easily imitate, and using sounds that are currently within her repertoire, I am allowing her to experience success within a play exchange. Also by waiting expectantly for Lisa to take her turn, I am showing her that I want her to participate in the play.

In addition to matching and waiting for Lisa, I tried actively to follow her lead in play. By letting her know that her sounds and actions were affecting my responses, I tried to achieve a balance between showing her new ways of communicating and imitating the behaviors she engaged in.
FIGURE 13. PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS

FIGURE 14. INFANT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS
FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

I lie down on the floor in front of Lisa, put the cow on my head, and says "Hat!" She laughs, and knocks it off of my head. I laugh with her, pick the cow up again, and put it back on my head. She squeals, knocks it off, and laughs loudly. I gasp, reach for the cow, and hold it out to her. She takes the cow and puts it on her head. I pick up the sheep and put it on my head. She laughs, and knocks the cow off of her head, I do the same thing. Lisa picks the cow up again, and put it back on her head. She smiles and leans closer to me, so I push it off. Lisa laughs, picks the cow up and hands it to me. I take it from her, and put it on her foot. "Shoe," I say, she laughs and kicks her leg up and down, making the cow fall off. She picks up the cow, puts it back on her foot, and says, "oo."

This exchange illustrated how Lisa was able to express more socially based communicative behaviors when her partner attended and responded to her gestures, movements, and sounds as meaningful communicative behaviors. By keeping her communicating in a reciprocal routine, where we both initiated and responded to one another, I was able to show Lisa how to effect her communicating partners. She showed herself to be an active communicator, who expected to get a message across to me. She used sounds and gestures to clarify her messages, and actively anticipated my responses to her.

Figure 15 displays Lisa's ECO-ISCS scores during her play interaction with me. The scores represent her general level of performance during an unstructured play activity with a partner who is employing interactive strategies felt to support emerging communicative behaviors. On the whole, her scores reflect a more responsive, social, and reciprocal style than during play with her mother, especially in the areas of social play, and nonverbal communication.
Parent Interview

During the parent interview it was observed that while Molly was able to describe accurately the types of behaviors she used to encourage language development, she demonstrated a lesser ability to understand the implications of her behaviors with her daughter. The following excerpt from the parent interview is Molly's response to the question, "How do you communicate with Lisa?"

FIELD NOTE ENTRY - PARENT INTERVIEW

I pretty much communicate with her in the same way I do with everybody. I talk to her on a normal level, I try not to talk babytalk with her too much. But I do ask her a lot of questions, that way I try to point out words to her, like "Do you want your bottle?" You know if she's kinda doing something that says something to me, I try to ask her questions. Um, and I pretty much talk normally to
her. Ah, you know, "Did you sleep good last night?", "Do you feel better?" I guess I ask her a lot of questions.

By relying on questions as her primary mode of language stimulation, Molly is placing Lisa in a passive, and responsive role. The types of questions Molly describes herself as using, are closed ended in nature, and require only minimal responses from her daughter. By using only yes/no types of questions, Molly is not encouraging her daughter to expand her vocabulary, nor is she accomplishing her primary goal of "pointing words out to her."

Once Molly described how she communicated with Lisa, she was asked what she thought could interfere with Lisa's continued development of language skills. The following excerpt is her response to that question.

FIELD NOTE ENTRY - PARENT INTERVIEW

Well I think that she would be discouraged if she wasn't listened to. You know how you sometimes see parents ignore when their children are trying to express themselves. I mean you have to be kind of attuned to it, and if you're not attuned to it, then I guess they wouldn't advance.

Even though Molly expresses the belief that responsiveness is an important strategy in helping a child learn language, her interaction with Lisa revealed that she didn't necessarily translate this philosophy into practice. During play with her daughter, Molly consistently ignored Lisa's vocal and gestural communicative behaviors.

The implications of this mismatch between Molly's thoughts about language development and her actual practice, has implications for the effectiveness of her previewing skills with her daughter. Even though Molly can verbalize that she thinks responsiveness is an important skill, she does not translate this into actual practice with her daughter. According to Trad
(1992; 1993), if Molly is not able to read and respond to Lisa's emerging social and communicative behaviors, she will not be able to assist her daughter in developing the ability to predict and successfully rehearse upcoming developmental changes. It is through experiencing dyadic success in these types of previewing exchanges, that Lisa will learn to operate within a paradigm for predicting a reliable outcome amid developmental transition.

Bruce and Pam

Bruce was a busy 11 month old boy, who was in the process of learning how to walk. He did not have a history of any medical conditions that could interfere with language development. Bruce came from a biracial home - his mother, Pam, was Caucasian, and his father, Anthony, was Asian. He was the only child in the family. Bruce attended a small informal play group on a weekly basis, but was primarily at home with either his mother or father. Bruce's mother was part time student at the university, and while she attended classes, Bruce stayed with his father. However, Pam considered herself to be the primary caregiver, as she was alone with Bruce for most of the day, and most evenings when her husband was at work.

During the research visit, the Rossetti Infant Toddler Language Scale was presented to Bruce. In the areas of interaction and attachment, pragmatic ability, and play skill, he earned an age equivalency of 15-18 months. Gestural skills, language comprehension, and language expression tested out at the 12-15 month level.
Parent-Infant Interaction

Pam and Bruce were observed as having a primarily one sided, directive relationship throughout the course of the research visit. They were observed in three interactive contexts including object focused play, people play, and an activity that was selected by Pam that she described as an activity they enjoyed doing together. Across the contexts of object focused play and people play, Pam played a role that was not responsive or supportive of Bruce's emerging communicative behaviors. The following episode is an example of how she directed the course of activities.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Pam and Bruce are sitting on the floor with a shape sorter between them. Bruce pulls the lid off, and holds it close to his chest. Pam picks up the bucket, and dumps the shapes out on the floor. She takes the lid away from Bruce, puts it back on the bucket, then hands a shape to Bruce. He takes the shape, reaches for the bucket, and pulls the lid off again. Then he sits and bangs the shape and the lid against one another. Pam reaches over, takes the lid away from him, and puts it back on the bucket. She picks up another shape and hands it to Bruce. He takes the block, but immediately drops it on the floor, reaches for the bucket and pulls the lid off again. Pam takes the lid away from him, puts it back on the bucket, and says, "You're such a little monkey. I'm going to put this away." Bruce picks up a block up of the floor and looks away from his mother.

This episode demonstrates how unwilling Pam was to let Bruce explore his environment in his own way. She did not show him how he could play with the toy, but penalized him when he didn't do it 'the right way' by taking it away from him. It appeared that Bruce and Pam are on very different agendas during their play - Bruce does the playing and Pam intervenes only when he does something wrong.
Consistently throughout the first two interactive contexts Pam experienced a great deal of difficulty responding to and supporting her son's communicative bids in a positive, reinforcing manner. The following episode describes her behavior.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Pam and Bruce are playing with the nesting animals. Pam takes the pig apart, and holds both halves out to Bruce. He reaches for the head, and then tries to put it back on the feet his mother is still holding. He puts the head on upside down, so Pam reaches over and turns it right side up. Bruce looks away from his mother, and begins to bang both of his hands on the floor. Pam picks up both halves of the cow and puts them together. Bruce reaches for the cow, takes off the head, and puts it back on upside down. Pam says nothing, but turns the head over to its correct position. Bruce looks away from his mother, and just stares around the room. Pam puts the cow down, and holds her arms open wide, palms up, as if she were asking him what they were going to do next. Bruce does not look at her.

This episode demonstrated Pam's lack of active interest in what her son did in play. She appeared to be more involved with the proper use of the toys, than with what Bruce was actually doing. She did not use language that would provide him with models for learning, nor did she reinforce any of his nonverbal communications. Toward the end of the interaction Pam did try to signal a turn by waiting, and holding her arms out in an expectant gesture to Bruce, but her cue was so subtle, and atypical her other behaviors during the research visit, that he did not respond to it.

During people play activities Pam tries to engage Bruce in more fun and social activities. The following episode describes how she tries to keep an exchange going.
FIELD NOTE ENTRY - PEOPLE PLAY

Pam has Bruce sitting on her lap, and she is holding his one foot in her hand. She wiggles one toe and says, "This little piggy went to market, this little piggy stayed at home. This little piggy had roast beef, and this little piggy had none!" Bruce watches her in silence, but suddenly leans closer to her, and bats at her hair. Pam laughs, pauses for several seconds, looks at her son, and opens her mouth up wide. Bruce reaches up to her face, and puts his hand in her mouth. Pam laughs, leaves his hand in her mouth, and continues the rhyme. "And this little piggy," she says in a muffled voice, "Cried WEEWEEWEEWEEWEEWEE all the way home!" As she starts the last line, Pam reaches down and tickles Bruce. He laughs and falls backwards on her lap. Pam continues to tickle him and repeat 'all the way home' several more times.

This demonstrated that Pam and Bruce are able to engage in a fun, more socially based exchange. However, Pam was still the one who controlled the pace and selection of the game. She tried to wait for Bruce to respond on one occasion, but didn't wait long enough, or give him a clear enough signal to let him know he was expected to participate in the exchange.

In the third interactive context, where a parent was allowed to select an activity she felt they both enjoyed, Pam was observed as being a more nurturing and responsive interactional partner. A startling difference was also observed in Bruce's communicative abilities in their play context.
FIELD NOTE ENTRY - PARENT CHOICE (ROCKING HORSE)

Bruce is standing on the floor beside the rocking horse, balancing himself with his right hand. In his left hand he is holding a plastic cover that fell off of one of the handles on the horse. He puts the cover in his mouth, looks at his mother, smiles, and says "Ahna." Pam opens her mouth up wide, leans closer to him, and says, "Ahna." Bruce takes the cover out of his mouth, looks at it, looks at his mother, and then looks at the horse. Pam reaches for the other handle on the horse, and takes the cover off of it. She holds it up in front of her, and smiles. Bruce puts his cover back in his mouth, and smiles at his mother. Pam leans closer to her son, puts the cover in her mouth, and laughs. Bruce smiles, reaches for the cover in her mouth, pulls it out and lets it drop to the floor. Pam laughs, and tries to pull the plastic tube out of his mouth.

This episode demonstrated how different activities can create a striking difference in what a parent and child are able to do together. When Pam was allowed to pick a game that she was familiar and comfortable with, she was able to engage Bruce in a reinforcing, and mutually responsive manner. During this exchange, Pam and Bruce displayed all of the characteristics of a joint activity dyad in their play. Both partners focused on the same activity, communicated in the same ways, and for the same purposes, and used the play material in similar ways. By establishing this type of exchange, Pam was able to have maximal effects on Bruce, and he was able to see immediately how what he did affected his mother.

To explore further the nature of the interactive dyad, the ECO-ACE and ECO-ISCS were completed for the three play contexts. Figure 16 displays Pam's performance profile for all three interactive contexts. It should be observed that Pam scored in the 1-2 range of the scale during the object focused play and people play, which indicated that she seldom or never
engaged in reciprocal exchanges with her son. However, during the parent choice activity, Pam consistently scored in the 4-5 point range, indicating that she consistently employed a much more facilitative and supportive interactive style during this activity.

Figure 17 provides a profile of Bruce's interactive competence as judged by the ECO-ISCS. As with his mother's profile, Bruce scored in the 1-2 range during the first two activities, indicating that he seldom or never engaged in socially driven or mutually responsive routines with his mother. During the third activity, parent choice, a dramatic increase was observed in Bruce's level of performance. During the last play activity it was found that Bruce interacted for more social reasons than he had previously, and that he communicated by using sounds and gestures more regularly.

![Graph showing interactive styles across different contexts](image)

**FIGURE 16. PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS**
**FIGURE 17. INFANT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS**

**Investigator/Infant Interaction**

During my interaction with Bruce, he presented as an engaging, and highly responsive child, who would willingly initiate and respond during object focused play and people focused play activities. By employing a more balanced, responsive, and nondirective interactive style, I was able to encourage Bruce to become an active participant in our play. The following episode describes a turntaking routine we engaged in.

**FIELD NOTE ENTRY - OBJECT FOCUSED PLAY AND PEOPLE PLAY**

Bruce is sitting on the floor facing me, and I am lying on my stomach in front of him. Between us there is a pile of nesting animals. Bruce reaches down, picks up the cow, and holds it out to me. I open my mouth up wide, and take the cow between my lips. Bruce opens his eyes up wide, and looks at me intently. I hold the
cow four several seconds, then let it drop from my lips, as I make a loud raspberry sound. Bruce laughs, quickly picks up the cow again, and holds it back to my mouth. I again take it between my lips, and look at Bruce with my eyebrows raised. He watches me, and when I don't let the cow drop, he vocalizes "AAAA," and waves his arms up and down. I spit the cow out, make a loud raspberry sound, and then laugh with him. "Funny," I say, and shake my head from side to side. Bruce picks the cow up a third time, and extends it towards me. I don't open my mouth but rather tilt my head down, and say "Hat." Bruce bangs the cow on top of my head several times, but finally leaves it sitting there. I slowly reach out and pick up the sheep and put it on his head, and say "Hat!" Bruce laughs, and shakes his head to make the sheep fall off. I do the same.

This episode demonstrated my willingness to follow Bruce's lead, and his ability successfully to initiate a play exchange. By allowing him to control the nature of our play, Bruce was able to send messages that extended the topic of

![Graph](image)

**FIGURE 18. ECO-INFANT SOCIAL COMMUNICATIVE SURVEY: PLAY WITH INVESTIGATOR**
our play, and therefore allowed him the opportunity to stay in an extended turntaking routine. Yet at the same time, I was also concerned that Bruce learn to be responsive to my initiations. By providing him with simple play models, I demonstrated how he could change play in a way that was appropriate for his current level of social development.

In addition to creating an environment that encouraged Bruce to stay longer in mutually reciprocal turntaking exchanges, I also tried to encourage a wider variety and more consistent use of sounds and gestures during play exchanges. The following episode illustrates how Bruce uses sounds and movements to communicate.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

Bruce is sitting in front of me, holding the cow with both hands. I am lying on my stomach, holding the sheep. I hold the sheep over my mouth and make a loud blowing sound, then look at Bruce smiling and with my eye brows raised. He laughs and waves his arms up and down. I put the sheep back over my mouth, and blow again - I look expectantly at Bruce. He laughs, and vocalizes "AHHAHA!" This time I hold the sheep over his mouth, he laughs, and shakes his head from side to side. I put the sheep back over my mouth and make loud growling sound. Bruce laughs, waves his arms up and down, and holds the cow up to his face. He doesn't make any sounds, but looks at me with a big smile on his face. I hold the sheep over my mouth and smile back at him.

This exchange illustrates the importance of recognizing and accepting all behaviors, no matter how primitive, as communicative turns. Bruce used a variety of sounds and body movements to express his desire for continued social contact, and would willingly imitate new sounds and play activities. Central to the success of this exchange is the idea that no matter how primitive or subtle the communicative behaviors, they will eventually take
on a quality of meaning if they are interpreted by the child's partner as being meaningful. By responding to Bruce's sounds and movements in ways that he could understand and perform, I was able to let him experience immediate success in communicating with me.

By providing a supportive and responsive interactional environment for Bruce, he learned that any sound, movement, or gesture he made could send a clear message to another person. By communicating and acting in ways similar to his, I provided effective models for him to use in developing his communication system.

Figure 18 display's Bruce's average ECO-ISCS ratings during the play interaction with me. He was observed as being a generally more responsive and participatory child in comparison to his interactive style with his mother. ECO-ISCS ratings revealed scores in the 4-5 point range indicating that he consistently engaged in reciprocal, social activities with me.

Parent Interview

The parent interview involved having Pam respond to a series of questions relating to perceptions of Bruce's social and communicative development. While Pam was able to provide detailed descriptions of how Bruce was currently communicating, and the changes he had gone through in the past several months, she had a less clear picture of her role in this developmental process. When asked to describe how she communicated with Bruce, Pam gave the following response.
FIELD NOTE ENTRY - PARENT INTERVIEW
Well I respond when he points or if you know if it's something I give to him, or when I play with him I imitate him, or know, or try to say one or two words. Uh, I imitate his actions a lot. I imitate his actions, and you know, I get down on the floor with him a lot. I guess that's about all I do.

Pam's description of her interactions with Bruce reflect that her perceptions are not always reflected in her actions. Videotaped transcripts revealed that Pam was not consistently responsive to Bruce in two of the three interactive contexts observed. These transcripts also revealed that she rarely imitated his sounds, and even less frequently imitated his actions and other nonverbal communicative gestures.

It was also observed during the interview process that Pam was unclear as to the upcoming changes she should be expecting in her son's development of social and communicative abilities. The following excerpt was taken from her answer to the question, "How do you expect Bruce's communication skill to change in the next six months?"

FIELD NOTE ENTRY - PARENT INTERVIEW
Well, I don't know, I guess he would, he would, I don't know. I think he'd probably, I mean he probably would get more words. And probably use them to get what he needs a little more, you know besides just saying the word, he might try to use them to get something he needs. But instead of just pointing at his bottle he might actually say it or something! Probably cry less, I hope. I don't know, I think he, I mean his turn-taking is really good, so guess he'll just keep doing that.

Pam's response reveals a lack of aptitude and self confidence in being able to predict and support Bruce's imminent developmental changes. She does not have a clear representational picture, that allows her to speculate about future changes Bruce may encounter. This inability to adapt her mental picture of
him to include future developmental changes, leaves Pam in the position of not being able to provide a nurturing environment that will foster and support change.

Secondary to the inability to form accurate mental representations of Bruce's imminent developmental changes, is Pam's inconsistent behavior regarding rehearsal of these developmental changes. The following excerpt from the parent interview, illustrates her lack of consistent responsiveness to Bruce's current social and communicative behaviors.

FIELD NOTE ENTRY - PARENT INTERVIEW

Well, I guess I respond to him when he does something. I clap or something, like he's done something and I noticed. So I respond to him. I listen when he babbles, and try to look interested. Sometimes I imitate him, and I just play with him, even if he doesn't talk.

This episode illustrates that again, Pam's perceptions are not always transformed into practice with her son. She was observed as responding to him in an inconsistent manner, and often did not show him the next steps in communicating. Her behavior with Bruce appeared to indicate that she was not yet at the stage of being able predict and modulate the course of her son's development.

Parent-Infant Profiles

3-6 Months

Hope and Jean

Hope was a four month old girl who had been diagnosed as having Down syndrome at birth. She was also identified as having a congenital heart
malformation that was interfering with normal growth patterns. Hope was the second child in the family, and had a four year old sister named Joan. Hope's mother, Jean, worked as a full time homemaker.

Approximately two weeks before the research visit Hope had begun home based early intervention programming through Franklin County Board of Mental Retardation and Developmental Disabilities. She was seen on a biweekly basis by an early intervention specialist. Hope had also recently been seen for a complete developmental evaluation through the Nisonger Center F.A.C.T. Clinic. At the time of the clinic evaluation Hope was found to have significant delays in all areas of developmental functioning.

At the time of the research visit, the Rossetti Infant Toddler Language Scale was presented to Hope. She displayed the greatest skill strength in the areas of interaction and attachment and pragmatic ability, which both tested out in the 3-6 month age range. Play skills, language comprehension, and language expression were solid at the 0-3 month level, with limited skill success at the 3-6 month level.

**Parent-Infant Interaction**

Hope and Jean were observed as having a warm, but often one sided relationship throughout the course of the research visits. They were observed in three interactive contexts which included play with objects, play with people, and an activity that was selected by Jean, and judged to be one that she and Hope enjoyed participating in together. Across all three contexts, it was observed that Jean was the primary director of all interactions, and Hope was placed in an passive observational role during play contacts. The
complexity of the play and language models presented often exceeded Hope's current level of linguistic functioning, and the pace of the activities regularly did not allow for an adequate response time for Hope.

Throughout the course of the three play activities, Jean presented with n interactive style that could best be described as directive, but periodically responsive to Hope's interests and nonverbal communications. The following episode is illustrative of Jean's behavior.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Hope is lying on the floor on her back and Jean is sitting beside her. Jean is holding a plastic rattle shaped like an elephant in front of Hope. She shakes the rattle back and forth and says in an exaggerated voice, "Look what I've got for you Hope!", she shakes the rattle several more times, "It's Mr. Elephant! Do you remember this?" Jean spins the plastic ball that makes up the elephant's tummy, and says "Oh look, you can see the peanuts in his tummy!"

This episode reveals that while Jean attempted to engage Hope with a toy she liked, she used language that was far to complex and adult oriented for her daughter to learn from. Jean's pace of activity was also observed as exceeding the rate at which Hope could process and respond to her mother's social bids. This exchange, while encouraging from the standpoint of the amount of animation Jean employed, did not permit Hope access to the actual social communicative exchange where she could best learn from her mother.

It was also observed that Jean consistently experienced difficulty matching her language and play abilities to Hopes'. She frequently used long complex utterance when talking to her daughter, asked a high proportion of questions, and rarely waited for Hope to respond to her. The following episode describes how Jean verbally dominates activities with her daughter.
FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Hope is holding the elephant rattle in both hands, and Jean is watching her in silence. Hope lets the elephant drop, and it lands on her mouth. Jean asks, "Are you gonna eat that toy? Huh? Are you gonna eat it?" Her voice is sing-songy and she is smiling broadly at Hope. Jean reaches down, and takes one side of the rattle, and gently shakes it back and forth. She lets go of the rattle, sits up straight, and exclaims, "You've got that all by yourself! Look at you! Well now look at you! Look at you!" She smiles at Hope, and leans a bit closer to her, and says in a high pitched, excited voice, "What a big girl! What a big girl!" Hope lets the elephant drop on to her chest and she looks away from her mother.

During this exchange Jean was observed as taking three - to - four verbal turns for every one nonverbal turn Hope was able to take. Jean used long, complex questions that did not provide her daughter with support for the simple sounds and movements she used to communicate. In addition to the turn dominant and questioning style of interaction used by Jean, she was also observed as not allowing enough time for Hope to respond to her. Jean appeared to provide almost a running commentary on her daughter's activities, rather than engage in a balanced exchange, where there was some degree of reciprocity between the two partners.

For her part, Hope tried to remain in interactions by engaging her mother in a variety of simple vocal and physical ways. She moved her arms and legs, vocalized, maintained eye contact, and smiled. Her primary mode of responding to her mother was through the use of simple physical movements and some vocalizing. The following episode is representative of Hope's attempts to interact with her mother in a socially bound context.
FIELD NOTE ENTRY - PEOPLE PLAY

Hope is lying on her back, and her mother is holding both of her feet. "Do you think you can get those toesies?" Jean asks as she moves her daughter's foot closer to her hand. Jean pauses and smiles at Hope -Hope smiles in response. Jean continues to move Hope's foot closer to her hand, and asks again, "Can you get those toesies?" Hope extends both arms towards her foot, smiles at her mother, then lets her arms drop back down to the floor. "You almost got them!" Jean exclaims. Hope looks away from her mother. Jean lets go of her foot, sits up, and watches her daughter silently.

This episode demonstrated Hope's ability to respond to and terminate social exchanges through the use of nonverbal cues. She participated in the above exchange just by using movements that were supported by her mother's actions. Hope responded to her mother's game, by extending her arms and trying to grab her foot, and terminated the play by looking away from her mother. Jean was able to read Hope's cues fairly accurately, and seemed to be able to follow Hope's lead about when it is time to stop the play exchange.

While Hope and Jean were often involved in fairly one sided exchanges, they did display several episodes where they were actively engaged in turntaking in a mutually responsive activity, where they shared a joint focus of attention. The following episode illustrates how Jean and Hope engaged in this type of social play.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Hope is lying on her back, and Jean is looking down at her, holding the elephant rattle within her reach. Hope pumps her legs up and down, and then reaches for the toy with both hands. Jean leans closer to her daughter, and rocks the elephant from side to side. Hope grabs one side of the toy, looks at her mother and smiles. Jean smiles and lets go of the elephant, and Hope pulls it down towards
her face. Jean smiles and watches as her daughter visually inspects the toy. Next Jean reaches down, and begins to push the elephant from side to side. Hope lets go of the toy, so Jean begins to shake it gently from side to side. Hope again reaches for the toy, which her mother gives to her, and holds it close to her face. Jean reaches down, and takes hold of one side of the elephant. Hope smiles at her mother and begins to coo. Jean smiles and imitates Hope's sounds.

This episode revealed a strong sense of a joint activity routine between Hope and her mother. Both partners were communicating for the same reasons, in the same ways, about the same topic. Jean balanced her actions and sounds to what Hope was able to do, and responded to her daughter in ways that encouraged a continuation of the activity. For her part Hope was able to stay with her mother in an equal partnership, where she both initiated and responded to social contacts.

To examine further the nature of the Hope and Jean's social and communicative relationship, the ECO-ACE and ECO-ISCS were completed for both mother and daughter across all three interactive contexts. The ECO-ACE revealed that Jean displayed a moderately responsive style with her daughter, scoring primarily in the 1 to 3 point range across the five adult style variables. Her area of greatest strength lay in her ability to match Hope's nonverbal communications and ideas during play. Figure 19 provides an overview of her average performance scores.

Figure 20 provides an overview of Hope's average ratings on the ECO-ISCS across all three interactive contexts. Observation of Hope along the parameters of the ECO-ISCS revealed social profile scores that consistently fell in the 1 to 2 point range, indicating that Hope seldom engaged in ongoing social exchanges with her mother. Hope was seen as most successful in the
competency areas of social interaction and play and nonverbal communication.

FIGURE 19. PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS

FIGURE 20. INFANT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS
Investigator-Infant Interaction

During my interaction with Hope, she presented as a friendly, and more vocal baby than during her exchanges with her mother. By employing an interactive style that was more responsive, matched, and balanced to Hope's current level of communicative ability, I was able to engage her in long strings of successive on-topic turns. The following episode is an example of a turn taking exchange.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

Hope is lying on the floor in front of me, and she has the elephant rattle sitting on her chest. I reach over and touch the rattle, and Hope's breathing becomes audible. I imitate her breathing pattern, pick up the rattle, and gently shake it from side to side. I pause, look at Hope, and she pumps her arms up and down. I shakes the rattle again, then tap hr hand with it. She vocalizes "Ahh," softly, and closes her fingers around the toy. "Ahh," I reply, and move the rattle, which we are now both holding up and down. Hope smiles, and shakes the rattle up and down while she makes a throaty, gurgly noise. I imitate the sound, then look expectantly at her. Hope sighs, and I imitate her. She smiles and kicks her feet up and down, so I shake the rattle and make a series of cooing sounds. Hope vocalizes, "AAAAA," loudly, lets go of the rattle, and reaches for my face.

This episode described the importance of accepting any gesture, sound, or movement, no matter how primitive, as a communicative turn, and responding to it in a supportive manner. According to Greenspan and Greenspan (1985) and Bruner (1984), by responding to Hope's little sounds and movements in ways that were matched to her current level of
performance, I encouraged her to stay longer in the exchange, which is where she will learn to be an active and social communicator.

In addition to matching and waiting for Hope, I tried actively to follow her lead in play. By letting her know that her little sounds and actions were effecting my responses, I tried to provide her with a sense of being a competent and effective communicator. The following episode demonstrates how I followed Hope's lead in out play.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

Hope is looking at a plastic ball that is lying on the floor beside her. I pick it up and hold it in front of her. As the plastic toy inside the ball spins around, Hope watches the toy intently, and slowly pumps her legs back and forth. She reaches for the ball and coos. I imitate her sound. I hold the ball closer to her, and she grabs it with both hands. She coos loudly, and holds the ball tightly. I coo with her, and try to rock the ball back and forth while she holds it. Hope looks at me, smiles, and begins to make soft sucking sounds. I make loud chewing noises. Hope smiles, and bangs on the ball with both hands.

In this brief activity I show Hope how her little sounds and actions can impact on an interactional partner. By imitating her sounds and actions, then even changing them slightly from time to time, I provide Hope with an interactional model within which she can operate successfully. However, I respond to Hope's messages more often than I initiate interactions, thereby showing her the value of communication, no matter how simple.

Figure 21 displays ECO-ISCS scores obtained for Hope during her interaction with me. These scores represent her general level of performance during unstructured play with a partner who actively employs interactive strategies felt to support emerging communicative behaviors. The ECO-ISCS profile reveals that Hope is scoring consistently in the 2 to 4 point range on
the competencies of social play and interaction, and nonverbal communication. This reflects a behavior pattern in which Hope frequently responds to her play partners in a positive, and socially responsive manner.

Parent Interview

The parent interview consisted of having Jean respond to both portions of the Adult Communication Previewing Scale. It was observed that Jean was not only able to describe her daughter's current communicative abilities accurately, but she was also able to predict what Hope's next communicative steps would be. The following interview excerpt discusses what Jean is expecting Hope to do over the course of the next six months.

FIELD NOTE ENTRY - PARENT INTERVIEW

I imagine we will have developed our own system of communication by then. I know she won't be saying words yet, but I imagine that by then we'll have kind of our definite signals that we'll understand when she wants more food or doesn't want more food. We're kind of guessing on these right now, we don't quite have our communication set.

This response reveals that Jean is able to engage in a reflective state during which time she can generate a mental image that can allow her to speculate about Hope's upcoming developmental events. She is able to envision Hope talking, and this in turn affects the kinds of adaptive interactions she will attempt to engage her daughter in.

During the interview Jean also expressed concern about the kinds of interactions her daughter has with the world around her. The following is her response to the question: "What do Hope's partners need to do to help her become a talker?"
Figure 21. ECO-INFANT SOCIAL COMMUNICATIVE SURVEY: PLAY WITH INVESTIGATOR

Field Note Entry - Parent Interview

I would really like the people who interact with her to do more interacting with her. Joan likes to entertain her a lot, which is good, but it's not interacting. And my husband likes to sit her next to him while he watches TV, so that she's got company, or someone's there, but that's not interacting. He doesn't actively look at her and interact with her, I would like more people to do that. I know not to expect her to say words yet, but if people helped her imitate the right sounds, she could hear what they sound like, and maybe learn more.

This response revealed that Jean was aware of the importance of exposing Hope to partners who would be willing to interact and communicate with her in ways that would allow her to rehearse new and emerging behaviors. It appeared that Jean wanted people to reassure her daughter through their actions and responses that her upcoming developmental achievements will
have a positive impact on social relationships in general. Even in the
descriptions Jean provided of her communicative style with Hope, she
expressed a desire to be a more supportive and attuned partner for her
daughter.

FIELD NOTE ENTRY - PARENT INTERVIEW

When I talk to Hope I try to do a variety of things, because she's a
baby and you just don't know how much she understands. But I
talk to her like I would talk to any normal person, sometimes I ask
her a one word question, or a very short question, then just kind of
wait and see. I want her to learn that she has my attention, no
matter what she does, I'll think it's great. Sometimes I think maybe
I shouldn't ask so many questions, but by asking them I at least feel
that I'm teaching her something, and she is looking at me.

Based on Jean's responses to the previewing battery, it was found that her
responses were fairly consistent with the interactive behaviors she used with
Hope. Jean attempted to promote a cycle of mutual responsivity and mutual
awareness with her daughter during their social play exchanges. These
behaviors and attitudes are consistent with those displayed by parents who
are effective and supportive previewers of their infant's emerging social and
communicative behaviors.

Jeffrey and Tracy

Jeffrey was a six month old boy, who had been diagnosed as having
Arnold-Chiari deformity at three months of age. Arnold-Chiari deformity is
a condition in which the inferior poles of the cerebellar hemispheres and the
medulla protrude through the foramen magnum into the spinal cord, and is
usually accompanied by spina bifida and meningomyelocele. Jeffrey, who was
the only child in the family, had been adopted at four days of age. His mother Tracy was a school teacher.

Jeffrey was involved in home based early intervention programming through Franklin County Board of Mental Retardation and Developmental Disabilities, and was seen on a biweekly basis by an early intervention specialist. He had also recently been seen for a complete developmental evaluation through the Nisonger Center F.A.C.T. Clinic. Results of the evaluation confirmed the presence of significant developmental delays across all areas of developmental functioning.

During the research visit, the Rossetti Infant Toddler Language Scale was presented to Jeffrey. He scored inconsistently at the 0-3 month level across all areas of linguistic functioning including interaction and attachment, pragmatic abilities, play skills, language comprehension, and language expression.

**Parent-Infant Interaction**

Tracy and Jeffrey presented with a very nonresponive, out of balance, and seemingly nonemotionally attached interactive style throughout the course of the research visit. They were observed in the three contexts of object focused play, people play, and an activity that was self selected by Tracy, as one she felt they enjoyed doing together. Observation across all three interactive contexts revealed that Tracy initiated with Jeffrey for primarily instrumental and caregiving reasons. She did not display a very animated style of interaction with her son, nor did she offer him the opportunity to engage in a variety of socially driven activities. Jeffrey was found to be a highly passive
baby, who vocalized inconsistently, and did not consistently respond to his mother's bids for attention. Tracy and Jeffrey rarely were observed to engage in playful, mutually, enjoyable exchanges. The following episode describes the type of social exchanges they had together.

FIELD NOTE ENTRY - PLAY WITH TOYS

Jeffrey is lying in the floor on his back, and Tracy is sitting beside him looking down on him. She is holding a set of plastic keys in her hand, and shaking them far above Jeffrey's head. "Can you see the keys Jeffrey?" she asks as she shakes the keys back and forth. He looks around the room, but does not focus on the keys. His mother shakes them harder, and moves them a bit closer to his face. Jeffrey pauses, and looks momentarily at the keys - there is a small smile on his face. "Well I guess you aren't interested in these," Tracy says, and begins to look for a new toy.

This episode illustrates Tracy's refusal to acknowledge Jeffrey's primitive and simple movements and gestures as meaningful bids for communication. Tracy used utterances that far exceeded Jeffrey's current level of linguistic functioning, and an interactive pace that was not geared for him to participate in. This episode also illustrated that Tracy did not physically match herself to Jeffrey. While he was lying on the floor, she was sitting up straight beside him. This would interfere with her ability to respond to small communicative behaviors because she was not physically close enough to observe them.

A lack of active togetherness is apparent across all three interactive contexts, especially during the parent selected activity. The following episode describes Jeffrey and Tracy's interactive style during this activity.
FIELD NOTE ENTRY - PARENT CHOICE (READING)

Tracy is holding Jeffrey on her lap, and has a book with small colorful pictures propped up on her lap in front of him. She begins "Once upon a time there was a little train who wanted to become magical," Jeffrey is looking around the room, not at the book. Tracy continues the story, "So one day he went to the grandfather of all of the trains, and asked, 'How do I become magic?' Can you see the pictures Jeffrey?" Tracy asks as she gives her son a little jostle. Jeffrey smiles briefly, but does not look towards the book. "You like trains, don't you?", Tracy continues, "Do you remember that we saw a train when we were in the car yesterday?" Jeffrey is not attending to his mother, and has shut is eyes, and looks as if he is falling asleep.

Beyond the primary focus of active togetherness that is lacking between Tracy and Jeffrey, many subtle characteristics of reciprocal interaction are absent from their exchange. Jeffrey and Tracy are never observed as exchanging ideas within their social interactions. As partners, they do not develop a finely tuned sense of give and take, or initiation and responsiveness on any kind of a consistent basis.

For his part, Jeffrey tries to employ very simple and primitive signals to engage with his mother during play. He smiles, moves his body, and attempts to establish eye contact patterns. The following episode is representative of Jeffrey's attempts to interact with his mother.

FIELD NOTE ENTRY - PEOPLE PLAY

Jeffrey is lying on the floor, on his back, and his mother is sitting beside him. Tracy is holding a little toy over his face, and rapidly squeaking it. "Hey here's the bunny! Here's the bunny!" she says in a high pitched voice as she moves the toy in small circles over Jeffrey's face. Jeffrey is lying very still, and watching the toy, he even starts to raise his hand towards it. "Get it, get it, get it!" Tracy exclaims as she continues to move the toy quickly around his face. Jeffrey turns his face away from the toy, and puts his arm back down.
by his side. Tracy moves the toy down to his tummy. "He's gonna get your tummy! he's gonna get it! What's he gonna get Jeffrey? Is he gonna get your tummy?" Jeffrey keeps his face averted from his mother, and begins to whine.

Observation of Jeffrey's action revealed a subtle, yet well established system for signaling his mother as to what he did and didn't want to do. He used eye contact, body movements, and cries to participate in the exchange, even if it was to tell his mother he no longer wanted to play. Unfortunately Tracy did not interpret these signals appropriately, and continued the game long after Jeffrey indicated that he wanted to interaction to end.

When viewed as a collective whole, the interactional episodes observed revealed an overall pattern of limited give and take between Tracy and Jeffrey. Tracy maintained a highly directive and nonresponsive interaction style across all three contexts, and Jeffrey was a passive participant during most of the interactions. Jeffrey and Tracy at best displayed minimal joint focus of attention, and did not engage in reciprocal joint activity routines or games. What emerged was a pattern of one sided exchanges, where Tracy was the dominant controlling partner, and Jeffrey was the passive observer.

In order to explore further the different interactive patterns displayed across the three interactive contexts, parent and infant performance were rated on the ECO-ACE and ECO-ISCS respectively. Figure 22 provides a display of Tracy's average ratings across the three interactive contexts. It was observed that she presented with a score range of between 1 and 2 points on all five adult interactive style variables. This indicated that Tracy seldom or never used language stimulation strategies felt to support or facilitate communicative and social change for her son.
FIGURE 22. PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS

FIGURE 23. INFANT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS
ECO-ISCS ratings, which are displayed in Figure 23, show that Jeffrey presented with an interactional style that was very passive and asocial in nature when interacting with his mother. On all four competency areas he scored in the 1 to 2 point range, indicating that he seldom or never engaged in socially based play, nonverbal communication, language, or conversation activities.

Investigator-Infant Interaction

During my interactions with Jeffrey he presented as a much more socially engaging baby than he had with his mother. By employing a more responsive, matched, and playful interactive style, I was able to engage Jeffrey in simple social games where he was able to participate actively in the exchange. The following episode is an example of the types of social exchanges Jeffrey and I engaged in.

FIELD NOTE - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

Jeffrey is lying on his back on the floor, and I am leaning over him. I am holding both of his hands, and smiling at him. Jeffrey smiles back at me, and makes a soft gurgling sound. I imitate the sound, the look expectantly at him. He smiles, so I gurgle some more. He begins to slowly move his arms back and forth, so I vocalize “Ahh.” He smiles, his body stiffens, and he makes another gurgling sound. I look surprised, then imitate his gurgle. Jeffrey smiles broadly, and loudly vocalizes “Ahhh.”

This episode demonstrates the importance of accepting any gesture or sound, no matter how primitive, as a communicative turn. By responding to Jeffrey’s little movements and sounds in a way that was matched to his
current level of performance, I encouraged him to stay longer, and be more active, in the exchange.

In addition to matching and waiting for Jeffrey, I tried to follow his lead during our social exchanges. The following episode demonstrates how I tried to follow Jeffrey's lead.

FIELD NOTE - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

Jeffrey is lying on his back on the floor and I am sitting in front of him. Smiling, we look at one another for several seconds, then Jeffrey begins to breathe audibly. I imitate his sounds, then pause and look expectantly at him. Jeffrey smiles, and makes a small cooing sound; I imitate it and look at him and smile. Jeffrey vocalizes, "Ahh," and lifts his arms towards me. I repeat his sound, and take his hands in mine. Jeffrey vocalizes "Ahh," again, but his time a bit louder. I repeat his sound, and smile at him. He smiles in return.

During the brief exchange I show Jeffrey how his sounds and actions can impact on an interactional partner. By making the sounds that Jeffrey can make, I reinforce the importance of what he is doing and says, by showing him how these simple communications can gain and maintain a partner's attention. I respond to Jeffrey's messages more often that I initiate interactions, thereby showing him the value of what he is communicating.

According to Stern (1984), Rosenberg and Robinson (1985), and Nelson (1981), by providing a supportive and responsive interactional environment for Jeffrey, he will begin to understand that any gesture, sound, or movement that he makes can send a message to another person. By communicating in ways that are similar to Jeffrey's, play partners may provide effective models for him to use in developing his communication system.
Figure 24 displays ECO-ISCS scores obtained for Jeffrey during his interaction with me. These scores represent his general level of communicative competence during social play, with a partner who is consciously employing interactive strategies designed to support emerging communicative behaviors. On the whole his scores reflect a more social, responsive, and communicative style than during the play episodes with his mother, especially in the competency areas of social play and interaction, and nonverbal communication.

**FIGURE 24. ECO-INFANT SOCIAL COMMUNICATIVE SURVEY: PLAY WITH INVESTIGATOR**
Parent Interview

The parent interview consisted of having Tracy respond to a series of questions relating to her perceptions of Jeffrey's communicative and social skills, and her perception of her role in this process. It was observed that Tracy experienced a great deal of difficulty describing her son's communicative behavior, but could accurately describe the ways she tried to assist in the process of communication development. The following interview excerpt is Tracy's description of Jeffrey's social and communicative skills.

FIELD NOTE ENTRY - PARENT INTERVIEW

Well I honestly don't think he's doing much of anything right now. I mean he doesn't use a lot of sounds, or movements, and he of course is much too young to say words. Sometimes he'll cry to let me know when he's hungry or tired, but then he's such an even tempered baby that he'll usually just wait until I come and figure out what he needs. We do have him on a fairly strict schedule, so I guess I pretty much know what he wants and when he wants it throughout the course of the day.

Tracy's response illustrates her inability to accept Jeffrey's little sounds and movements as his early attempts at communicating with the world around him. According to Trad (1990; 1992), by ignoring these behaviors, Tracy is, in effect, letting Jeffrey know that it isn't necessary for him to communicate in order to get the things he wants from the world. What he is missing out on, however, is the social information that he should be receiving about his sounds and movements, and the impact they have on the people in the world around him.
When asked to describe how she communicated with Jeffrey, Tracy reported that she employed what she felt was a highly nurturing and supportive way of communicating with her son. The following excerpt is of Tracy's description of her play style with Jeffrey.

FIELD NOTE ENTRY - PARENT INTERVIEW

Well I don't believe in talking down to him. I want him to learn the right words for things immediately, and develop a good vocabulary. Therefore, I try to talk in an adult manner with him most of the time. I use a lot of questions, and I think that they help him to focus on what I am saying. I know that some people say that I should try to imitate him more, but I don't think that he learns if I just do the same things that he does. He needs to be challenged in order to learn, and I think that the things I do are a good way of teaching him about language.

While Tracy was able to articulate her style of interaction with Jeffrey, she was not able to see the underlying implications for how she trying to engage her son in exchanges. Tracy described herself as a highly didactic and directive partner, who felt that learning was at best a passive process where commands, directives, and questions were the most effective stimulation tools available. In this description of learning, Tracy does not seem to recognize the importance of active social exchange, and its impact on communication development.

Effective previewing reviewing requires that the parent have an accurate mental representation of the child's current abilities, and some schema for predicting imminent developmental - skills that Tracy does not appear to possess at this time. According to Trad (1993), a parent is not able to actively encourage small developmental steps in ways that are appropriate to their child's current level of functioning, he or she will not make changes in their
levels of competence. In addition, if not provided with a sense of nurturance for upcoming developmental changes, infants will experience difficulty in accumulating successes within adaptive interactions, that would serve to motivate them to anticipate the onset and mastery of new skills.

Irene and Jeremy

Jeremy presented as a curious 5.5 month old, with no history of medical or developmental concerns. He was the youngest child in the family, and had a 2 year old brother named Kyle. Jeremy's mother, Irene, worked as a full time home maker, and had Jeremy enrolled in a variety of neighborhood play groups. Irene also participated in an informal babysitting co-op, so Jeremy was exposed to a variety of children from a wide range of age groups on almost a daily basis.

During the research visit, the Rossetti Infant Toddler Language scale was presented to Jeremy. He earned an age equivalency of 3-6 months in all areas of linguistic functioning including interaction and attachment, pragmatic abilities, play skills, language comprehension, and language expression. Some limited skill success was observed at the 6-9 month level in the areas of interaction-attachment, pragmatic abilities, and play skills.

Parent-Infant Interaction

Irene and Jeremy presented with a friendly, but often one sided social play style across all three interactive contexts. It was observed that Irene was highly passive during her interactions with her son, allowing him to explore his environment with very little verbal or physical input from her. When
she did interact with Jeremy, she used a high proportion of questions and directives, that often were not related to his current interests. For his part, Jeremy was vocal and highly motivated in interacting with objects during play. The following episode describes the play behaviors observed between Irene and Jeremy.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Jeremy is sitting on the floor, between his mother's legs, facing away from her. There is a play house on the floor in front of him, and he is banging on it. Everytime something on the house moves, Jeremy bangs harder, and his body shakes with excitement. Irene, who is sitting behind Jeremy is looking away from the toy he is playing with, and picks up another toy that is sitting on the floor beside her. "What's this Jeremy?" she asks as she holds the plastic person in front of his face. Jeremy briefly looks at the toy, but immediately turns his attention back to the play house.

This episode illustrates Irene's lack of focus on what her son is currently interested in doing. She is so busy exploring other toys, that she misses an opportunity to play with Jeremy in a way that he would find reinforcing. It also illustrates a noticeable lack of joint focus of attention during the play activity. Both mother and son are communicating for different purposes about different topics, and the result is a complete lack of togetherness during play.

It was also observed that Irene had difficulty matching her language and play abilities to Jeremy's. She typically used a high proportion of nonreferential language during their play exchanges, and used closed ended, or yes/no questions when talking to her son. When Irene did question Jeremy, she did so in such manner that did not require a response from him.
in order to keep their exchange going. The following episode is represents a mismatched exchange, where Irene dominates the exchange with Jeremy.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Irene is sitting behind Jeremy watching him play with a ball. He quickly loses interest in the toy, and picks up a set of plastic keys, and begins to mouth them. Immediately Irene reaches for the play house, and begins to open and close its door. "Look at this," she tells Jeremy, who does not pay attention to her, but rather continues chewing on the keys. Irene picks up the house, and turns it around so he can see the other side. Jeremy continues to chew on the keys, and does not attend to his other. "Look at that. Look a that. Isn't that nice?" Irene comments as she moves the house from side to side.

During this exchange Irene not only uses language that is not related to what Jeremy is currently interested in doing, but she also uses language that is far too complex for his current level of development. According to Bronfenbrenner (1979), communicating partnerships can only grow in an environment of mutual back and forth exchange, that requires a commitment to active togetherness on the part of both partners. It is also interesting to note that Irene uses a high proportion of nonspecific referents in her language like, "this," and "that." If her goal is for Jeremy someday to be able to use words to express a variety of communicative functions, she needs to be more specific in the language she uses with him.

The lack of active togetherness that is pervasive across all three interactive contexts, is especially noticeable during the parent selected activity. Irene chose to play with a favorite toy with Jeremy. The following episode is a description of that activity.
FIELD NOTES - PARENT CHOICE (PLAY WITH TOYS)

Irene is sitting on a chair next to a table, and Jeremy is sitting on top of the table facing her. She holds a bright pink dinosaur in front of Jeremy, and says, "Here's puffy!" She puts him down on the table, and Jeremy grabs the toy with both hands. He vocalizes loudly, and waves the dinosaur from side to side. Irene sits quietly and watches him play with the toy. Jeremy continues to shake the toy, and then drops it over the side of the table. Irene leans over, picks it up off of the floor, and hands it back to her son. He grabs it again and begins to vocalize loudly. Irene looks away, and Jeremy drops the toy over the edge of the table again.

In addition to lacking in an overall sense of joint activity or joint focus of attention, the exchange between Irene and Jeremy also lacked in a variety of other, more subtle signs of reciprocal interaction. During play they were rarely observed as exchanging within a socially constructed environment. It was also observed that neither Irene nor Jeremy appeared to have a sense of how to influence or impact one another during play exchanges.

This episode also illustrated what a willing communication partner Jeremy could be if given even minimal encouragement by his mother. He used a wide variety of sounds and movements to express socially motivated ideas and events.

Matthew presented as a motivated and vocal child across all three play contexts observed. The following episode provides a further description of his social and communicative behaviors.

FIELD NOTE ENTRY - PEOPLE PLAY

Jeremy and Irene are sitting on the floor, and Jeremy turns to look at his mother. "Ddadadadadadadah!" he exclaims and waves his arms back and forth. Irene turns him around so he is facing away from her. Jeremy looks around the room, waves his arms up and down and says, "DA!" "Do you want to play some drums?" Irene asks, and as she does, she takes Jeremy's arms and waves the up and
down. Jeremy continues to vocalize, but looks around the room, not at his mother. Irene lifts Jeremy up, and says, "O.K., let's dance!" and she begins to twist him side to side. Jeremy shakes his arms up and down and vocalizes loudly. Irene stops twisting him around, and pulls him close to her to hug him. Jeremy stops waving his arms, begins to whine, and averts his face when she tries to kiss him.

During this interaction Jeremy was observed as being able to initiate, respond to, and terminate social exchanges with his mother. He used a variety of sounds, body movements, and eye gaze patterns to let her know how he wanted to engage socially. It was noted that Jeremy's sounds and actions reflected a well developed ability to communicate his immediate wants, and social needs to a partner, even when given only minimal encouragement from that partner. He was able to use movements and sounds to express a range of meanings and social purposes within his play.

Overall a pattern of general nonresponsiveness and directiveness emerged during the play exchanges between Irene and Jeremy. There was a limited sense of give and take, and joint activity routines occurred only in the most peripheral of fashions. While Jeremy would engage vocally with his mother during play, he often ignored her, preferring contact with toys and other inanimate objects. Irene presented with a very quiet and unobtrusive pattern of interaction with her son, yet she exercised a great deal of control over the activities that were selected, and direction of their play. She often missed his bids for social interaction because of a lack of physical and motivational match during play.

In order to examine further the different interactive patterns that were displayed across the three interactive contexts, parent and infant performance was rated using the ECO-ACE and ECO-ISCS. Figure 25, which displays
Irene's average interaction scores, reveals that her performance ratings fell in the 1 to 2 point range. This indicated that she seldom or never engaged Jeremy in fun, socially based play activities, but rather consistently controlled and directed the focus of their play activities.

FIGURE 25. PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS
Average scores obtained for Jeremy on the ECO-ISCS are shown in Figure 26. His interaction profiles reveal that he displayed the greatest skill success in areas relating to social interaction and play and nonverbal communication. The score range, which was primarily between 2 to 3 points on the rating scale, indicated that Jeremy was observed as often engaging in socially driven behaviors.

**Investigator/Infant Interaction**

During my interaction with Jeremy, he presented as a highly vocal, and very engaging social partner. By employing a less directive, and more balanced and matched interaction style, I was able engage Jeremy in extended joint activity turntaking exchanges. The following episode is an example to the type of turntaking activities Jeremy and I engaged in.
Jeremy and I are lying on the floor facing one another with the chime clown between us. Jeremy kicks his feet, shakes his arms, and looks at me. I bang the floor with my hands, smile, and look at him. Jeremy smiles, and reaches for the clown. When he touches it, the toy rolls from side to side, making a soft ringing noise. Jeremy waves his arms excitedly, and pumps his legs up and down. I pick the clown up, and vigorously shake it, and say "AAAAA!" I look at Jeremy expectantly, and hold the clown out to him. He reaches for it, and tries to pull it out of my hand. I let it drop to the floor, and Jeremy excitedly pumps his arms and legs.

This play episode provided an opportunity to observe Jeremy's nonverbal communication skills, and how he used them to participate in the play exchange. By accepting movements and gestures as his communicative turns, I was able to engage Jeremy in a turntaking activity that was mutually reinforcing, and productive or both of us. I was able to show Jeremy how even his gross physical movements and gestures could impact positively on our play.

In addition to encouraging nonverbal communication, I also found that Jeremy was able to engage in vocal exchanges with me. The following episode illustrates how he uses sounds to participate in social exchanges.

Jeremy is sitting up, facing me. I am kneeling in front of him, and holding his hands to give him support. He has the clown between his legs. he is looking at the clown, and his breathing is audible, I imitate his sounds, and he looks up at me and smiles. He pulls one hand away from me and bats at the clown in front of him. I wait until the clown has stopped moving, and push it a bit harder. Jeremy begins to vigorously shake his arm up and down, and he knocks the clown out of his reach. "AAAAA!" he vocalizes, as he looks first at the clown, then at me. "AAAAA!" I respond as I move the clown back over in front of him. He grabs the clown by
the head, and tries to pick it up, but it slips out of his fingers. "Ehhh!" he says with a whine in his voice, and he begins to kick his legs up and down. "Ehh!" I repeat, and bounce up and down on my knees. Jeremy looks at me and laughs.

During this brief exchange I show Jeremy how his simple sound and movements can have a positive impact on a social partner. By imitating the sounds and movements he makes, I reinforce his communicative attempts by providing him with positive social feedback. Rather than trying to direct or change the course of our play, I respond almost exclusively to Jeremy's messages. I do this so that Jeremy will learn that any sound, gesture, or movement can have communicative value, if an interactional partner is willing to assign meaning and intent to it.

Figure 27 displays ECO-ISCS scores obtained for Jeremy during his interaction with me. These scores represent his general level of performance during social play with a partner who intentionally uses interactive strategies found to facilitate emerging communication skills. Jeremy's scores, which fall in the 3 to 4 point range, indicate that he was much more willing to participate in social exchanges with me than he was with his mother.

**Parent Interview**

During the parent interview, Irene was asked to respond to a series of questions relating to how she perceived Jeremy's communicative abilities, and what role she felt she played in helping him learn to talk. She was able to provide a general description of his current communicative skills, but did not have a clear idea of what his next developmental steps would be. The following excerpt is Irene's description of Jeremy's communicative abilities.
FIELD NOTE ENTRY - PARENT INTERVIEW

Well he cries if he's hungry or uncomfortable, but he doesn't cry a lot, so I guess I pretty much control what he wants and does. He waves his arms up and down when he's excited, and I guess he just likes to hang out. Sometimes when he's playing by himself, he'll make all kinds of different sounds. You know, chit-chat to himself.

This description of Jeremy's communicative abilities revealed that Irene did not acknowledge many of the social and communicative behaviors that her son exhibited. She also indicated that he didn't really have a need to communicate because she was able to "control what he wants and does." This description also indicated that Irene was not able to form accurate mental representations of her son as a communicator, which would interfere with
her ability to provide supportive learning environments that would foster communicative development.

In response to the question "How do you communicate with Jeremy?", Irene provided a simple and telling response. The following field note is her response to that question.

FIELD NOTE ENTRY - PARENT INTERVIEW

Um, well I guess I talk to him. I guess that's about it.

Even when prompted with the statement, "Describe how you talk to him.", Irene was unable to identify any language learning strategies she employed with her son. According to Trad (1992; 1993) and Bromwich et al., (1981), this type of response reflects inability on the part of the parent to identify those behaviors that appear to support and nurture a child's emerging communicative development. This lack of even basic intuitive behaviors can disrupt the formation of an environment that is conducive to predicting and rehearsing imminent developmental changes.

Kate and Prudence

Kate was a 6 month old girl, who did not have a history of chronic medical or developmental problems that could interfere with language acquisition. She was the youngest of two children in the family, and her older brother David (30 months) had a history of chronic otitis media. Kate and her mother Prudence, who was a full time homemaker, participated in several community programs geared towards mother-infant stimulation. They were currently involved in an exercise class, and an infant massage class.
During the research visit, the Rossetti Infant Toddler Language Scale was presented to Kate. She achieved an age equivalency of 3-6 months in all areas of linguistic functioning, including interaction and attachment, pragmatic abilities, play skills, language comprehension, and language expression. A strong scattering of skill success was seen at the 6-9 month level in the areas of interaction and attachment, play skills, and language comprehension.

Parent-Infant Interaction

Kate and Prudence were observed as having a friendly, but highly directive and controlling social and communicative relationship. They were observed in three interactive contexts including object focused play, people play, and an activity that was judged by Prudence to be one that she and Kate enjoyed doing together. Across all three interactive contexts it was observed that Prudence displayed a low interactive rate with her daughter, and when she did interact, she consistently controlled the direction of play. It was observed that Kate also displayed a low interactive rate, and would frequently observe her mother in a passive, nonresponsive manner.

Throughout the course of the three play activities, Prudence presented with an interactive style, that could best be described as passively nonresponsive. The following episode describes Prudence's behavior.

FIELD NOTE ENTRY - PARENT CHOICE (BABY GYM).

Kate is lying under the baby activity gym, that has straps and bells, and mirrors dangling down in front of her. Prudence is sitting beside her, watching her daughter play. Kate grabs a rattle and shakes it back and forth several times, and then kicks her legs in the air. She lets the rattle go and reaches for the mirror. Prudence reaches through the bars, and taps on the mirror, but Kate looks
away. She lays quietly on her back, looking away from her mother for several seconds. Prudence looks away from her daughter, and tries to remove one of the toys from the middle bar of the gym. "Huh, I thought this came off." she said to herself, as she tried to pull the toy loose. Kate, still facing away from her mum, has started to bat at another toy.

During this activity Prudence does not attend to Kate's interests or motivations for communication. She almost blatantly ignores what her daughter is doing, and does not attempt to support or facilitate Kate's interest in the toy. Prudence is not observed as initiating contact with her daughter, nor is she seen responding to the activities Kate is interested in.

This play episode also illustrated a genuine lack of joint focus of attention or mutual reciprocity, both which are critical elements for successful interactional dyads. Prudence and Kate virtually ignore one another, and engage in independent activities. A critical weakness of this exchange revolved around the lack of any kind of give and take in the play. Prudence and Kate never imitated one another or even seemed to notice each other as they each engaged in their own activity side by side. Waiting, signaling, and expecting will not occur, simply because their parallel interactions can continue nicely without these strategies.

In direct relation to the lack of joint attention observed throughout the course of play, it was also noted that Prudence and Kate did not appear to maintain a consistent sense of active engagement with one another. The following episode describes this lack of engagement.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Prudence puts the chime clown on the floor in front of Kate, and pushes it back and forth. Kate looks down at it, and vocalizes "AAAA," as she pushes the clown back and forth. "There you go,"
Prudence says as she looks away from her daughter. Kate keeps looking at the clown, and Prudence reaches down and pushes the toy, but does not look at it or her daughter. She is looking in the toy basket, trying to find another toy. Kate touches the clown again, and coos softly while she tries to push it back and forth. Prudence reaches down, takes the clown away from her, and puts down the elephant rattle.

This episode illustrated that even though partners exchange turns with one another, there must be an underlying sense active engagement between the two. According to Bronfenbrenner (1979), if an activity is not something that both partners view as motivational and fun, then the activity loses its potential for being a learning environment. The turns that Prudence and Kate take do not appear to be contingent on each other's behavior, nor do they appear to be socially motivated.

For her part, Kate attempted inconsistently to respond to her mother during their play activities. When she was participating in a social game, she would use sounds, and some movements to express her wants and social needs, but primarily, she was seen as playing a more passive observational role in the exchange. The following episode is representative of Kate's communicative and social gestures.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Prudence pulls a toy rattle out of the toy basket and hands it to Kate. "Look what I have, since you like elephants so much," Prudence says as she takes the rattle away from Kate and shakes it in front of her face. Kate again grabs the toy, and tries to shake it back and forth. "Yup you sure know how to shake that thing," Prudence says. "AAAAAAA, AAAAAA, AAAAAAA," Kate vocalizes, and Prudence smiles at her. Kate continues to shake the rattle and vocalize, and Prudence reaches into the toy basket and pulls out a stuffed elephant. She taps the stuffed toy against the rattle, and Kate moves the toy away from her mother. "Here, let's play with something new," Prudence says, and takes the rattle away from
Kate, and hands her the stuffed elephant. Kate ignores the stuffed toy, and whines.

Kate used a variety of sounds and movements to communicate with her mother. Even though was able to let her mother know what she wanted, Kate would rarely persist in her desires, and would often give up, or bend to Prudence's directives.

When viewed as a collective whole, the interactional episodes revealed an overall pattern of nonresponsiveness, and lack of active and reciprocal turntaking exchanges. Prudence maintained a fairly controlling style and nonresponsive interactional style across all three interactive contexts, and Kate was a passive observer of most play exchanges. Prudence and Kate displayed minimal joint focus of attention, and typically did not engage in joint activity routines. What emerged was a pattern of minimally responsive exchanges, where neither Prudence nor Kate consistently initiated or responded to social contacts with one another.
FIGURE 28. PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS

FIGURE 29. INFANT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS
To examine further the nature of the interactive relationship between Prudence and Kate, the ECO-ACE and ECO-ISCS were completed for the mother and daughter respectively. Figure 28 displays Prudence’s average performance scores across the five adult styles measured on the ECO-ACE. Her score averages on this measure ranged between 1 and 3 points, indicating that she displayed a fairly passive and nonresponsive interactional style with her daughter.

Figure 29 provides an overview of Kate’s average score ratings on the ECO-ISCS. Given the average score range that fell between 1 and 2 points on the scale, Kate was observed as seldom to never participating in social and communicative exchanges with her mother.

**Investigator-Infant Interaction**

During my interaction with Kate, she continued to present as a fairly passive, and noninteractive baby. Even when employing a more matched and responsive interactive style with her, Kate tended to remain in more of an observational role. The following episode is an example of the type of exchanges Kate and I engaged in.

**FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY**

Kate is lying on the floor looking at me, and I am leaning over her. There is a bowl holding clear plastic balls sitting beside us. I reach into the bowl, and pull out a ball for Kate. I hold it front of her, and she reaches up for it. "OOO," I coo. Kate looks away from the ball, and at me. I smile and pause. She immediately looks away, and starts to touch the ball again. I put the ball on her stomach, and wait. She lies very still for several seconds, but does not look at me. Then she begins to look around the room, and the ball rolls off her
stomach, but she does not look at it. I watch Kate for 10 seconds, smiling at her. She makes no attempt to re-engage in our activity.

During this exchange I accepted all of Kate's little movements and sounds as communicative turns, but still she did not try to use them in a more social manner. Kate would willingly participate in a game that I had begun, but would not initiate contact by using her sounds or movements. Even trying to follow Kate's lead in play did not seem to encourage her to re-initiate contact once our game had ended.

Kate also experienced difficulty in her ability to stay in extended turntaking routines with me. The following example is a typical turntaking exchange between us.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY AND PEOPLE PLAY

Kate is lying on the floor, looking up at me. She is very quiet, and does not try to get my attention. She yawns, and stretches her body out to its full length. I yawn, grab one of her legs, and move it up and down. She looks at me with her eyes open wide. I imitate her facial expression, and move her leg up and down again. I put her leg back down on the blanket and look at her expectantly. Approximately 5 seconds later, she lifts her leg towards me. I smile, say "UP!", and move the leg up and down. She looks away.

This episode illustrates the importance of waiting, and accepting every gesture, sound, or movement as a communicative turn for a young child. By responding to Kate's natural movements, I was able to engage her in a brief turntaking exchange. During this exchange I was able to show Kate how her sounds, movements, or actions can all be used to participate in a social exchange. By allowing her to have a degree of interactive success at even this primitive level, I am showing her how to engage a partner successfully by using the sounds and movements that are currently her communications.
Figure 30 displays ECO-ISCS scores obtained for Kate during her interaction with me. These scores represent her general level of performance during social play with an interactive partner who is employing interactive strategies designed to facilitate social and communicative development. Note that her score averages ranges from 1 - 3 points, indicating that she interacted with me in a somewhat more consistent manner than she had with her mother.

![Graph](image-url)

**FIGURE 30. ECO-INFANT SOCIAL COMMUNICATIVE SURVEY PROFILE: PLAY WITH INVESTIGATOR**

**Parent Interview**

The parent interview consisted of having Prudence respond to a series of questions relating to Kate's social and communicative development, and Prudence's perception of her role within that process. While Prudence was able to provide a detailed and accurate description of her daughter's current
communicative abilities, she had a slightly more difficult time describing how she communicated with her daughter. Prudence described herself as some one who "got on her (Kate) level," and indicated that she consistently labeled items and actions for her daughter. The following is an excerpt from her response to the question, "How do you communicate with Kate?

FIELD NOTE ENTRY - PARENT INTERVIEW
Well I use a lot of facial expressions with her, and I talk a lot with her. I also read to her, you know, and she just interacts with so many people. People that really pay attention to her, and people who get down on her level. That's what I do. Oh and I try to expose her to lots of different things.

While Prudence described herself as imitating Kate, and 'getting down on her level', the videotapes illustrated that her beliefs weren't always translated into actual practice with her daughter. It was observed that Prudence often ignored Kate's little communicative bids, that could have been easily imitated or responded to.

Further evidence that Prudence does not have a clear perception about her role in Kate's communicative development is seen in her response to the question, "How do you think Kate is learning to communicate?" The following excerpt from the interview is her response to that question.

FIELD NOTE ENTRY - PARENT INTERVIEW
I guess just from listening to us, I mean we just talk a lot at home, so I guess she just picks up on stuff we say.

This description of how Kate is learning about communication, reveals Prudence's view of communication as a passive activity, that requires only an observational role in the world to learn. She does not appear to recognize the importance of active social exchange, and its impact on communicative
development. This view can affect how Prudence perceives the changes she sees in her daughter. Instead of trying to support imminent developmental changes through rehearsal activities, she may allow Kate to learn by watching other people use these skills.

Patrick and Diane

Patrick was a 3 month old little boy with no history of medical or developmental concerns. He was the first and only child in the family. His mother Diane was a preschool teacher, who stopped working at the birth of her son. Patrick and Diane participated in a variety of community based mother-infant programs, such as infant massage, and a baby play group.

During the research visit, the Rossetti Infant Toddler Language Scale was presented to Patrick. He scored solidly at the 3-6 month level in the areas of pragmatic ability, language comprehension, and language expression. Interaction and attachment, and play skills displayed a strong scatter of skill success at the 6-9 month level.

Parent-Infant Interaction

Patrick and Diane were observed as having a responsive and reciprocal relationship throughout the course of the research study. They were observed in three interactive contexts including object focused play, people play, and a parent selected activity. Across the three play contexts, Diane presented as an open and responsive partner, who was keenly aware of her son's developmental changes. Patrick, was observed as bring a happy, social baby, who willingly participated in play exchanges with his mother.
Throughout the course of the research visit, Diane exhibited a supportive, and nurturing interactional style with her son. The following episode best describes Diane's behavior.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Diane and Patrick are lying down, side by side on the blanket on the floor. Diane is holding a mirror up above them, so both can see their reflections. She tilts the mirror so Patrick can see his reflection, and asks in a sing-songy voice, "Where's Patrick?" He moves his arms up and down, and smiles. "There he is!" she exclaims, as she smiles at his reflection. Patrick begins to vocalize, and vigorously pump his legs and arms up and down. "Yea talk to it! Talk to that baby!" Diane says as she lowers the mirror closer to Patrick's face. Patrick’s breathing becomes audible, and he is watching his reflection intently. Debbie, who is also still looking in the mirror, is making a series of surprised faces at her son. She pause briefly after each face, and waits for a response from Patrick. He smiles and coos as the mirror moves closer, and continues to pump his legs and arms back and forth.

This exchange provided Patrick with a strong sense of interactive turntaking. He was able to engage with his mother in an activity that appeared to be highly motivational and fun for both of them. Diane was very successful in keeping the exchange a fun and playful interaction, where Patrick was able to explore the power of his simple gestures and sounds over his play partner. There is a well developed sense of give and take between the two partners. They imitate and respond to one another, and are keenly aware of each other's presence. Diane waits, signals, and expects Patrick to be an active, and contributing partner of their play exchange.

It was observed that Diane achieved a good balance between using sounds and actions that Patrick could imitate immediately, and words that will his
next developmental step. The following episode describes Diane’s ability to support Patrick’s emerging communicative behaviors.

FIELD NOTE ENTRY - PEOPLE PLAY

Diane is lying on her back on the floor, and she is balancing Patrick on her knees. Diane stretches out her legs, and lifts Patrick up into the air. "Big Boy!" she exclaims, and Patrick vocalizes loudly. Diane rocks back and forth, moving Patrick from side to side, and vocalizing "OOOO!" "Ahhhhhh," Patrick squeals in an excited voice. "Up!" says Diane as she rocks Patrick back and forth. "Ahhhhhh," repeats Patrick, and Diane repeats, "Up!" Patrick looks away from his mother and stops smiling. "All done?" she asks, and lowers him back onto her chest.

This simple exchange of sounds and words revealed that Diane is trying to prepare Patrick for saying words. By using simple words that focus on the activities he is interested in and motivated by, Diane is able to provide a nurturing environment where Patrick will be able to accumulate memories of adaptive interactions, which will motivate him in the mastery of new skills. By responding to his nonverbal cues, such as loss of eye contact, as a meaningful communicative turn, Diane also provides Patrick with the understanding that he can send messages without actually using words.

Diane also communicated in ways that supported Patrick’s interests and motivations during their exchanges. The following episode describes the reciprocal nature of the interactive relationships between Patrick and Diane.

FIELD NOTE ENTRY - PARENT CHOICE (BABY MASSAGE)

Diane is sitting on the floor, with a towel draped over her legs, and Patrick is lying on the towel, looking up at her. Diane rubs oil in her hands, holds them open, and asks, "Can we do your tummy today? Would that be O.K.?" Patrick smiles, so Diane starts to rub his tummy. He startles, pulls back from her, and begins to whine loudly. "Oh, not sure?" Diane asks as she moves her hands away
from his tummy. She pauses for a moment, then touches his stomach again. This time Patrick smiles, and extends his arms to his mother. Diane smiles and begins to vocalize while she rubs his stomach. Then she runs her fingers around his chest in a tickling motion. Patrick kicks his legs up and down, and Diane laughs. She starts to rub his stomach again, and he furrows his brow. She touches his arms, and he moves them away from her. "O.K., no arms either today. Well how about the back?" Patrick vocalizes loudly, and smiles at his mother.

This episode illustrates how responsive Diane is to Patrick's changes, and how willingly she will respond to his changes, likes, and dislikes. She allowed Patrick choices during the exchange, and achieved a balance between having him initiate and respond during their interaction. She waited long enough to give him the opportunity to respond, and effectively reinforced his communicative attempts.

Throughout the course of play, Patrick appeared to be a highly effective nonverbal communicator. The following episode illustrates how he was able to use sounds, and body movements to actively engage his mother in a play activity.

FIELD NOTE ENTRY - OBJECT FOCUSED PLAY

Patrick is lying on the floor looking at a small stuffed elephant, that is just beyond his reach. He looks at his mother, and loudly vocalizes "AAAA." "AAAA, elephant!" Diane says as she picks the toy up and moves it closer to her son. Patrick smiles and rapidly kicks his legs and stretches his arms towards the toy. "You wanna hold him?" asks Diane as she moves the toy closer to him. Patrick vocalizes loudly, grabs the toy, and clutches it to his chest. He smiles at his mother.

This episode demonstrates how effectively Patrick is able to use all of his early communicative skills to manipulate his environment in a meaningful manner.
When viewed as a collective whole, the interactional exchanges between Patrick and Diane revealed an overall patterns of mutual reciprocity and joint activity. Debbie responded to and matched Patrick's communicative bids in such a way that encouraged him to stay with her. She also responded more to his messages than initiated her own. Through this type of sensitive responding, she showed Patrick that she valued what he was communicating. Patrick was seen as a competent and engaging baby, who willingly participated in games with his mother. What emerged was a pattern of reciprocal, mutually reinforcing exchanges, where both mother and son were active participants in the interaction.

To examine further the patterns of interaction which emerged between Diane and Patrick, their performances were rated on the ECO-ACE and ECO-ISCS respectively. Figure 31 displays Diane's average performance on the scaled variables of the ECO-ACE. Consistent with her interactions with Patrick, she scored in the 4 to 5 point range across all five adult style variables. This indicated that Diane employed a balanced, matched, responsive, and nondirective style of interaction consistently during play with her son.

Patrick's performance on the ECO-ISCS is consistent with the behaviors displayed by his mother on the ECO-ACE. He was observed to be a highly responsive baby, who preferred social interactions to solitary play. Patrick also was able to initiate and respond to his mother during social games. As shown in Figure 32, his score range on the ECO-ISCS falls in the 3-5 point range, indicating that he is able to engage in social exchanges with his mother on a regular basis.
FIGURE 31. PARENT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS

FIGURE 32. INFANT PERFORMANCE PROFILE ACROSS INTERACTIVE CONTEXTS
Investigator-Infant Interaction

During my interaction with Patrick he was able to maintain the level of social interest and responsivity that I had observed when he was playing with his mother. He was a willing participant in play, and proved to be an engaging partner. The following episode is a description of his style of interaction with me.

FIELD NOTE ENTRY - OBJECT-FOCUSED PLAY/PEOPLE PLAY

I am holding the chime clown in front of Patrick, and gently shaking it back and forth. He pumps his arms and legs quickly, smiling at me, and trying to grab the clown. He makes a throaty noise, and stretches his arm towards the toy. I make a throaty noise, and move the clown closer to him. He bats at the toy, quickly pulls his hand away and laughs. I put the clown on his tummy and say, "BOOM!" Patrick laughs, and pumps his arms and legs up and down. I laugh with him, and he tries to grab my hair, still laughing.

This episode illustrated that Patrick knows how to be an effective communicator, and can transfer those skills into situations where he is unfamiliar with his play partner. He has a well established system for getting attention, keeping attention, and terminating an exchange. Since Diane so adeptly let Patrick know how he was affecting her, he was able to maintain his interactional competence with a new partner who also used supportive interactive strategies.

This consistency of interactional competence across partners, indicated that Patrick has a well developed sense of how to express his wants, needs, and social desires through a variety of sounds and gestures. Learning early in life that he can influence others by even the little things that he does, will
allow Patrick to develop a strong sense of communicative autonomy and independence.

Figure 33 displays ECO-ISCS scores obtained for Patrick during his interaction with me. These scores represent his general level of communicative success and social interest during play with an unfamiliar partner, who is using interactive strategies designed to support emerging communicative behaviors. On the whole, his scores reflect a general degree of consistency when compared to the scores obtained during his interactions with his mother. Patrick continued to score within the 3 to 5 point range, indicating that he remained a socially engaging and highly communicative partner.

FIGURE 33. ECO-INFANT SOCIAL COMMUNICATIVE SURVEY PROFILE; PLAY WITH INVESTIGATOR
Parent Interview

The interview consisted of having Diane respond to a series of questions related to her perceptions of Patrick's communicative competencies, and the role she saw herself playing in the developmental process. Diane's responses indicated that she saw herself playing an important part in Patrick's early development. The following comment is an excerpt from Diane's response to the question "How do you think you are helping Patrick learn to communicate?"

FIELD NOTE ENTRY - PARENT INTERVIEW

It's my opinion that I, (well and my husband too), am the most important person Patrick has in his life right now. I'm the one who has to help him learn to talk, and the way I do that is by responding to the sounds and movements he makes. But I also try to wait, and let him know that sometimes he can start the 'talking.' I'm trying really hard to let him know that we can affect him with our sounds and action, but that he can affect us too. Like when he was little, as soon as he'd start to cry or whimper, if I heard him over the monitor, I'd go right to him. My mom said that I shouldn't always respond, but I think it's important for a baby to learn that he's safe, and that when he lets me know he needs me I'll be right there for him. I think that will be important for when he starts to really talk later on, he'll know he can get things by using his words.

This observation reveals that Diane sees herself as having an influential role in her son's life, and this attitude is reflected in how she plays and interacts with him. According to Trad (1993), this perception of self as an important factor in early language development, is already creating an atmosphere that will be conducive for Patrick to predict and practice his imminent developmental changes with her.
Diane's attitude of 'parent as partner' is further reflected in the following response to the question, "How do you think you affect Patrick's communicative and social skills?"

FIELD NOTE ENTRY - PARENT INTERVIEW

Well I actually think that I affect him in a lot of ways. I think that the thing that has the greatest impact on him is how I respond to him, and that I expect him to play with me, not just sit there and watch. I like to show him how to play, or take little simple turns, and then have him do it with me. I also try to show him what comes next, like saying simple words that I think he might want to use sometime in the next few months. Oh, and I show him different sounds. Like if he keeps saying "AH," I might change it to "OH," or "EH," you know just to give him a little variety!

As revealed by this response, Diane is aware of the kinds of developmental changes that Patrick is approaching, and is attempting to prepare him for these changes. By being able to mentally represent what she expects her son to do next, she is able to naturally incorporate those new skills into her everyday routines with him. This provides Patrick with much needed practice with the skills he is preparing to master. It is through this type of mental representation and enactment cycle or previewing activity that Diane is able to become confident about predicting changes in her son, and at the same time able to assist him in becoming a more competent communicator.

Summary

The factors examined in the study, as well as those that emerged from the study, were closely intertwined, and all came together to create eleven distinct, yet interrelated learning dyads. The parent/infant interactive styles,
the perceptions held by parents regarding language development, and the changes shown by the infants when playing with an unfamiliar interactional partner, were unique to each dyad, yet a common interactional thread tied each of them together. It is this common thread that allows us to examine the individuality of parent/infant dyads, and thereby establish programs that can effectively target desired social and communicative behaviors in families considered to be at-risk.
CHAPTER V
DISCUSSION

This chapter considers the results of the present study in terms of the questions guiding the study. Specifically, how did the factors examined interrelate to form a mutually reciprocal interactive exchange, and how did this exchange affect the perceived social communicative competence of the infant involved? Additional questions are raised, for which the answers are just emerging. Further, a preliminary model for an intervention planning battery will be suggested. Implications for extending this model of infant-parent assessment and for future research also are discussed.

Parent/Infant Interaction

The present study explored the nature of parent-infant interactions. Moreover, it attempted to address the issues of infant and parent engagement in the dyad, as well as adult interactive style (Bronfenbrenner, 1979; Bruner, 1984; Stern, 1977). By its very nature infant-parent interaction research focuses on the dyad because of the belief that social, as well as cognitive development, is influenced primarily by dyadic interaction (Lewis, 1984). This dyadic model of learning focuses on the fundamental process through
which information is disseminated through the interactions between two people. Thus the effects of learning, or in broader terms the effects of socialization occur: (1) within the dyadic interaction and (2) as a direct consequence of what the adult partner does to and with the child (Bronfenbrenner, 1979; Lewis, 1984; MacDonald & Gillette, 1986).

The results of this study, although preliminary and exclusive to the parent and infants observed, support the findings of various other research sources that recognize the primacy of the parent-child dyad in early learning (MacDonald, 1989; Mahoney, 1988; Wells, 1988). Though these factors proved to be difficult to measure and define precisely, the present study attempted to identify and describe the differences that influenced the success of each of the dyadic exchanges. Each of the eleven parent-infant dyads in the present study were found to possess characteristics unique to the particular dyad. A major characteristic central to the success of the interactive exchanges related to the mutuality of the exchange where both the infant and adult impacted upon and influenced one another.

**The Role of the Parent**

Parents involved in social exchanges with infants display interactive styles that influence that child during play interactions. Adult interactive styles, particularly those relating to emotional attachment, contingent responsiveness, sensitivity to the child's interests, and encouragement of achievement have all been found to be related to positive child outcomes. In contrast, restrictiveness, directiveness, and intrusiveness tend to inhibit child development. Research also supports the notion that young children tend to
develop more rapidly when parents respond to them frequently and give experiences that are appropriate to their developmental level (Hunt, 1961; Stern, 1977).

The parents in the present study all displayed very different interactive styles with their infants, ranging from nurturing and supportive to directive and controlling. Mary Joan, the mother of a twelve month old boy with established developmental delays, and Diane, the mother of a typically developing three month old, both displayed highly supportive and adaptive styles when interacting with their babies. They were observed as both initiating and responding to subtle communicative signals, and allowing their children to take an active role in the play. Mary Joan and Diane used a high proportion of comments that were geared to their child's current level of linguistic development. During play they performed in ways that their children could perform, and in ways that meaningfully related to their current experiences. Both mothers displayed a consistent social style across all three interactive contexts. They were able to maintain reciprocal, matched, responsive, nondirective roles with their children throughout the course of play.

In contrast to Mary Joan and Diane, the majority of the mothers in the study presented with a more parent directed style of interacting with their infants. Irene, Prudence, Lori, Carol, and Molly, whose infants represented both typically developing children and children with established developmental risks in both of the age groups examined, were all found to use an interactive style that could best be described as controlling and highly directive when engaging in play exchanges. It was clear that in these dyads,
the mother was in charge and placed the infant in a passive role during play activities. Each of these mothers employed didactic and controlling styles of interaction, and did not encourage their infants to participate in play. They did not allow their infants sufficient control over their learning activities, nor did they provide appropriate feedback on primitive communicative and social bids made by their babies. In essence, these mothers disrupted their babies' pursuit of interesting and motivating topics by diverting the infants to activities that were poorly matched to infant interest and ability.

Tracy, the mother of a typically developing nine month old boy, also displayed an interactive style that was not conducive to language and social learning. Rather than controlling and directing the course of her son's play, she was observed as being nonresponsive to his social and communicative bids in all three interactive contexts. She ignored his sounds, movements, and gestures. Nor did she attempt to participate in his play activities. Like an overly directive style of interaction, this complete lack of support on the part of the parent can impact negatively on the social and communicative competence of the infant. By not responding to her son's nonverbal behaviors, Tracy could actually be discouraging him from practicing these behaviors that serve as the building blocks for later social and communicative competence.

The final group of three mothers presented an interesting style of interacting with their infants. Jean and Elaine, the mothers of infants at established developmental risk, and Pam the mother of a typically developing twelve month old, were all directive and often mismatched to their baby's interests and communications. However, they displayed a playful and
friendly attitude that was effective in helping their children become social. The partners in each of these three dyads were viewed as experiencing regular success with one another, and displayed a degree of emotional understanding of one another that appeared to foster the reciprocal nature of their exchanges. Additionally, the three pairs established a sense of mutual efficacy within their interactions (Goldberg, 1977). This indicates that both parent and infant need to be effective in the interaction to have fun, for social exchanges to become habitual, and for learning to occur.

The trends observed in maternal interactive style reinforce the notion that there exists a great diversity in the types of interactive patterns displayed between mothers and infants. While it was assumed that maternal interactive style would play an important role in the success of the interaction, the mother's role emerged from this data as having an effect on all aspects of infant socialization and interactive competence. In each of these interactive dyads, the mothers were observed as either supporting or usurping infant communicative bids. In general, parents viewed as supportive partners were judged as responding to their babies more than they initiated contact, waiting longer for infant responses, and progressively matching their infant's communicative and social behaviors. Parents judged to be less successful in social exchanges tended to be more directive, less responsive, and more likely to try to control the direction and pace of the social exchanges.

Within the trend of infant responsiveness and its relation to parental interactive styles, lies the paradox of parents who present with directive and controlling styles, yet their infants display normal expressive and receptive
language development. This may be explained in several different ways. First, typically developing infants are amazingly resilient, and are able to use resourceful self-comforting behaviors such as fussing or gaze aversion to cope with unstimulating or overstimulating conversations (Field, 1990). If an infant is able to self monitor language input, development may not be impaired by a socially directive and controlling parent. Second, infant personality and temperament also plays a significant role in development (Bates, 1987; Thomas & Chess, 1984). Some infants are apprehensive in stressful situations, while more resilient infants appear to almost be immune to stressful or nonsupportive interactive situations. These children may learn more and develop more rapidly because of their inner curiosity and exploratory behaviors, aside from parental input.

The Role of the Infant

The image of a committed and competent infant, who can influence adult partners as well as be influenced by them, suggests a pattern of socialization that is fundamentally a process in which infants and their social partners reciprocally shape each others' behavior. Recognizing that infants can actively collaborate in their own socialization, it is essential to examine how that socialization transpires in a sensitive and responsive environment (Feinman & Lewis, 1991). If infants are not supplied with an environment where they can actively impact upon adult partners, they will not become proficient in the use of early social and communicative skills that serve as precursors for more formal language development.
Information collected during the present study regarding infant interactive abilities during social exchanges with their mothers was both predictable and surprising. Predictably, infants who had mothers that encouraged them to participate actively in play exchanges were seen as being much more competent in terms of social interaction and play skills, as well as nonverbal communication abilities. Thomas and Patrick, who both had highly supportive and responsive mothers, were judged to use social and communicative cues more consistently than the other infants.

Thomas, who was considered to be at established developmental risk, was observed as consistently initiating, responding, and terminating social exchanges with his mother through the use of sounds, body movements, and eye gaze patterns. Patrick, a three month old typically developing infant, also was observed as using these skills to modulate the flow of exchange with his mother. In addition, both infants were able to modify their communicative signals in response to maternal interaction, which allowed for a wider range of communicative exchanges between mother and child.

Two of the infants were observed as being highly responsive during play exchanges with their mothers, but rarely did they initiate or terminate play exchanges. Joshua and Hope were both able to stay involved in interactions that their mothers initiated, but neither were able to initiate or change the course of the activity. While responsiveness is critical for early social and communication success, children also must learn how to pursue their own inner motivations and physiological cues. This is an especially important skill for children, like Joshua and Hope, who are considered to be at established risk for later developmental delays. Children with delays often
assume passive, dependent styles, responding when directed to, but rarely asserting their own motivations or competencies (MacDonald, 1989).

The remaining seven infants all displayed interactive styles that can best be described as nonresponsive. These infants were observed as engaging in play activities independent of what their parents were doing or saying. These infants rarely contacted their parents for anything but instrumental or self-directed purposes. In general, they were less responsive to parent initiated social exchanges and not as likely to stay in prolonged turntaking exchanges with their parents as were the other four infants. Another commonality in this group was that they used fewer vocalizations and nonverbal cues to express their immediate wants and social needs.

What was surprising in all of the interactional dyads, was the persistence of the infants observed. Even those who received little support from their parent partner would on occasion display a great willingness to engage in social exchanges with only minimal or intermittent encouragement. This usually occurred when parents would follow the child's lead or adopt a playful and responsive interactive style. For example, during people-focused play, Pam primarily directed the course of the play interaction, and rarely responded to Bruce's social and communicative bids. However, she would, on occasion, smile and imitate the sounds that Bruce was making. When she engaged in these types of behaviors, Bruce would vocalize loudly, and maintain close eye contact with her. Also, he would become more physically active, and imitative of her sounds and facial expressions.
Summary

In general, infants and mothers were seen as being more successful with one another when both took an active role in the social interaction exchanges. This confirms the notion of effective joint dyadic development (Bronfenbrenner, 1979). According to Bronfenbrenner, when two partners perceive themselves as doing something together, in a mutually engaging and reinforcing interaction, the dyad takes on great developmental power. In such joint activity, a social partnership is able to form as long as three elements are present: reciprocity, balance of power, and an affective attachment. According to Bronfenbrenner, joint activity dyads stimulate the infant to "conceptualize and cope with power relations, as well as experience a gradual transfer of power within the relationship," (Bronfenbrenner, 1979, p.58). In addition to the transference of power, joint activity dyads are more likely to enhance the pace and probability of developmental change than are dyads identified as being directive and controlling.

Another interesting trend emerged across the eleven infant-parent pairs, in relation to interactive context. While there was no discernible difference in parent interaction style across the three interactive contexts, there was a minor preference for parents to use object-focused activities to engage in more traditional teaching type games. Parents were observed as using these exchanges as a time to teach infants object labels, and would allow for more time in undirected exploration. When engaged in this type of teaching activity, the predominant trend was for parents to use a high proportion of closed ended questions and directives, and not to allow an adequate response time for the infant.
Infant age and developmental status did not appear to have a consistent effect on parent interactive style. While the parents of the older typically developing infants tended to use a high proportion of questions and directives during play, this was also seen as a language stimulation technique used by the mothers of infants considered to be at developmental risk, as well as the younger typically developing infants. Mothers seen as employing interactive techniques considered to be supportive of early social and communicative development also represented different age groups and risk categories.

Infant/Investigator Interaction

Consideration of social influences on infant development from the perspective of units different from the mother-infant dyad is necessary (Feinman & Lewis, 1991). Because social responsiveness of a partner often modifies individuals' responses to situations, it is reasonable to expect that infant performance could be affected by changes in adult interactive style. For this reason, infant social performance was observed during an interaction with the investigator, who employed a variety of behaviors identified as supporting emerging social and communicative behaviors (Bricker & Veltman, 1990; MacDonald, 1989; Rosenberg & Robinson, 1988).

During my interaction with each of the infants, I consciously employed a variety of interactive techniques designed to facilitate early social and communicative development. Drawing from an ecologically based framework where the child is viewed as developing in interaction with his or
her environment, the interactive strategies employed allowed for maximum participation on the part of the infant (Bruner, 1988; Girolometto, 1986; Goldberg, 1977; MacDonald, 1989; Mahoney et al., 1988). This interactive approach requires that the adult partner facilitate, enhance, and expand interactions selected by the child within a socially bound context. It further supports the notion that children will become active participants in their own development to the extent that their adult partners interact in balanced, reciprocal, matched, responsive, and emotionally attached ways.

Information gathered on the responsiveness of infants when engaged with a more child-directed and socially competent partner was predictable. Ten of the eleven infants responded in a more engaging and reciprocal manner than had been noticed during exchanges with their parents. The infant who did not respond more favorably to the investigator, Joshua, was experiencing stranger anxiety, even with his mother present in the room. Therefore his behavior was not considered as part of the following discussion.

Of the ten infants who were found to be more engaging and socially responsive with the investigator, the following trends were observed. Both the infants identified as being at established risk for later developmental delays and those described as typically developing were found to engage in longer turntaking exchanges with the investigator than with their parents. Turntaking behaviors were identified as any sound, movement, or action that was related to, or extended the topic of play. A difference that emerged between the two groups related to the types of turns taken. The established risk infants took turns in a primarily responsive manner. In other words, they would engage for longer periods of time, but only on topics that were
initiated by the investigator. These infants also employed subtler signals (i.e., loss of eye contact), when attempting to terminate a play exchange than did their typically developing peers.

Infants considered to be typically developing were observed as using their turns to initiate contacts, respond, and terminate interactions with the investigator. These infants employed a greater variety of communicative signals in order to direct the flow of play. The six typically developing infants were all observed as using a wide range of sounds, movements, and gestures to modulate the flow of the interaction.

In addition to differences in turntaking behaviors, a trend emerged regarding infant imitative abilities. It was found that while all infants were generally more imitative than they had been with their mothers, the established risk infants tended to imitate more physical activities, while the typically developing infants imitated physical and vocal behaviors with equal frequency.

All of the infants presented with a more interactive and engaging social profile during interactive exchanges with me. They tended to be more vocal and stayed longer in reciprocal turntaking activities. By employing interactive strategies considered to be supportive of emerging social and communicative behaviors, I was able to provide infants with a sense of guided participation through a series of socially bound learning events.

**Summary**

Observation, description, and analysis of data collected in the present study suggested that there are indeed interactive trends in infant-adult dyads that
influence dyadic learning and interactive success. Further, the data suggest that the success of the dyad is affected by variables related to both adult interactive style and infant responsiveness during play interactions. This mutuality acknowledges that the infant can have an impact on the adult, and the adult can influence the child.

Adult Previewing of Communication Skills

Dyadic interaction is greatly influenced by the perceptions that the dyadic partners have of each other. It is the formulation of accurate mental representations of partner competence and ability, that guides the selection of interactive techniques thought best to support emerging skills. It is through this process of mental representation and subsequent social interaction that allows the more advanced social partner to provide an appropriate and stimulative environment for the emerging partner.

As infants learn to predict and master their environment in the company of a significant other, they gradually evolve into independent and self motivated learners. A skill used by intuitive caregivers to promote infant autonomy, while at the same time reinforcing the interactive bond, has been labeled previewing (Trad, 1990; 1992; 1993). Through this process caregivers are able to assist infants in rehearsing upcoming developmental changes in a supportive and nonjudgmental environment.

All of the parents participating in the present study generally perceived themselves as supportive and nurturing partners, who were able to predict and support imminent developmental changes in their infants. However,
analysis of videotaped interactions revealed that these beliefs were not always interpreted into practice for many of the parents. During the interviews, each parent described at least one behavior they engaged in with their infant, considered to be supportive of emerging communicative behaviors. Of the eleven parents interviewed, only four of them actually used of the behaviors they described during facilitative play exchanges with their baby.

Further examination of the interview responses revealed that while all parents were able to accurately describe infant communicative behavior, six were not able to interpret those behaviors successfully. Nor were these parents able to adjust their interactive styles to accommodate the social and communicative needs of their infants. It is this lack of affective interaction between mother and infant that precludes involvement in facilitative previewing exercises designed to allow the infant to rehearse upcoming developmental changes.

In addition, examination of the interview data revealed that developmental status of the infant can affect a parent's ability to be an effective previewer. Four of the five mothers of children considered to be at established risk for later developmental delays were unable to convey meaning attribution (Trad, 1992) to their infants subtle communicative behaviors. These mothers did not interpret early vocalizations or nonvocal signals as precursory forms of language, and therefore did not appear to view these behaviors as evidence of maturational attainment. According to Trad (1993), a parent who does not provide ongoing meaning attribution for their developing infant may hinder the processes of adaptive development.
It has been suggested that if infants are not provided with a system of effective self representation, patterns of maladaptive interaction may be established (Papousek & Papousek, 1987; Wells, 1981; Stern, 1985; Rossetti, 1991). In order to foster more adaptive interactive relationships that generate qualities of contingency, reciprocity and attunement, it is necessary to provide infants with opportunities for integrative engagements with sophisticated social partners (Papousek & Papousek, 1987). Trad (1991) states that "the overwhelming thrust of [mother/infant] research indicates that early patterns of interaction between infant and caregiver create and perpetuate enduring personality structures" (p. 159).

Summary

Previewing activities are an aspect of parent-infant interaction during the initial years of life that promote the predictions and rehearsals of imminent developmental changes. On the whole, parents involved in the present study who were judged as being behaviorally less responsive to their infants were found to display less supportive previewing behaviors than parents with a more responsive interactive style.

An interesting aspect of the interview process was that it gave parents the chance to talk about their feelings about their child and his or her communication development, and the role they saw themselves playing in that process. It also allowed them to realize some of the philosophies and ideas that were at play during their interactions with their babies by having to put them into words. Several parents indicated that they had never really given some of these issues much thought before the study.
Conclusion

The investigation indicated several trends in infant-mother interaction, across all age groups and diagnostic categories. First, a difference in adult responsiveness was associated with for much of the variability observed in infant competency levels. This dimension indicated that infants responded more consistently to an adult partner who was responsive and supportive of early social and communicative behaviors. Second, a lack of joint activity or joint focus of attention in many of the parent-infant dyads, suggested that often infants are not provided with a facilitative learning environment, one that would increase their motivation to pursue and rehearse learning activities in more diverse social situations. Third, parent-infant interactions that were characterized as displaying low rhythmicity, reciprocity, empathy, and affective attunement created an atmosphere that was not conducive to predicting and rehearsing imminent developmental changes.

Trends in the data appear unrelated to infant age or developmental status. No consistent trend could be supported by the data which related to risk category; however, adult interactive style did appear to have an impact on overall infant competency ratings.

The findings of this study present us with several implications for future research into mother-infant interaction. First, the results of this study are limited by the use of a small, diverse group of infants and parents, representing both at-risk and typically developing groups of infants. A larger, more homogeneous group may result in a broader range of perceptions and
add a different set of findings. Based on this limitation, it is recommended that studies be conducted to investigate similarities and differences in adult-infant interactions for children representing more specific diagnostic categories.

Second, the multiple sources of data revealed conflicting findings for parent response patterns. Interview and questionnaire data indicated that all parents perceived themselves as supportive and nurturing partners during social exchanges with their infants. Observation data often did not support this finding. Future work needs to examine more closely the nature of response patterns in parents observed as being supportive communicative partners, and those seen as less facilitative partners. More in-depth examination of response patterns need to be conducted in order to see how perceptions and actual practice of interactive style are played out by parents of both typically developing and established risk infants.

A third area that requires further investigation is the development of more systematic assessment procedures for use in the evaluation of infant-adult interactions. By developing a system of observing, conceptualizing, and then assessing infant behavior within the context of nature and ongoing social exchanges, it would be possible to design a prescriptive intervention program that could be individually tailored to the specific areas of need for each infant-parent pair.
Perhaps the focus of future study should move beyond the similarities and differences between adult interactive styles, to how interactive style and perceptual abilities affect infant-adult interactions. The present study reveals a need for directions in the study of infant-parent interaction that to date have been pursued in a cursory manner. It suggests a need to understand not only behavioral interactions, but the cycle of mutual responsivity and mutual awareness that must develop between parent and child in order to validate changes in the interactive relationship.
APPENDIX A

SUBJECT RECRUITMENT FORM
To: Parents of Children 3-6 months of age & 9-12 months of age
From: Paula Wilkening.

Your participation is important to an early intervention research project! If you are the parent of a child between the ages of 3-6 months or 9-12 months, you can help us understand more about how infants learn to talk.

WHAT WILL YOU NEED TO DO TO PARTICIPATE?
Task # 1: Paula Wilkening will complete a developmental evaluation on your child, with a specific focus on play abilities, social skills, use of language, understanding of language, and nonverbal communication skills.
Task # 2: You will be videotaped once in your home interacting with your child. The home visit will last for about two hours. If you have other children, Paula Wilkening will arrange for baby-sitting services for the day of the visit.
Task # 3: You will complete a questionnaire at the end of the videotaping, relating to your ideas about how your child is learning to talk. You participate in a brief interview with Paula Wilkening that further explores your ideas about how your baby is learning to talk.

WHAT WILL YOU GET FOR YOUR PARTICIPATION?
In addition to a comprehensive language evaluation of your baby you will receive information about how children develop communication skills. You will also receive a free consultation with a certified Speech/Language Pathologist on how you can best assist your child in learning to talk. You will also be given a copy of the videotapes taken of you and your baby during the two research visits.

YOUR PARTICIPATION IS IMPORTANT!
Thanks for your support! Please fill out the information below, and contact Paula Wilkening at 292-8207 or 488-8379.
Name: ___________________________ Child’s Name: _______________
Phone: _________________________ Child’s Birthday: _____________
A Measure of Communication and Interaction

Louis Rossetti, Ph.D.

<table>
<thead>
<tr>
<th>Administration</th>
<th>Interaction</th>
<th>Pragmatics</th>
<th>Gesture</th>
<th>Play</th>
<th>Language Comprehension</th>
<th>Language Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
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<td>Second</td>
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<tr>
<td>Third</td>
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</table>

Age Performance Profile

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**0 - 3 Months**

**Interaction-Attachment**

- 1. Maintains brief eye contact during feeding
- 2. Shows differing responses to caregiver's vocalization
- 3. Crying diminishes with adult eye contact
- 4. Smiles purposefully in response to caregiver's face or voice
- 5. The caregiver appears relaxed and caring when providing care
- 6. The caregiver appears comfortable in handling the child
- 7. The caregiver smiles frequently in response to the child's behavior
- 8. The caregiver interacts with and responds to the child

**Pragmatics**

- 1. Responds to adult interaction
- 2. Seeks to make eye contact with adult
- 3. Laughs at amusing activities
- 4. Shows interest in people, not objects
- 5. Cries to get attention

**Gesture**

No items at this age level

**Play**

- 1. Plays with rattle
- 2. Momentarily looks at objects
- 3. Attempts to imitate facial expressions

**Language Comprehension**

- 1. Quiets to a familiar voice
- 2. Moves in response to a voice
- 3. Shows awareness of a speaker
- 4. Attends to other voices
- 5. Attends to a speaker's mouth
- 6. Discriminates between angry and friendly voices

**Language Expression**

- 1. Vocalizes to caregiver's smile and talk
- 2. Vocalizes two different sounds
- 3. Coos
- 4. Vocalizes sounds other than crying or cooing
- 5. Produces a hunger cry
- 6. Repeats a syllable while crying
- 7. Vocalizes to express pleasure
- 8. Cries to get attention
- 9. Makes sounds in the back of the throat
### Interaction-Attachment

<table>
<thead>
<tr>
<th>C.E.R.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Smiles spontaneously to human contact</td>
</tr>
<tr>
<td>10</td>
<td>Smiles when playing alone</td>
</tr>
<tr>
<td>11</td>
<td>Smiles at faces of several family members</td>
</tr>
<tr>
<td>12</td>
<td>Stops crying when spoken to</td>
</tr>
<tr>
<td>13</td>
<td>Shows different responses to family members</td>
</tr>
</tbody>
</table>

### Pragmatics

<table>
<thead>
<tr>
<th>C.E.R.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Produces different cries for different reasons</td>
</tr>
<tr>
<td>7</td>
<td>Maintains eye contact</td>
</tr>
<tr>
<td>8</td>
<td>Vocalizes in response to vocalization</td>
</tr>
<tr>
<td>9</td>
<td>Imitates facial expressions</td>
</tr>
</tbody>
</table>

### Gesture

No items at this age level

### Play

<table>
<thead>
<tr>
<th>C.E.R.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Enjoys frolic play</td>
</tr>
<tr>
<td>5</td>
<td>Smiles at self in a mirror</td>
</tr>
<tr>
<td>6</td>
<td>Reaches for objects</td>
</tr>
<tr>
<td>7</td>
<td>Bangs objects in play</td>
</tr>
</tbody>
</table>

### Language Comprehension

<table>
<thead>
<tr>
<th>C.E.R.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Turns head toward a voice</td>
</tr>
<tr>
<td>8</td>
<td>Searches for the speaker</td>
</tr>
<tr>
<td>9</td>
<td>Responds to sounds other than voices</td>
</tr>
<tr>
<td>10</td>
<td>Recognizes own name</td>
</tr>
<tr>
<td>11</td>
<td>Stops crying when spoken to</td>
</tr>
<tr>
<td>12</td>
<td>Responds to “no” half of the time</td>
</tr>
<tr>
<td>13</td>
<td>Discriminates between threatening or friendly voices</td>
</tr>
<tr>
<td>14</td>
<td>Anticipates feeding</td>
</tr>
<tr>
<td>15</td>
<td>Cries at an angry tone of voice</td>
</tr>
</tbody>
</table>

### Language Expression

<table>
<thead>
<tr>
<th>C.E.R.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Vocalizes in response to singing</td>
</tr>
<tr>
<td>11</td>
<td>Vocalizes feelings through intonation</td>
</tr>
<tr>
<td>12</td>
<td>Takes turns vocalizing</td>
</tr>
<tr>
<td>13</td>
<td>Laughs</td>
</tr>
<tr>
<td>14</td>
<td>Babbles</td>
</tr>
<tr>
<td>15</td>
<td>Vocalizes to express displeasure</td>
</tr>
<tr>
<td>16</td>
<td>Stops babbling when another person vocalizes</td>
</tr>
<tr>
<td>17</td>
<td>Initiates “talking”</td>
</tr>
<tr>
<td>18</td>
<td>Demonstrates sound play when alone or with others</td>
</tr>
<tr>
<td>19</td>
<td>Whines with a manipulative purpose</td>
</tr>
<tr>
<td>20</td>
<td>Attempts to interact with an adult</td>
</tr>
<tr>
<td>21</td>
<td>Interrupts another person’s vocalizations</td>
</tr>
</tbody>
</table>
### 6 - 9 Months

<table>
<thead>
<tr>
<th>Page 30</th>
<th>Interaction-Attachment</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Responds to a request to “come here”</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Becomes more lively with familiar people</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Shows some initial separation fear</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Shows a desire to be with people</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page 41</th>
<th>Pragmatics</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Exchanges gestures with an adult</td>
</tr>
<tr>
<td>11</td>
<td>Uses gesture and vocalization to protest</td>
</tr>
<tr>
<td>12</td>
<td>Shouts or vocalizes to gain attention</td>
</tr>
</tbody>
</table>

**Gesture**

No items at this age level

<table>
<thead>
<tr>
<th>Page 64</th>
<th>Play</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Smiles and laughs during games</td>
</tr>
<tr>
<td>9</td>
<td>Participates in games with adults</td>
</tr>
<tr>
<td>10</td>
<td>Demonstrates anticipation of play activities</td>
</tr>
<tr>
<td>11</td>
<td>Searches for hidden objects</td>
</tr>
<tr>
<td>12</td>
<td>Reaches for self in a mirror</td>
</tr>
<tr>
<td>13</td>
<td>Interacts with objects without mouthing or banging</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page 89</th>
<th>Language Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Recognizes family members’ names</td>
</tr>
<tr>
<td>17</td>
<td>Responds with gesture to “come up” or “want up”?</td>
</tr>
<tr>
<td>18</td>
<td>Attends to music or singing</td>
</tr>
<tr>
<td>19</td>
<td>Responds to “no” most of the time</td>
</tr>
<tr>
<td>20</td>
<td>Maintains attention to a speaker</td>
</tr>
<tr>
<td>21</td>
<td>Responds to sounds when the source is not visible</td>
</tr>
<tr>
<td>22</td>
<td>Stops when name is called</td>
</tr>
<tr>
<td>23</td>
<td>Attends to pictures</td>
</tr>
<tr>
<td>24</td>
<td>Waves in response to “bye-bye”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page 127</th>
<th>Language Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Vocalizes four different syllables</td>
</tr>
<tr>
<td>23</td>
<td>Vocalizes a two-syllable combination</td>
</tr>
<tr>
<td>24</td>
<td>Vocalizes in response to objects that move</td>
</tr>
<tr>
<td>25</td>
<td>Imitates duplicated syllables</td>
</tr>
<tr>
<td>26</td>
<td>Vocalizes during games</td>
</tr>
<tr>
<td>27</td>
<td>Sings along with a familiar song</td>
</tr>
<tr>
<td>28</td>
<td>Shouts or vocalizes to gain attention</td>
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</table>
## 9 - 12 Months

### Interaction-Attachment

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<tr>
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<tbody>
<tr>
<td>page 32</td>
<td></td>
<td></td>
<td>Notes</td>
</tr>
<tr>
<td>18</td>
<td>Shows sensitivity to others' moods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Displays fear of strangers</td>
<td></td>
<td></td>
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<tr>
<td>20</td>
<td>Allows release of contact in new situations</td>
<td></td>
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</tr>
<tr>
<td>21</td>
<td>Performs for social attention</td>
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### Pragmatics

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<table>
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</thead>
<tbody>
<tr>
<td>page 42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Vocalizes to call others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Indicates a desire for a change in activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Vocalizes when another person calls</td>
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</table>

### Gesture

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<table>
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<tbody>
<tr>
<td>page 49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Covers and uncovers face during peekaboo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Reaches upward as a request to be picked up</td>
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<tr>
<td>3</td>
<td>Waves hi and bye</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Extends arm to show an object</td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>Points to objects to indicate awareness</td>
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### Play

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<tbody>
<tr>
<td>page 67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Participates in speech routine games</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Covers face with towel during peekaboo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Resists removal of a toy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Tries to secure an object out of reach</td>
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<tr>
<td>18</td>
<td>Imitates stirring with a spoon</td>
<td></td>
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</tr>
<tr>
<td>19</td>
<td>Pushes a toy car</td>
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### Language Comprehension

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<table>
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<tr>
<td>page 83</td>
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</tr>
<tr>
<td>25</td>
<td>Attends to new words</td>
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<tr>
<td>26</td>
<td>Gives objects upon to others upon verbal request</td>
<td></td>
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<tr>
<td>27</td>
<td>Looks at person saying child's name</td>
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<tr>
<td>28</td>
<td>Performs a routine activity upon verbal request</td>
<td></td>
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</tr>
<tr>
<td>29</td>
<td>Looks at familiar objects and people when named</td>
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<tr>
<td>30</td>
<td>Attends to objects mentioned during conversation</td>
<td></td>
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</tr>
<tr>
<td>31</td>
<td>Follows simple commands occasionally</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Understands simple questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Gestures in response to verbal requests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Verbalizes or vocalizes in response to verbal requests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Participates in speech routine games</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Identifies two body parts on self</td>
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### Language Expression

<p>| | | | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>page 130</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Says &quot;mama&quot; or &quot;dada&quot; meaningfully</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Imitates consonant and vowel combinations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Imitates non-speech sounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Vocalizes with intent frequently</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Uses a word to call a person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Says one to two words spontaneously</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Vocalizes a desire for a change in activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Imitates the name of familiar objects</td>
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</table>
12 - 15 Months

Interaction-Attachment

Items resume at the 15 - 18 month level

page 43 Pragmatics

16 Imitates other children
17 Responds to other children's vocalizations
18 Imitates turn-taking routines
19 Uses vocalizations more frequently during interactions
20 Uses more words during turn-taking

page 51 Gesture

6 Feeds others
7 Combs or brushes hair
8 Brushes teeth
9 Hugs dolls, animals, or people
10 Shakes head 'no'

page 70 Play

20 Plays fetching game with caregiver
21 Imitates patting a doll
22 Shows shoes or clothing during play
23 Demonstrates functional use of objects
24 Shows symbolic use of objects
25 Explores toys

page 99 Language Comprehension

37 Follows one-step commands during play
38 Responds to requests to say words
39 Maintains attention to pictures
40 Enjoys rhymes and finger plays
41 Responds to "give me" command
42 Points to two action words in pictures
43 Understands some prepositions
44 Understands new words
45 Identifies three body parts on self or a doll

page 134 Language Expression

37 Shakes head "no"
38 Says eight to ten words spontaneously
39 Names one object frequently
40 Varies pitch when vocalizing
41 Imitates new words spontaneously
42 Combines vocalization and gesture to obtain a desired object
43 Uses true words within jargon-like utterances
44 Imitates three animal sounds
45 Wakes with a communicative call
46 Sings independently
47 Takes turns vocalizing with children
48 Expresses early developing modifiers
49 Asks to have needs met
15 - 18 Months

**Interaction-Attachment**

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Plays away from familiar people</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Requests assistance from an adult</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Retreats to caregiver when an unfamiliar adult approaches</td>
<td></td>
</tr>
</tbody>
</table>

**Pragmatics**

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Points to, shows, or gives objects</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Controls the behavior of self and others</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Uses words to protest</td>
<td></td>
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</tbody>
</table>

**Gesture**

Items resume at the 18 - 21 month level

**Play**

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>R</th>
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</thead>
<tbody>
<tr>
<td>26</td>
<td>Plays with a toy in different ways</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Plays ball with adults</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Places one object inside another</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Hands a toy to an adult for assistance</td>
<td></td>
</tr>
</tbody>
</table>

**Language Comprehension**

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>Identifies six body parts or clothing items on a doll</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Finds familiar objects not in sight</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Completes two requests with one object</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Chooses two familiar objects upon request</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Identifies objects by category</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>Understands 50 words</td>
<td></td>
</tr>
</tbody>
</table>

**Language Expression**

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Says 15 meaningful words</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>Uses consonants such as t, d, n, and h</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>Talks rather than uses gestures</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Imitates words overheard in conversation</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Asks &quot;What's that?&quot;</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Asks for &quot;more&quot;</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>Names five to seven familiar objects upon request</td>
<td></td>
</tr>
</tbody>
</table>
18 - 21 Months

### Interaction-Attachment

No items at this age level

### Pragmatics

<table>
<thead>
<tr>
<th>Page 47</th>
<th>Gesture</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Engages in adult-like dialogue</td>
<td></td>
</tr>
<tr>
<td>25 Uses vocalizations and words during pretend play</td>
<td></td>
</tr>
<tr>
<td>26 Uses words to interact with others</td>
<td></td>
</tr>
<tr>
<td>27 Takes turns talking during conversation</td>
<td></td>
</tr>
</tbody>
</table>

### Gesture

<table>
<thead>
<tr>
<th>Page 54</th>
<th>Play</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 Leads caregiver to a desired object</td>
<td></td>
</tr>
<tr>
<td>12 Indicates that pants are wet</td>
<td></td>
</tr>
<tr>
<td>13 Pretends to play a musical instrument</td>
<td></td>
</tr>
<tr>
<td>14 Puts on or takes off clothing</td>
<td></td>
</tr>
<tr>
<td>15 Pretends to dance to music</td>
<td></td>
</tr>
</tbody>
</table>

### Play

<table>
<thead>
<tr>
<th>Page 74</th>
<th>Page 107</th>
<th>Language Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Imitates housework activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 Groups objects in play</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 Uses two toys together in pretend play</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52 Identifies four body parts and clothing items on self</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53 Understands the commands “sit down” and “come here”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54 Chooses five familiar objects upon request</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55 Understands the meaning of action words</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56 Identifies pictures when named</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Language Expression

<table>
<thead>
<tr>
<th>Page 142</th>
<th>Language Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>57 Uses single words frequently</td>
<td></td>
</tr>
<tr>
<td>58 Uses sentence-like intonational patterns</td>
<td></td>
</tr>
<tr>
<td>59 Imitates two- and three-word phrases</td>
<td></td>
</tr>
<tr>
<td>60 Imitates environmental noises</td>
<td></td>
</tr>
<tr>
<td>61 Verbalizes two different needs</td>
<td></td>
</tr>
<tr>
<td>62 Uses two-word phrases occasionally</td>
<td></td>
</tr>
</tbody>
</table>
Interaction-Attachment

No items at this age level

Pragmatics

No items at this age level

Gesture

16. Gestures to request action
17. Gestures to indicate toileting needs
18. Pretends to pour from a container
19. Pushes a stroller or shopping cart
20. Flies a toy airplane

Play

33. Puts away toys on request
34. Attempts to repair broken toys
35. Stacks and assembles toys and objects

Language Comprehension

57. Chooses one object from a group of five upon verbal request
58. Follows novel commands
59. Follows a two-step related command
60. Understands new words rapidly

Language Expression

63. Uses two-word phrases frequently
64. Uses 50 different words
65. Uses new words regularly
66. Relates personal experiences
67. Uses three-word phrases occasionally
68. Refers to self by name
69. Uses early pronouns occasionally
70. Mean Length of 1.25 - 1.50 morphemes per utterance
24 - 27 Months

**Interaction-Attachment**

No items at this age level

**Pragmatics**

No items at this age level

---

**Gesture**

- 21 Pretends to write or type
- 22 Pretends to talk on the telephone
- 23 Wipes hands and face
- 24 Slaps a palm in response to “give me five”

---

**Play**

- 36 Performs many related activities during play
- 37 Chooses toys selectively
- 38 Uses most toys appropriately

---

**Language Comprehension**

- 61. Points to four action words in pictures
- 62. Recognizes family member names
- 63. Understands the concept of one
- 64. Understands size concepts

---

**Language Expression**

- 71. Imitates two numbers or unrelated words upon request
- 72. Uses three-word phrases frequently
- 73. Asks for assistance with personal needs
- 74. Uses action words
- 75. Mean Length of 1.50 - 2.00 morphemes per utterance
**Interaction-Attachment**

No items at this age level

**Pragmatics**

No items at this age level

**Gesture**

No items at this age level

**Play**

39. Demonstrates parallel play with other children
40. Talks more in play around other children
41. Shares toys with other children

**Language Comprehension**

65. Responds to simple questions
66. Identifies four objects by function
67. Understands location phrases

**Language Expression**

76. Names one color
77. Refers to self by pronoun consistently
78. Uses two sentence types
79. Responds to greetings consistently
80. Uses negation
81. Mean Length of 2.00 - 2.50 morphemes per utterance
33 - 36 Months

**Interaction-Attachment**

No items at this age level

**Pragmatics**

No items at this age level

**Gesture**

No items at this age level

---

**page 80 Play**

45. Acts out a new ending to a familiar routine
46. Uses a doll as a playmate
47. Uses one object to represent many objects

---

**page 117 Language Comprehension**

72. Shows interest in why and how things work
73. Follows a three-step unrelated command
74. Identifies parts of an object
75. Responds to Wh questions
76. Follows commands with two familiar attributes

---

**page 157 Language Expression**

88. Relates recent experiences through verbalization
89. Uses verb forms
90. Expresses physical states
91. Converses in sentences
92. Counts to three
93. Mean Length of 2.50 - 3.00 morphemes per utterance
30 - 33 Months

Interaction-Attachment

No items at this age level

Pragmatics

No items at this age level

Gesture

No items at this age level

---

**Play**

42. Performs longer sequences of play activities
43. Acts out familiar routines
44. Pretends to perform the caregiver's routines

---

**Language Comprehension**

68. Understands five common action words
69. Follows two-step unrelated commands
70. Understands the concepts of one and all
71. Answers Yes and No questions correctly

---

**Language Expression**

82. Answers questions with "yes" or "no"
83. Imitates a series of three numbers or unrelated words
84. Uses plurals
85. Uses prepositions
86. States gender
87. States first and last name
The following Language Expression items may be scored directly from the spontaneous language sample. Circle the behaviors the child demonstrates as part of the language sample and credit the corresponding item in the protocol.

**Utterance Types**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Mean Length of Utterance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>Single words frequently</td>
<td>70 1.25 - 1.50</td>
</tr>
<tr>
<td>62</td>
<td>Two-word phrases occasionally</td>
<td>75 1.50 - 2.00</td>
</tr>
<tr>
<td>63</td>
<td>Two-word phrases frequently</td>
<td>81 2.00 - 2.50</td>
</tr>
<tr>
<td>67</td>
<td>Three-word phrases occasionally</td>
<td>93 2.50 - 3.00</td>
</tr>
<tr>
<td>72</td>
<td>Three-word phrases frequently</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Modifiers - big pretty hot</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>Uses t, d, n, h sounds</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Asks, &quot;What's that?&quot;</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Says &quot;more&quot;</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>Uses action words</td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>Two sentence types - declarative question</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>Pronouns - I, me, you</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>Pronouns - I, me, my, mine</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>Negation - no, not, don't</td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>Plural forms - s, -z</td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>Prepositions - in, on, under, beside</td>
<td></td>
</tr>
<tr>
<td>89</td>
<td>Verb forms -ing, -ed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Past tense irregular</td>
<td></td>
</tr>
</tbody>
</table>

**Mean Length of Utterance:**

\[
\text{Mean Length} = \frac{\text{Total Morphemes}}{\text{Total Utterances}}
\]
APPENDIX C

LETTER TO PARENTS OF CHILDREN MEETING RESEARCH CRITERIA
Dear Parent,

As the parent of an infant you know that your baby has his or her own special way of communicating. We share your interest in how your baby becomes a part of the social world in which he or she lives.

We are asking for your help in a study at The Ohio State University that is exploring how children learn to talk and how parents influence this process. Through studies such as this, we will become more aware of how infants develop language and the role played by adults in that process. This information, will help professionals provide services for infants and their families.

We hope that you will help us with this project by allowing us to observe you and your baby playing together. As Paula Wilkening discussed with you, she will be videotaping you and your baby playing at home. In addition to the videotaping, Paula will be asking you to answer a series of questions relating to how your baby is learning to talk. You can expect to spend a total of approximately two hours for the visit.

In addition to this letter, enclosed you will find the following information: (1) a summary of the research project; (2) a permission form allowing us to videotape you and your baby; (3) a family information sheet; and (4) the ECO Infant Social Communicative Survey. Please read all of this information carefully.

If you have decided to participate in the research project please complete the following information before mailing the forms back to Paula in the enclosed self addressed, stamped envelope: (1) the family information sheet; (2) the permission for videotaping form; and (3) the ECO-Infant Social Communicative Survey. Paula will be telephoning you in a few days to set up the appointment times for her visit with you and your baby.
If you have any questions please contact Paula at 292-8207 between 8:00 a.m. and 5:00 p.m. Monday through Friday, or 488-8379 during evening or weekend hours. Thanks for your help.

Sincerely,

Paula L. Wilkening, M.Sc
Doctoral Candidate
APPENDIX D

PROJECT SUMMARY
PARENT-CHILD COMMUNICATION WITH INFANTS: A STUDY OF ATTITUDES, PERCEPTIONS, AND PERFORMANCES

PROJECT SUMMARY

WHY ARE WE DOING THIS STUDY?
For a number of years, the people working in the communication department at the Nisonger Centre have been studying how children learn to talk. We are now in the process of developing some of the first clinical and educational tools that will help professionals understand how young children and their parents learn to communicate and play together. This information will allow us to better meet the learning needs of a wide variety of young children and their families. We are currently looking at how infants and parents interact and learn together, and how these early relationships eventually lead to children becoming social talkers.

WHAT INFORMATION DO WE NEED FROM YOU?
In order for us to best understand how you and your baby play and learn together, we ask that you complete the following information for us:
- Complete the Family Information Sheet.
- Sign the Permission to Videotape Form.
- Complete the ECO-Infant Social Communication Survey.

WHERE WILL THE STUDY TAKE PLACE?
You will participate in only one research visit during this study. The visit will take place in your home, and will last for approximately two hours. If you have other children Paula will provide babysitting services for the time of the visit.

WHAT WILL YOU AND YOUR BABY DO IN THE STUDY?
You will be videotaped during both research visits playing with your baby. The two of you will be videotaped in three different activities: (a) playing with toys; (b) playing just with each other, and (c) in an activity that you feel is something you and your baby enjoy doing together. Each activity will last for approximately 10 minutes.

In addition to the videotaping, you will complete a questionnaire, relating to your ideas of how your baby is learning to talk. You will also participate in a brief interview with Paula that will further explore your ideas about your baby's communication development.

HOW MUCH TIME WILL YOU NEED TO SPEND?
You can expect to spend approximately a total of two hours with Paula during the course of the study. You may also expect to spend about 30 minutes filling out forms and questionnaires that relate to the study.
HOW MUCH WILL PARTICIPATION COST YOU?

Participation in the study will only cost you three hours of your time. All other costs, such as baby-sitting will be paid for you.

WHAT WILL YOU GET FOR YOUR PARTICIPATION?

- A manual of educational materials that will help you guide your baby through the early stages of communication development.

- A comprehensive evaluation of your baby's social, communication and play skills.

- A free consultation with a certified Speech/Language Pathologist on how you can best assist your baby in learning to talk.

- A cheque for $25.00.

- The deep satisfaction of knowing you are helping a struggling doctoral student!!!

WHAT ELSE DO YOU NEED TO REMEMBER?

- Participation in this study is entirely voluntary. You may withdraw at any time.

- Everything you tell us will be strictly confidential. Your name and your infant's name will not be connected in any way with the findings of this study.

- In order to ensure an optimal interactive environment baby-sitting services will be supplied during the home visit if you have other children.

- If your baby is ill or otherwise unable to participate in either of the scheduled research visits, please contact Paula Wilkening at 292-8207 or 488-8379 in order to reschedule the appointment.

YOUR PARTICIPATION IS IMPORTANT!!!

Thanks for your support!! If you have any questions please contact Paula Wilkening at 292-8207 or 488-8379.
APPENDIX E

CONSENT FORM
PERMISSION FOR VIDEOTAPING
DISSERTATION RESEARCH PROJECT

I give Paula Wilkening permission to videotape samples of my child's participation in the research project "Parent-Child Communication with Infant At-Risk: A Study of Attitudes, Perceptions, and Performances". I give further permission for the video tapes to be used by Paula Wilkening for future research and training purposes.

I understand that I can at any time withdraw my permission without any questions or consequences on services to my child.

Child's Name:______________________________
Parent's Name:______________________________
Parent's Signature:__________________________
Witness:____________________________________
Today's Date:______________________________
APPENDIX F

FAMILY CASE HISTORY INFORMATION SHEET
FAMILY INFORMATION
(Please complete the following and return it to Paula Wilkening)

Child's full name: ________________________________________________

Birthdate: ____________________________

Address: ____________________________

FAMILY BACKGROUND
Mother's name: ________________________ Age: ___________

Occupation: __________________________ Educational Level: ___________

Ethnicity: African American Hispanic American Indian Caucasian Asian Other

Father's name: ________________________ Age: ___________

Occupation: __________________________ Educational Level: ___________

Ethnicity: African American Hispanic American Indian Caucasian Asian Other

Brothers and Sisters:

<table>
<thead>
<tr>
<th>NAME</th>
<th>AGE</th>
<th>GRADE IN SCHOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Who is currently living in the home with your child?

___ Biological Mother ___ Biological Father

___ Adoptive Parents ___ Unmarried Partner

___ Brothers ___ Sisters

___ Other Family Members (i.e., grandparents, cousins)

___ Other (Please Specify) __________________________
Is your baby involved in any of the following programs?

- [ ] Daycare
- [ ] Infant Stimulation
- [ ] Early Intervention
- [ ] Occupational Therapy
- [ ] Physical Therapy
- [ ] Preschool
- [ ] Other: ______________________________________

How long has he/she been involved in these programs? _______________________

Which of the following broad categories describes the total income for the household?

- [ ] Under $10,000
- [ ] $10,001 to $20,000
- [ ] $20,001 to $25,000
- [ ] $25,001 to $30,000
- [ ] $30,001 to $40,000
- [ ] $40,001 to $50,000
- [ ] $50,001 to $60,000
- [ ] Above $60,000
- [ ] Don't know or don't wish to reply

All information is confidential - your name & your infant's name will not be connected in any way with the findings of this study.
ECO ACE
(ECO Adult Communication Evaluation)

Adult: ___________________________ Infant: ___________________________

Activity: _________________________ Observer: ______________________ Date: ____________

Describe how often you observed the events below. Circle the number that applies.
1= Never  2= Seldom  3= Occasionally  4= Often  5= Consistently

### A. Balance - Interacts frequently and as much as the baby
1. Initiates contacts with the child .................................................... 1 2 3 4 5 □
2. Communicate for a response .......................................................... 1 2 3 4 5 □
3. Wait expectantly ................................................................. 1 2 3 4 5 □
4. Respond to the child ........................................................... 1 2 3 4 5 □
5. Keep the child in back-and-forth interactions ................................... 1 2 3 4 5 □

### B. Match - Acts and communicates in ways the baby is able to do
1. The child's actions .............................................................. 1 2 3 4 5 □
2. The child's meanings & ideas .................................................. 1 2 3 4 5 □
3. The child's nonverbal communication ...................................... 1 2 3 4 5 □
4. The child's language level ...................................................... 1 2 3 4 5 □
5. The child's pragmatic intention ............................................... 1 2 3 4 5 □
6. Show the child how next to communicate .................................. 1 2 3 4 5 □
7. Be child-like (i.e., "Gary-like"; "Susan-like") ............................... 1 2 3 4 5 □

### C. Be Responsive - Responds sensitively to the baby's world
1. To the child's interests .............................................................. 1 2 3 4 5 □
2. To the child's pace .............................................................. 1 2 3 4 5 □
3. To the child's changes ........................................................... 1 2 3 4 5 □
4. To the child's actions as communications ............................... 1 2 3 4 5 □
5. To the child's nonverbal communications .................................. 1 2 3 4 5 □
6. To the child's language .......................................................... 1 2 3 4 5 □
7. To the child's emotions .......................................................... 1 2 3 4 5 □

### D. Be Nondirective - Allows the baby guidance with the freedom to be expressive
1. Follow the child's lead .............................................................. 1 2 3 4 5 □
2. Lead the child appropriately ................................................... 1 2 3 4 5 □
3. Share the choice of topic or activity ........................................ 1 2 3 4 5 □
4. Comment ............................................................................... 1 2 3 4 5 □
5. Avoid questions ...................................................................... 1 2 3 4 5 □
6. Avoid commands & directives .................................................. 1 2 3 4 5 □

### E. Be Emotionally Attached - Be mutually reinforcing with the child
1. Actively enjoy the child ............................................................ 1 2 3 4 5 □
2. Put the child at ease .............................................................. 1 2 3 4 5 □
3. Show a child-like playful style .............................................. 1 2 3 4 5 □
4. Show confidence with the child ............................................. 1 2 3 4 5 □
5. Be animated & attention getting ............................................ 1 2 3 4 5 □
6. Avoid judgments and criticism .............................................. 1 2 3 4 5 □

**Average Principle Ratings:**

APPENDIX H

RELIABILITY AND SOCIAL VALIDITY RATING OF THE ECOSCALES
Measures

For the purpose of establishing reliability and social validity ratings for the ECOScales, 125 videotaped samples of parent-child play were examined. All interaction samples were rated across a series of attributes, which related to the 5 major interactive goals that represented the ECO competencies -- social play, turntaking, preverbal communication, language, and conversation --and the 5 ECO adult principles --balance, match, responsiveness, nondirectiveness, and emotional attachment. A series of attributes drawn from The ECOScales (MacDonald, Gillette, & Hutchinson, 1989) were used to assess the quality of parent-child social/communicative interactions. The measurement system was based on a 1–9 point scale Likert type rating scale, with "1" indicating the lowest value of the attribute and "9" indicating the highest value. Table 2 presents the ECOScale measures used in the treatment program.

<table>
<thead>
<tr>
<th>TABLE 2. Sample of the ECOScale Measures Used in the Treatment Program</th>
</tr>
</thead>
</table>

**BECOMING PLAY PARTNERS**

<table>
<thead>
<tr>
<th>Interactive Goal</th>
<th>1. Become play partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive Problem</td>
<td>2. Lack of playfulness</td>
</tr>
<tr>
<td>Adult Problem</td>
<td>3. Directive, controlling style</td>
</tr>
<tr>
<td>Child Goal</td>
<td>4. Stay with others in play</td>
</tr>
<tr>
<td></td>
<td>5. Imitate others</td>
</tr>
<tr>
<td>Adult Strategies</td>
<td>6. Play in childlike ways</td>
</tr>
<tr>
<td></td>
<td>7. Communicate in ways close to the child’s</td>
</tr>
<tr>
<td></td>
<td>8. Communicate about immediate experience</td>
</tr>
<tr>
<td></td>
<td>9. Comment more than question or command</td>
</tr>
</tbody>
</table>

**BECOMING TURNTAKING PARTNERS**

<table>
<thead>
<tr>
<th>Interactive Goal</th>
<th>10. Become turntaking partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive Problem</td>
<td>11. Lack of active togetherness</td>
</tr>
<tr>
<td>Child Problem</td>
<td>12. Low interactive participation</td>
</tr>
<tr>
<td>Child Goals</td>
<td>13. Show a turntaking play style</td>
</tr>
<tr>
<td></td>
<td>14. Use actions in functional and meaningful ways</td>
</tr>
<tr>
<td>Adult Strategies</td>
<td>15. Maintain and balance turntaking</td>
</tr>
<tr>
<td></td>
<td>16. Match the child’s behavior</td>
</tr>
<tr>
<td></td>
<td>17. Wait, signal, and expect</td>
</tr>
<tr>
<td></td>
<td>18. Imitate and animate</td>
</tr>
</tbody>
</table>

**BECOMING COMMUNICATING PARTNERS**

<table>
<thead>
<tr>
<th>Interactive Goal</th>
<th>19. Become communicating partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Problem</td>
<td>20. Low communicative participation</td>
</tr>
<tr>
<td>Adult Problem</td>
<td>21. Mismatch</td>
</tr>
<tr>
<td>Child Goals</td>
<td>22. Intentionally communicate with others</td>
</tr>
<tr>
<td></td>
<td>23. Communicate nonverbally</td>
</tr>
</tbody>
</table>
24. Begin to communicate verbally
25. Make self understood

**Adult Strategies**
26. Match child communication progressively
27. Respond to the child

**BECOMING LANGUAGE PARTNERS**

**Interactive Goal**
28. Become language partners

**Child Problem**
29. Low verbal and pragmatic skills

**Child Goals**
30. Use varied vocabulary
31. Follow grammatical rules

**Adult Strategies**
32. Verbally match child experiences and communications
33. Develop verbal topics

**BECOMING CONVERSATION PARTNERS**

**Interactive Goal**
34. Become conversation partners
35. Poor conversations

**Interactive Problem**
36. Converse for a variety of reasons
37. Stay in verbal conversations

**Child Goals**
38. Maintain balanced conversations
39. Have social, friendly conversations with the child
40. Direct child effectively

---

**Procedures**

All of the participating families were videotaped on five separate occasions over a period of eight months. The occasions of the videotaping corresponded to five key points in the treatment program: (1) One months before treatment began; (2) The day treatment began but before any recommendations were made; (3) Three months after the beginning of the program; (4) The end of the program, 6 months after it had begun; and (5) one month after the program ended. On each occasion, a total of five play interactions were videotaped, and included episodes of both object centered and people focused play. The rated samples were all drawn from the second through fifth minutes of the second toy focused play interaction.

**Reliability**

To maintain an acceptable level of interrater reliability throughout the study, one of the program developers rated 25% of the videotaped samples of interactions. These rating were compared to ratings made by two independent raters who were graduate students in Speech/Language Pathology, trained in the use of the ECOScales (MacDonald, et. al. 1989). The graduate raters also independently scored 25% of the experimental tapes.
Reliability scores were obtained by computing the percentage of agreement between their ratings for all measured attributes (Rosenberg & Robinson, 1985). To ensure a high level of rater agreement, 89% was established as the level at which raters were considered to be reliable. Table 3 presents the percentage agreement between the ratings of the experimental samples rated by the program developer and the two independent raters.

**TABLE 3. Average Percentage Agreement Between a Criterion Rater and Two Independent Raters on ECOScale Items Relating to Treatment.**

<table>
<thead>
<tr>
<th>ECOScale Items</th>
<th>Rater 1</th>
<th>Rater 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Strategies</td>
<td>88.7%</td>
<td>88.5%</td>
</tr>
<tr>
<td>Child Goals</td>
<td>93.1%</td>
<td>93.4%</td>
</tr>
<tr>
<td>Interactive Goals</td>
<td>90.2%</td>
<td>93.1%</td>
</tr>
<tr>
<td>Interactive Problems</td>
<td>89.8%</td>
<td>91.2%</td>
</tr>
</tbody>
</table>

**Results**

The experimental findings reflected judgments of two groups of observers on the interactive performance of both children with disabilities as well as their parents. The two groups are the professional observation team and an independent group of judges.

**Clinical Judgments Before Intervention**

Two pre-treatment measures were taken at one month before and the day treatment started. It was observed that child performances, adult strategies, interactive goals and problems were seen as changing minimally in the month immediately preceding intervention.
Comparison of Pre-treatment and Post-treatment Rating Scores

Measures before and after treatment were taken from the second and fourth videotaped sessions spanning a six month period. It was observed that changes in ratings from pretreatment to posttreatment, showed that judges evaluated adults and children as consistently higher on all performance measures. The 10 items relating to Child Goals revealed a total average score for all children of 24.5 points during the pretreatment period, with an increase of competency level 35.3 points at the time of the posttreatment measure. The findings on the 11 Adult Strategies showed a more pronounced change with a total average score for all parents of 32.5 at pretreatment shifting to 70.3 at posttreatment, a change from low performance to frequent performance. Total average ratings of the 5 Interactive Goals increased from 12.6 at pretreatment to 20.2 points at posttreatment, indicating a small but relatively consistent improvement. When the 8 Interactive Problem items were measured, the group improved from an overall average of 28.1 points to 41.9 points, indicating a moderate amelioration of the problems.
Changes in Interactive Competence

Overall, the children in the study were judged to be more communicatively competent at post-treatment than they were at pre-treatment. It was observed that after treatment children were judged as stronger on all of the 10 interactive goals. The most change in the children was seen as falling in the areas relating to a more developed turntaking style and communicating more readily with others in their environment. This means that the children were viewed by the judges as exhibiting an attitude of give and take in their play interactions, where they both initiated and responded meaningfully to the turns of their parents. Children were also seen as using any behavior capable of effectively engaging the adult’s attention in communicatively meaningful ways. The smallest post-treatment gains were seen in items addressing how well the children were able to make themselves understood by their adult partners, and their use of grammatical rules, not surprising findings for a minimally verbal group.

In general, parents were seen by the judges as making positive changes in their interaction styles with their children. Examination of the data revealed consistent changes in ratings of the parents in terms of overall interactive strategies. The changes are more pronounced than for the child goals, with every strategy rising at least twice as high at posttreatment. After treatment judges characterized parents as being more capable of acting in ways that their children could act (matching), as well in ways that related meaningfully to the children’s immediate experiences (responsiveness). Parents were also seen as being less controlling in interactions (nondirective), thereby allowing their children to assert their own motivations or competencies within play exchanges. Judges saw the least amount of positive change in the ability of the parents to respond to their children, and the amount of verbal matching of the children’s communications.
Changes in Effect Size

To help in interpreting the differences in the ratings, an "effect size" analysis (Cohen, 1988) was performed. This analysis represents the difference between the two ratings for an item or scale divided by the common variance for the two ratings. An advantage of the effect size measures that there are conventional guidelines established for judging the meaningfulness of effect sizes.

Cohen (1988) has suggested a three-level classification of magnitudes of effect sizes—small, medium, and large, corresponding to effect sizes of .2, .5, and .8, respectively. Cohen's classification was used in describing effect size for the ECOScale data (and adds another category of "very large" for effect sizes of 1.2 or larger). This shows that the magnitudes of the changes in child–adult interaction vary markedly with the introduction of ECO treatment. Of equal interest, however, is the pattern of changes in ECOScale items across the competencies and the types of items (child goal, adult strategy, interactive goal, and interactive problems).

First of all, the comparison of Occasions 1 and 2 suggests stability of parent–child interactions with these children with a history of communication delay. Only a very few (5 of 34) of the effect sizes for occasions prior to treatment showed any meaningful change (and in fact, none were statistically significant, either). In contrast, virtually all of the effect sizes (66 of 68) for the two analyses involving pre–post treatment comparisons were medium, large, or very large (in fact, only two were not statistically significant at the .05 level).

Equally encouraging is the fact that all of the effect sizes for the child goals were classified as medium, large, or very large. The early treatment emphasis on social play and turntaking is also reflected in the "very large" effect sizes for the interactive goals of "becoming play partners" and "becoming turntaking partners." Likewise, the largest effect
size observed for child goals was "showing a turntaking play style." Child goals of "intentionally communicating with others," "communicating nonverbally, and conversing for a variety of reasons" also resulted in "large" effect sizes. Contrast these with those child goals with only medium effect sizes, "beginning to communicate verbally," "using varied vocabulary," "following grammatical rules," and "stay in verbal conversations." Given the group of children in the study, many with moderate to severe delays, one would expect less growth on these later, more verbally oriented goals than one would on goals which could be accomplished more readily by nonverbal means. On the other hand, this group of children with their parents still made pre-post gains (Occasions 1 to 5) in the major interactive goals of language and conversation that were classified as "medium."
Social Validity

Beyond traditional experimental measures, the findings also include the judgments of independent observers not involved with the families in the program. The rationale for this approach was that since the ultimate goal of communication treatment is for children to successfully integrate into society, then it is of considerable interest to see if representatives of society observe the kinds of interactive changes that professionals observe. The social validity measures can be seen as an ecological validation of professional views since the ultimate test is not experimental data but social acceptance.

Eighteen adults whom were independent of the treatment program, but whom could be considered to be potential members of the child's social environment were asked to rate a series of scaled attributes relating to performances in the dyad from the pretreatment to posttreatment periods. Twelve randomly selected, one-minute video samples, representing six parent-child dyads from the experimental study, were rated on a series of attributes relating to the goals of treatment (Table 4). A 9 point Likert type scale was used, with '1' meaning a poor description of the interaction and with '9' representing an excellent description.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Playful</td>
</tr>
<tr>
<td>2.</td>
<td>Each Other</td>
</tr>
<tr>
<td>3.</td>
<td>Interesting</td>
</tr>
<tr>
<td>4.</td>
<td>Understandable</td>
</tr>
<tr>
<td>5.</td>
<td>Matching</td>
</tr>
<tr>
<td>6.</td>
<td>Social</td>
</tr>
<tr>
<td>7.</td>
<td>Parent Plays</td>
</tr>
<tr>
<td>8.</td>
<td>Partnership</td>
</tr>
<tr>
<td>9.</td>
<td>Responsive</td>
</tr>
<tr>
<td>10.</td>
<td>Conversation</td>
</tr>
</tbody>
</table>
Examination of the data relating to the social validity of the ECO intervention program, revealed that raters did perceive improvement for all interactive dyads following a period of treatment. Table 5 presents a summary of the ratings across all judges for the six dyads both before and after involvement in the ECO intervention program. Results of *t* tests of the differences between pre and post means and effect sizes are also shown.

<table>
<thead>
<tr>
<th>Size</th>
<th>Pretreatment</th>
<th>Posttreatment</th>
<th>Difference</th>
<th>(Pre Minus Post)</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>1. Playful</td>
<td>3.60</td>
<td>2.21</td>
<td>6.64</td>
<td>1.93</td>
<td>2.64</td>
</tr>
<tr>
<td>2. Each Other</td>
<td>3.46</td>
<td>2.29</td>
<td>6.71</td>
<td>2.01</td>
<td>3.25</td>
</tr>
<tr>
<td>3. Interesting</td>
<td>3.68</td>
<td>2.19</td>
<td>6.06</td>
<td>2.15</td>
<td>2.37</td>
</tr>
<tr>
<td>4. Understandable</td>
<td>3.73</td>
<td>2.25</td>
<td>6.08</td>
<td>2.29</td>
<td>2.36</td>
</tr>
<tr>
<td>5. Matching</td>
<td>3.24</td>
<td>2.33</td>
<td>6.86</td>
<td>1.85</td>
<td>3.62</td>
</tr>
<tr>
<td>6. Social</td>
<td>5.26</td>
<td>2.52</td>
<td>6.64</td>
<td>2.29</td>
<td>1.38</td>
</tr>
<tr>
<td>7. Parent Plays</td>
<td>3.92</td>
<td>2.43</td>
<td>7.14</td>
<td>1.86</td>
<td>3.22</td>
</tr>
<tr>
<td>8. Partnership</td>
<td>3.04</td>
<td>2.27</td>
<td>6.73</td>
<td>2.16</td>
<td>3.69</td>
</tr>
<tr>
<td>9. Responsive</td>
<td>4.08</td>
<td>2.57</td>
<td>7.50</td>
<td>1.58</td>
<td>3.41</td>
</tr>
<tr>
<td>10. Conversation</td>
<td>2.67</td>
<td>2.11</td>
<td>5.34</td>
<td>2.69</td>
<td>2.66</td>
</tr>
<tr>
<td>11. Overall Rating</td>
<td>6.21</td>
<td>4.02</td>
<td>11.56</td>
<td>4.03</td>
<td>5.35</td>
</tr>
</tbody>
</table>

Preliminary analysis of the data revealed that judges uninvolved in the treatment program were in close agreement with the experimental analyses of the program in that they consistently discriminated between pre- and posttreatment interactions. Examination also revealed a positive changes in attributes of both child and adult interaction that were addressed by the ECO program.
APPENDIX I

THE ECO SOCIAL COMMUNICATIVE SURVEY
<table>
<thead>
<tr>
<th>Name of child ___________________________</th>
<th>Person recording ___________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date________________________________________</td>
<td>Relation to child ____________________________</td>
</tr>
</tbody>
</table>

### SOCIAL & COMMUNICATIVE SURVEY

Describe how much your child does the things listed below. Circle the number that applies.

1 = Never  
2 = Seldom  
3 = Occasionally  
4 = Often  
5 = Consistently

<table>
<thead>
<tr>
<th><strong>Social Interaction and Play</strong></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enjoys being with people ..............................................................</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. Responds to others with interest .....................................................</td>
<td></td>
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<tr>
<td>3. Prefers social contact to being alone ..............................................</td>
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<tr>
<td>4. Stays longer with people than last year ..........................................</td>
<td></td>
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<tr>
<td>5. Takes turns with others ...................................................................</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>6. Imitates others' actions ..................................................................</td>
<td></td>
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<tr>
<td>7. Cooperates with others .....................................................................</td>
<td></td>
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<tr>
<td>8. Pays attention during play more than last year ...............................</td>
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<tr>
<td>9. Shares the lead in play .....................................................................</td>
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<tr>
<td>10. Stays in give and take exchanges more than briefly ...........................</td>
<td></td>
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<tr>
<td>11. Shows concern about others ..............................................................</td>
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<tr>
<td>12. Plays appropriately with things ......................................................</td>
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<tr>
<td>13. Plays pretends ..................................................................................</td>
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<tr>
<td>14. Plays with other children ..................................................................</td>
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<tr>
<td>15. Others enjoy playing with child .......................................................</td>
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<tr>
<td>16. Avoids or ignores people ..................................................................</td>
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<tr>
<td>17. Pays attention only briefly ...............................................................</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Communication</strong></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>18. Enjoys communicating with others ....................................................</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>19. Responds to others' speech ...............................................................</td>
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<tr>
<td>20. Communicates with movements ..............................................................</td>
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<tr>
<td>21. Communicates with sounds ...................................................................</td>
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<tr>
<td>22. Communicates with words ....................................................................</td>
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<tr>
<td>23. Communicates with signs .....................................................................</td>
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<tr>
<td>24. Communicates back and forth with others .........................................</td>
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<tr>
<td>25. Tries to communicate like others ........................................................</td>
<td></td>
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</tr>
<tr>
<td>26. Imitates others' sounds and words .....................................................</td>
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<tr>
<td>27. Communicates so others can understand him/her ...................................</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>28. Others enjoy communicating with child .............................................</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Language</strong></th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>29. Understands words ..............................................................................</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>30. Understands sentences .......................................................................</td>
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<td></td>
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<tr>
<td>31. Imitates words ..................................................................................</td>
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<tr>
<td>32. Regularly says new words ..................................................................</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>33. Speaks with single words ...................................................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Speaks with sentences .......................................................................</td>
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<tr>
<td>35. Seems limited to using only a few words .........................................</td>
<td></td>
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</tr>
<tr>
<td>36. Talks about pictures and books .......................................................</td>
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<tr>
<td>37. Tells a story .....................................................................................</td>
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</tr>
<tr>
<td>38. Talks about own interests and activities ..........................................</td>
<td></td>
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</tr>
<tr>
<td>39. Talks about others' interest .............................................................</td>
<td></td>
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<tr>
<td>40. Talks with confidence .......................................................................</td>
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<tr>
<td>41. Talks about the past ..........................................................................</td>
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<tr>
<td>42. Talks about the future ......................................................................</td>
<td></td>
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</tr>
<tr>
<td>43. Knows much more than he/she communicates .....................................</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
### D. Conversation & Pragmatic Skills

<table>
<thead>
<tr>
<th>Skill</th>
<th>Rating (1-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicates during play alone</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Communicates to get needs met</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Communicates just for friendly contacts</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Seeks information</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Gives information</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Takes turns in conversations</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Enjoys casual conversations</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Starts conversations</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Responds to questions appropriately</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Responds to comments appropriately</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Keeps a conversation going</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Acts appropriately in conversations</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Stays on a topic more than momentarily</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Has imaginary conversations</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Acts passive or shy in conversations</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Dominates conversations</td>
<td>2 3 4 5</td>
</tr>
</tbody>
</table>

Which one of the above skills concern you the most about your child — give the numbers

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

60. How well is your child communicating?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>much less</td>
<td>less</td>
<td>some</td>
<td>more</td>
<td>much more</td>
</tr>
</tbody>
</table>

60. Compared to one year ago

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>

61. Compared to your expectations

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>

62. Compared to others at the same age

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>

In your own words what would you like the child to do next?

The Nisonger Center – The Ohio State University

* Experimental draft -- under revision
APPENDIX J

THE ECO INFANT SOCIAL COMMUNICATIVE SURVEY
INFANT SOCIAL & COMMUNICATIVE SURVEY
(EO-ISSCS)

Name of infant __________________________________ Person recording ___________
Date ______________________ Relation to infant _______________________________

Describe how much your baby does the things listed below. Circle the number that applies.
1 = Never 2 = Seldom 3 = Occasionally 4 = Often 5 = Consistently

A. Social Interaction and Play: Actively stays with people in give & take exchanges

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Enjoy being with people</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Responds to others with interest</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Prefers social contact to being alone</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Stays longer in play contacts with people than 3 months ago</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Takes turns with others</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Imitates others' actions</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>Cooperates with others</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>Is paying more attention to people during play than 3 months ago</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>Shares the lead in play</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>Stays in give and take exchanges more than briefly</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11.</td>
<td>Plays appropriately with things</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12.</td>
<td>Avoids or ignores people</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13.</td>
<td>Pays attention only briefly</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

B. Communication: Exchanging ideas, needs, and information in any way possible

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td>Enjoys communicating with others</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15.</td>
<td>Responds when others talk</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16.</td>
<td>Communicates with movements</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17.</td>
<td>Communicates with sounds</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18.</td>
<td>Communicates with words</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19.</td>
<td>Communicates back and forth with others</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20.</td>
<td>Imitates others' sounds and words</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21.</td>
<td>Others enjoy communicating with child</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

C. Language: Develops a habit of expressing meaning and words in sentences

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>22.</td>
<td>Understands words</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23.</td>
<td>Understands sentences</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24.</td>
<td>Imitates words</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25.</td>
<td>Regularly says new words</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26.</td>
<td>Speaks with single words</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27.</td>
<td>Speaks with sentences</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28.</td>
<td>Uses the same words over and over</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29.</td>
<td>Knows much more than he/she communicates</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

D. Conversation: Exchanging words between 2 or more persons on a shared topic

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>30.</td>
<td>Communicates to get needs met</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>31.</td>
<td>Communicates just for friendly contacts</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>32.</td>
<td>Takes turns in conversations</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>33.</td>
<td>Stays on a topic more than momentarily</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

AVERAGE COMPETENCY RATINGS:

Social Interaction & Play: __ Communication: ___ Language: ___ Conversation: ___

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APPENDIX K
PILOT VERSION
THE ADULT COMMUNICATION PREVIEWING SCALE
AND INTERVIEW QUESTIONS
Adult Communication Previewing Scale

Pilot Draft

We are interested in how infants, children between the ages of birth and 24 months, learn to socialize and communicate with people around them. In our work, we've found that parents, and other adult caregivers, have a great deal of experience and information that can help us help children. With this in mind we would like you to complete the following scale to help us broaden our understanding of early social-communicative development. Please rate the following statements on the 1-5 scale, with one representing that you strongly disagree with the statement and five representing a strong agreement with the statement.

A. Language Development
Rate how much you agree with the following items in regards to their impact on child language learning

1. the right genetics. 1 2 3 4 5
2. a good teacher. 1 2 3 4 5
3. adults who play like children. 1 2 3 4 5
4. adults who imitate actions and sounds. 1 2 3 4 5
5. language develops regardless of what others do. 1 2 3 4 5
6. playing in give and take exchanges. 1 2 3 4 5
7. being in social interactions with other people. 1 2 3 4 5
8. adults asking lots of questions. 1 2 3 4 5

If a child does not develop language "on time" what do you think needs to be done to help. Rate the following items based on how much you agree with each statement.

1. take him/her to a Doctor or other professional. 1 2 3 4 5
2. make him/her repeat words after you say them. 1 2 3 4 5
3. just wait and see if he/she grows out of it. 1 2 3 4 5
4. keep him/her longer in play with you. 1 2 3 4 5
5. do nothing, because all children learn to talk at their own speed. 1 2 3 4 5
6. start imitating his/her sounds and gestures. 1 2 3 4 5
7. play in give and take exchanges. 1 2 3 4 5

B. Infant Behaviors
In the section above you told us some of your ideas about how language develops, now we would like to find out a bit more about what your child and how you think he/she compares to other children of the same age. As like most parents you probably have some ideas of what most babies are like, so first circle the number you think best describes the average baby. Next circle the numbers that you think best describe your baby. As in the first section, one represents a strong disagreement (does not describe my baby) and five represents a strong agreement (best describes my baby).

1. Infants prefer being alone to being with people. 1 2 3 4 5
2. Infants can stay in back and forth exchanges with people 1 2 3 4 5
3. Infants actively seek out & enjoy contacts with people 1 2 3 4 5
4. Infants communicate successfully without talking 1 2 3 4 5
5. Infants communicate with sounds before words 1 2 3 4 5
6. Infants understand what other people say to them 1 2 3 4 5
7. Infants imitate sounds & words people use with them. 1 2 3 4 5

D. Parent Role
Now that you've told us what you see your infant doing, we'd like you tell us what you think your role in early development is. How do you help your infant learn about language and social interaction? What do you think other parents of children your child's age do to help their
children talk? Rate the following items based on how much you agree with each statement (1 = strongly disagree, 5 = strongly agree)

<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>Typical Baby</th>
<th>Your Baby</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I'm not important in teaching my baby to talk.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2.</td>
<td>I just like to have fun when we play together</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3.</td>
<td>During play I must teach my baby something new</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4.</td>
<td>My primary role with my baby is that of caregiver</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5.</td>
<td>I show my baby new ways of playing with toys</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6.</td>
<td>Infants understand what other people say to them</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7.</td>
<td>My baby can learn the following from me:</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td></td>
<td>play</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td></td>
<td>take turns</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td></td>
<td>make new sounds</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td></td>
<td>learn new words</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td></td>
<td>how to have a conversation</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td></td>
<td>be responsive</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

**Interview Questions**

A. Language Development
1. What kinds of relationships do infants need to learn about language?
2. What would you tell the mother of a preverbal child to do to help her child talk?
3. What role does social play have in early language development?
4. What kinds of interactions are important for a child who is learning to talk?
5. How does language develop?
6. What could keep your child from learning to talk?

B. Perceptions of the Infant
1. Describe how your baby has changed in the past six months in terms of:
   a. Play Skills
   b. People Contacts
   c. Communication Abilities
   d. Physical Development
2. What is keeping your baby from learning how to talk?
3. What is your baby learning from you? How is he/she learning these things?
4. Describe the changes that tell you your baby is growing up?
5. Describe what your baby does best. What does he/she do least well?
6. What are your concerns about what your baby isn't doing?
7. Describe how social your baby is with you. With others.

C. Perceptions of Adult Role
1. What do you think you might be doing that will help your baby learn to talk?
2. Who do toys think is the best person in your environment to help your baby communicate? Why?
3. What have you done that helps your baby communicate? What have you done that hasn't worked?
4. Describe how social you are with your baby.
5. Describe what you do best with your baby. What makes it so good?
6. What is the most important thing you do with your baby? Why?

D. Developmental Expectations
1. What do you think your child should do next in terms of:
a. Communication
b. To be more accepted in society
2. How do you think your baby's communication skills will change in the next six months? Why?
3. Describe how you think your baby will develop his/her own social personality
4. What do you think your baby should be doing that he/she isn't doing at this time?
5. How do your behavioral changes affect your baby?
APPENDIX L

FINAL VERSION OF

THE ADULT COMMUNICATION PREVIEWING SCALE
AND INTERVIEW QUESTIONS
Adult Communication Previewing Scale and Interview

We are interested in how babies learn to socialize and communicate with people around them. We would like you to complete the following scale to help us broaden our understanding of early social-communicative development. Please rate the following statements on the 1-5 scale, with one representing that you strongly disagree with the statement and five representing a strong agreement with the statement. If you wish to add any additional comments to any of the questions please feel free to do so in the space provided.

**Adult Rating Scale**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My baby communicates most frequently by:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Crying</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b. Using gestures (i.e., pointing)</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c. Making long strings of nonsense sounds</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>d. Using the occasional word</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>e. Using simple sentences (i.e., more juice)</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>2. My baby appears to be the most interested in me when:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. We play without toys</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b. I act like him/her</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c. When I give him/her directions</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>d. When we imitate each other</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>3. My baby seems to learn the most about talking by:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Being with me</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b. Playing with others</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c. Listening to others talk</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>d. Going to a special speech teacher</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>4. My baby needs the following things to learn to talk:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Playing with me</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b. Playing with other children</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c. Playing alone</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>d. Watching T.V</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>5. My baby has changed in the past 3 months by:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Trying to get my attention</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b. Letting me know it's time to stop a game or activity</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c. Keeping me in a fun, social exchange</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>6. My child is staying longer in interactions than:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. 3 weeks ago</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b. 3 months ago</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c. 6 months ago</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>7. In the past 3 months other people have noticed the following changes in my baby:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Making more and different sounds</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b. Smiling and laughing more</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c. Using new words</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>d. Staying longer in interactions</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>8. I help my baby learn to communicate by:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Playing with him/her</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b. Reading to him/her</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c. Imitating what he/she does</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>d. Asking questions</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>9. The next things I expect my baby to do include:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Using more and varied sounds</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b. Using words and sounds together</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c. Using simple sentences</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>d. Using adult like language</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
</tbody>
</table>
10. In the next year my baby will learn to:
   a. Talk more like I do.....................................................1  2  3  4  5
   b. Be friendlier with other people.................................1  2  3  4  5
   c. Play more with other people.................................1  2  3  4  5
   d. Use words more to influence others......................1  2  3  4  5

11. I want others to communicate with my baby by:
   a. Asking lots of questions........................................1  2  3  4  5
   b. Responding to my baby's interests..........................1  2  3  4  5
   c. Being a disciplined teacher..................................1  2  3  4  5
   d. Being playful......................................................1  2  3  4  5
   e. Communicating like my baby..................................1  2  3  4  5

12. I would describe how I interact with my baby in the following ways:
   a. I wait for him/her to respond to me.......................1  2  3  4  5
   b. I take turns with him/her......................................1  2  3  4  5
   c. I make the sounds and movements he/she does............1  2  3  4  5
   d. I play just for fun and social reasons..................1  2  3  4  5
   e. I try to teach him/her new things..........................1  2  3  4  5
   f. I try to teach him/her to talk ................................1  2  3  4  5

ADULT INTERVIEW QUESTIONS

STATUS
   1. Describe how your child communicates ................. uses sounds, movements, or words.

   2. Describe how you communicate with your child?

CHANGE
   3. What changes have you seen in your baby in the past 3 months? Which were the most surprising?

   4. What did you think would change in how your baby communicates but didn't?

CHILD LEARNING
   5. How do you think your baby is currently learning to communicate?

   6. What could or would interfere with you babys' learning to talk?

NEXT STEPS
   7. What does your baby need next to become a talker? What does your baby need to do? What do other partners need to do?

   8. How do you expect your baby's communication skills to change in the next 6 months? In the next year? In the next 5 years?

PARENT ROLE
   9. How do you think you are helping your baby learn to communicate?

   10. How do you think you have the most effects on your babys' learning to become communicative and social?
A selection of the following toys will be provided for parents during the object/toy play interaction. Toys were selected based on their success in engaging two people in play exchanges (Canadian Toy Testing Council. 1993; MacDonald, et al., 1989; Petrie, 1987).

### 3 - 6 months of age:

<table>
<thead>
<tr>
<th>Ambi Toys Rock n' Roll</th>
<th>Discovery Toys Baby Ellie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisher Price Happy Apple</td>
<td>Discovery Toys Rolling Reflections</td>
</tr>
<tr>
<td>Johnson &amp; Johnson Balls in a Bowl</td>
<td>Discovery Toys Tons of Fun</td>
</tr>
<tr>
<td>Discovery Toys Tangiball</td>
<td>Ambi Toys Master Keys</td>
</tr>
</tbody>
</table>

### 9 - 12 months of age:

<table>
<thead>
<tr>
<th>Fisher-Price Baby's First Blocks</th>
<th>Discovery Toys Tangiball</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Toys Tumbles the Clown</td>
<td>Little Tikes Nesting Farm Animals</td>
</tr>
<tr>
<td>Little Tikes Stacking Clown</td>
<td>Little Tikes Turtle Shells</td>
</tr>
<tr>
<td>Playskool My Shape'n Stir Pot</td>
<td>Discovery Toys Rolling Reflections</td>
</tr>
</tbody>
</table>
APPENDIX N

PEOPLE FOCUSED GAMES
The following list of games will be provided for parents during people focused play activities.

3-6 month old games

Pat-A Cake
So-Big
Peek-A-Boo
This Little Piggy
Here We Go Up, Up, Up

9-12 month old games

Ride-A-Cock-Horse
Pat-A-Cake
Peek-A-Boo Mirror
Hide And Go Seek
APPENDIX O

DEVELOPMENTAL INFORMATION

AND INTERACTIONAL GUIDELINES PACKET
INFANTS AND TODDLERS AT RISK

ECO PARTNERSHIP PROGRAMS
FOR LANGUAGE AND COMMUNICATION DELAYS

A guide intended for persons responsible for prevention & early intervention service with infants and toddlers who are at-risk for developmental delays. The focus of the materials introduced here is to unite professionals, parents, and other adult caregivers in promoting the child’s social and communicative development.

I. Introduction to the ECO Model

II. Infant/Toddler Developmental Profiles

III. Signals of Potential Communication Problems
    • Child Characteristics
    • Adult Reactions

IV. Infant/Toddler and Adult Goals
    • Infant/Toddler Competencies
    • Adult Partnerships Styles of Interaction

V. ECO Intervention Models
    • ECO Assessment Model
    • ECO Treatment Model
    • Parent Education Programs
    • Professional Training Programs

VI. Clinical Resources
    • Assessment
    • Intervention

VII. Suggested Readings

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The Nisonger Center and Division of Speech & Hearing Sciences
The Ohio State University, Columbus, Ohio 43210
I. Introduction
Children can begin to communicate in early infancy. For infants and toddlers at risk such communication beginnings may be delayed. Perhaps one of the most important ways we can prevent later cognitive, social, and communicative delays in children is to insure that parents, caregivers, and professionals are schooled in building with infants the early relationships they need to learn to communicate in their natural environments.

The ECO Program is an interactive, naturally based treatment program that recognizes the importance of parental involvement in the prevention process. It shows parents and other significant caregivers ways to interact with children that will help them become more social and communicative within their daily environments. The model has been developed within community based and university based parent training programs with infants and toddlers ranging from mildly too severely delayed. ECO focuses on the social and communicative interactions of caregivers and infants/toddlers. This allows early intervention specialists to help adults to develop interactive relationships in which at-risk infants/toddlers can become socially more competent.

The importance of early intervention has been underscored by the passage in 1986 of Public Law 99-457. This law specifies that infants and toddlers from birth to two years inclusive, and their families are to receive comprehensive, multidisciplinary evaluations, and that an Individualized Family Service Plan (IFSP) is to be developed for each eligible child and family. The passage of this law was based on findings that early services to young handicapped children enhance their abilities to develop to their maximum potential, minimize later educational costs to society, and reduce the likelihood of future institutionalization.

II. Infant/Toddler Profiles
ECO is designed to address the social and communicative needs of a variety of infants and toddlers identified as at risk for developmental delays and disorders. The model was developed for and with infants and toddlers who fit the following descriptions: noninteractive, interactive but not communicative, communicative but not linguistic, linguistic but not conversational. The following profiles illustrate some interactional styles that may be encountered by the early intervention specialist and that may identify early signs of communication problems.
Kim is only two weeks old, but already her mother has noticed that she rarely cries, and often falls asleep while nursing. Her parents describe her as a withdrawn baby who does not appear interested in visually exploring the world around her. Kim does not have a responsive face or alert eyes, and seems disinterested in the "play faces" that her parents make. She is a limp, inactive baby who responds very little to stimulation or handling.

Mark is 6 months old, and his mother describes him as a "quiet baby". He does not use his voice to express pleasure, nor does he call to his mother in long strings of sounds when he wants her attention. Mark does not participate in games like peek-a-boo with his parents unless they physically manipulate him through the exchange. Even during these play activities, Mark is often silent and does not appear to be excited about the attention he is receiving. Mark's mother thinks that his development is behind other babies his age.

Emily is 12 months old and expresses very little interest in the world around her. At daycare she can often be found sitting silently in a corner while the other children crawl around playing with toys. If the child care workers try to push her into an activity, Emily becomes more immobilized. She has not yet tried to produce any real words, but has recently begun some limited vocalizing in response to adult initiated interactions. The workers at the daycare feel that Emily is happiest when left alone, so they have all but stopped initiating social contact with her.

Stephen is 20 months old, and seems to be a happy, outgoing child. Yet his parents have noticed that while Stephen appears very friendly, he does not stay in social interactions for more than a few seconds. He flits randomly from person to person, and never really responds to one individual. Stephen uses the few words he can say only for self directed purposes, and is not seen by his parents as a social communicator.
Patrick is 28 months old, and appears to have isolated himself from others. In play he creatively uses many actions and noises, and words, but does not interact with others in his immediate environment. Patrick has been observed as playing near his mother, but on different activities. His mother reports that she experiences very

III. **Signals of Potential Communication Problems**
ECO addresses the following characteristics of infants and toddlers identified as developmentally at-risk and the effects of these children on their families:

<table>
<thead>
<tr>
<th>Common Child Characteristics</th>
<th>Common Adult Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Has poor gaze patterns</td>
<td>- I don't enjoy my baby</td>
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<tr>
<td>- Uses limited facial expressions</td>
<td>- I feel like a failure</td>
</tr>
<tr>
<td>- Has low social responsiveness</td>
<td>- I don't feel attached to my child</td>
</tr>
<tr>
<td>- Shows limited emotional attachment</td>
<td>- I don't know what my baby wants</td>
</tr>
<tr>
<td>- Has a low amount of vocal play</td>
<td>- I have little effect on my baby</td>
</tr>
<tr>
<td>- Doesn't initiate social contacts</td>
<td>- I feel lonely with my baby</td>
</tr>
<tr>
<td>- Doesn't seem to enjoy people</td>
<td>- I don't know how to play with my baby</td>
</tr>
<tr>
<td>- Seems quiet and withdrawn</td>
<td>- Only has one distinct cry</td>
</tr>
<tr>
<td>- Doesn't react differently to stimulation</td>
<td>- I can't tell if my baby is happy or sad</td>
</tr>
<tr>
<td>- Communicates mainly to self</td>
<td>- No matter what I do, my baby just keeps</td>
</tr>
<tr>
<td>- Uses limited sounds &amp; movements</td>
<td>crying</td>
</tr>
<tr>
<td>- Communicates only to get needs met</td>
<td></td>
</tr>
<tr>
<td>- Social contacts are few &amp; fleeting</td>
<td></td>
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<tr>
<td>- Stays only briefly in an activity</td>
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</tbody>
</table>

Besides children with such profiles, the model has been developed with and for children whose early diagnostic features predict a higher likelihood of communication delays. Among such diagnosis are children with:

- Sensory impairments in hearing, vision, and/or tactile sensitivity.
- Marked motor impairments with potential oral motor involvement.
- Marked prematurity, low birth weight, and pervasive failure to thrive.
- Chromosomal abnormalities or neurological problems that have the potential of resulting in language delays.

IV. **Infant/Toddler and Adult Goals**

The ECO program focuses on developing five general child competencies necessary for communicative development: Social Play, Turntaking, Nonverbal Communication, Language, and Conversation. At the same time the model assists adults in developing and practicing a partnership style of interaction along five basic principles: Match, Balance, Responsiveness, Nondirectiveness, Emotional Attachment.

**Infant/Toddler Competencies**

What do infants and toddlers need to do to become communicative?

1. **Become Play Partners:** Engage in mutual face to face social interactions and exchanges with parents and other adult caregivers, where each person is attending to and participating in the same things.

2. **Become Turntaking Partners:** Learn that they can interact with any behavior capable of engaging the adult’s attention. Within the adult/child dyad, the infant/toddler will develop the attitude of give and take.

3. **Becoming Communicating Partners:** Become frequent communicators exchanging increasingly mature messages with others, both to initiate and respond to social/communicative contacts.

4. **Become Language Partners:** Use an increasing variety of words to express their knowledge, meanings, and communicative intentions in reciprocal, interactional exchanges.

5. **Become Conversational Partners:** Maintain conversational partnerships in which they both initiate and respond to communicative bids for social purposes.

**Adult Partnerships Styles of Interaction**

How can adults interact and communicate so children will learn to communicate with them?

1. **Be a Balanced Partner:** Engage children in interactions where each person shares the lead.

2. **Be a Matched Partner:** Act and communicate at the child’s level of current communicative competence and relate these actions and communications to the child’s interests.
3. **Be Responsive to Emerging Interactions:** Learn to READ children's primitive interactive bids for social and communicative interactions.

4. **Be Non-Directive:** Allow children to express their communicative needs in a nondemanding, give and take style.

5. **Be Emotionally Attached:** Experience and express enjoyment and appreciation of children in interactions, so the children seek out and enjoy the adult.

V. **ECO ASSESSMENT AND INTERVENTION MODELS**

**The ECO Assessment:** Practicing professionals who use an ecological assessment and treatment approach will find that the ECOScales, ECO-ACE, and ECO-SCS, can all supplement or even replace more traditional assessment tools. These materials provide a comprehensive and reliable overview of the social interactional and communicative skills and problems of the children and the adults interacting with them.

**The ECO Treatment Model:** ECO provides practical four step treatment program designed to help parents and other adult caregivers in establishing social and communicative attachments with developmentally at risk infants and toddlers. The four steps of treatment include: assessment; observation of parent and child; model/feedback training; and home programming. The goal is to educate parents and significant others about the stages of social development, and to enable and empower them with concrete strategies for promoting greater social/communicative opportunities for the infant or toddler.

**Parent Education Programs:** ECO is designed to provide families and adult caregivers of at-risk infants and toddlers with continuing education and support to help them help their children communicate. The parent/caregiver becomes the primary communication partner, while the clinician acts as a teacher and partner to the parent.

**Educational Use for Professional Training:** ECO furnishes a developmental map for early adult-infant/toddler interactions, thereby offering a model for use with infants and toddlers identified as at-risk for the development of social, communicative, and interactive competencies that form the basis for later language learning. The model educates professionals in five stages of developmental relationships between children and adults: Social Play, Turntaking, Nonverbal Communication, Language, and Conversation. The model offers detailed materials for preparing students, professionals, and parents to be competent partners with developmentally at-risk infants and toddlers.
## VI. Clinical Resources for Developmentally At-Risk Infants and Toddlers

<table>
<thead>
<tr>
<th>TOOL</th>
<th>PURPOSE</th>
<th>WHEN TO USE</th>
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<tbody>
<tr>
<td><strong>ASSESSMENT</strong></td>
<td></td>
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<tr>
<td>ECO-ACE</td>
<td>To identify adult interactional strengths and areas of need in relationships with infants and toddlers identified as being developmentally at-risk.</td>
<td>To identify specific adult behaviors that contribute to the effectiveness of the infant/adult interaction. To modify and monitor adult progress in the interactive relationship.</td>
</tr>
<tr>
<td>ECO- ISCS</td>
<td>A rating survey for observing and recording the interactive competencies displayed by an infant or toddler.</td>
<td>To determine if an infant or toddler should receive a comprehensive evaluation. To monitor interactive development across contexts or over time.</td>
</tr>
<tr>
<td>ECO SCALES</td>
<td>To comprehensively observe, record, and interpret infant/toddler competencies and adult interactive styles in relationships.</td>
<td>To profile the child's level of social interaction, communicative attempts and linguistic precursors. To develop dyad treatment strategies.</td>
</tr>
<tr>
<td>IEP/IFSP</td>
<td>A model for integrating social and communication goals into the infant/toddler's prevention program</td>
<td>To provide concrete examples of treatment plans when developing individual intervention programs.</td>
</tr>
<tr>
<td>PROBLEM SOLVERS</td>
<td></td>
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<tr>
<td>ECO LINKS</td>
<td>Self monitoring guides that provide clinical linkage between treatment and other environments.</td>
<td>To educate parents and other professionals about the active role they play in the communicative development of the child.</td>
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<tr>
<td><strong>INTERVENTION</strong></td>
<td></td>
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<tr>
<td>ECO TUTORS</td>
<td>A series of educational tools for self training about ECO competencies and strategies for infants/toddlers and adults. The tutors parallel the ECO Scales items.</td>
<td>To provide rationale and</td>
</tr>
<tr>
<td>Child Goals</td>
<td></td>
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<tr>
<td><strong>Adult Strategies</strong></td>
<td>scripted contrasting examples across the five child competencies.</td>
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<td>--------------------</td>
<td>------------------------------------------------------------------</td>
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<tr>
<td><strong>Adult Problems</strong></td>
<td>To demonstrate through the use of contrasting examples, how adults can best employ the ECO principles specifically to the social/communicative needs of individual infants/toddlers.</td>
<td></td>
</tr>
<tr>
<td><strong>Interactive Goals</strong></td>
<td>To assist parents and other adult caregivers focus their attention on how to adjust their interactional styles to best match the communicative and social needs of their child.</td>
<td></td>
</tr>
<tr>
<td><strong>ECO CONVERSATION ROUTINES</strong></td>
<td>To show how to create a friendly, playful environment where both infant/toddler and adult are actively doing things together.</td>
<td></td>
</tr>
<tr>
<td><strong>GENERALIZATION GUIDES</strong></td>
<td>To provide scripted examples for parents &amp; other adults that illustrate what to do &amp; what to avoid when interacting with infants/toddlers.</td>
<td></td>
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<tr>
<td>Home programming guides for illustrating ways to develop the natural events of a day into social and communicative learning contexts.</td>
<td>To demonstrate to parents and other adult caregivers how to integrate interactive goals into virtually any aspect of daily life.</td>
<td></td>
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<tr>
<td>An educational guide for maintaining communication relationships at home and other social settings.</td>
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</tbody>
</table>
VII. **Readings to Support Professionals in Parent Programming with Preconversational Infants and Toddlers**

A. **Readings on the ECO Model for Social & Communicative Development**

   *ECO - A Partnership Program for Communication Development*

James D. MacDonald and Yvonne Gillette (1989). Chicago: Riverside Press, Houghton Mifflin. A comprehensive educational and clinical program for building relationships between preconversational children and their significant others. Components, which can be obtained separately, include the following:

**Becoming Partners with Children: From Play to Conversation.** A developmental text and clinical guide for professionals, students, and parents. The book focuses on how children and parents develop communication together as reciprocal partners. It serves as a practical guide for adults during a child's development of social play, turntaking, nonverbal communication, interactive language, and conversation. Becoming Partners illustrates how the ECO program was developed and implemented within family and classroom contexts with children with a variety of language delays, i.e., Infants-at-risk, Down Syndrome, Cerebral Palsy, Hearing Impaired, Behavior Disordered, Autistic-Like, Learning Disordered, Attention Deficit Disorders, and Language delays with no other apparent delays.

**ECO Resources.** A collection of clinical materials and reproducible parent guides that provide specific teaching and clinical tools for implementing the model in therapy, homes, and classrooms with developmentally at-risk infants and toddlers. The ECO Resources include materials appropriate for use in both inservice training and direct service models (i.e., tutorials, conversation routines, IEP problem solvers, and generalization guides.). For a complete description of these materials, please refer to section VII of this packet.

**ECO Scales and Manual (with T.A. Hutchinson).** An interactive assessment model for treatment planning and monitoring with a parallel focus on the adult and infant's/toddler's behaviors. The model is illustrated for use in IFSP & IEP writing, treatment planning, and differential diagnosis of a variety of communication delays.

**Ecological Programs for Communicating Partnerships: Models and Cases.** A professional guide for planning and implementing ECO programs. Provides a concrete model for establishing parents and other child care specialists in communication learning relationships.
Video Introduction to the ECO Program. A video teaching tape illustrating the assessment and treatment model with children with a variety of delays interacting with parents and professionals.

B. References for Additional Reading


**Common Questions About Communication Development in At-Risk Infants and Toddlers**

Q. How will my baby learn to talk?

A. Many parents believe that language "just comes" like hair or height. It is important to realize that every time an infant interacts with a parent it is an opportunity for them to communicate. Your baby will learn to talk after she has become playful, interactive, and nonverbally communicative.

Q. Aren’t there some children, like those who are medically fragile, for whom you should wait on concentrating about communication?

A. Absolutely not, almost any child can interact.
Q. Isn't my main job to "give" to my child?
A. Parents and others often give too much, too often, too soon, and they
don't actually get much back from at-risk infants and toddlers. ECO can
help you get into that kind of give and take turntaking relationship with
your child that others in society will require. Remember that
communication means giving as well as taking - be sure you "get" from
your child.

Q. I've been told to bathe my infant in language - talk all the time and
explain everything to him. Is that sound advice?
A. We recommend just the opposite. Considerable clinic research shows
that the less adults do the more the child will do. Be sure you are
communicating in ways that show the child how to communicate.
Often we communicate like adults because the child shows she
understands us. It is not enough that we understand the child - we must
also show her how to use language to communicate.

Q. What one thing would you recommend to help an infant communicate?
A. Keep the child in a back and forth interaction just a little bit longer than
they would normally stay. Follow the "one more turn" rule.

Q. What are the most common ways that adults can interfere with
communicative development?
A. 1. Allowing the child to play alone.
2. Doing too much - giving the child more than he can do.
3. Rarely waiting - the child will become passive and will have less
communication practice if adults do not wait and watch with
anticipation.
4. Playing teacher and boss more than being a partner.
5. Always acting like an adult.
6. Not paying attention to the little movements and sounds that are the
infant's ways of communicating.
7. Making all of the decisions and not following the child's lead - not
letting the child know he can effect you.
8. Asking too many questions. We find that reducing questions often
gets much more from the child. Be sure to wait for responses.
9. Communicating mainly to get a task done.
Make the natural events in your day into opportunities for friendly, social conversations with your child. Consider these contrasting examples. Try to avoid limited contacts such as the one on the left. Try to find something you can share with your child, as in the example on the right. Turn just another routine into a joint activity in which your child can stay and learn with you.

**LESS LIKE THIS**

**Adult:** "Baby." (Rocks the baby in her arms.)  
**Child:** (Picks up another baby.)  
**Adult:** "Rock baby." (Keeps rocking the baby.)  
**Child:** ( Watches as Mom rocks, holding the baby by the arm)  
**Adult:** "You rock." (Continues rocking.)  
**Child:** (Watches as Mom rocks, holding the baby by the arm.)  
**Adult:** "You rock." (Continues rocking.)  
**Child:** (Watches as Mom rocks, holding the baby by the arm.)  
**Adult:** "You rock." (Continues rocking.)  
**Child:** (Watches as Mom rocks, holding the baby by the arm.)  

**MORE LIKE THIS**

**Adult:** "Hey." (Extends hand toward child.)  
**Child:** "Ah-ah." (Holds her baby doll tightly)  
**Adult:** (Rocks her arms pretending to be holding a baby.)  
**Child:** (Rocks her baby) "Aw."  
**Adult:** (Extends her hand again toward the child.) “Aw baby.”  
**Child:** (Fasses the adult the baby.)  
**Adult:** (Rocks her baby and immediately extends it back to child), (smiling) "Baby."  
**Child:** (Smiles in return, takes the baby.) “Ba.”

**Avoid This Problem:**
**Lack of Active Togetherness**

While the mother does use sounds and single words to match the way the child communicates, these two never get an interaction going. They both have dolls, but lack of active togetherness keeps the two of them apart. Perhaps one doll which they could exchange would improve the interactive flow.

**Try These Strategies:**
**Imitate Child, Match Child Behavior and Communication**

The adult has a few spare moments to engage the child in a turntaking routine. When the child appears to resist trading the baby, she imitates the child, so as not to set up a struggle. By keeping at the child's level with action and sounds, she creates an easy give-and-take with messages. She avoids a command, instead extending toward the child two different times. The child easily gives her turn, accepting the give-and-take offered.

**VARIATIONS**

Trading any object back-and-forth can be used to create a joint activity with the child. Use everyday objects, like towels, brushes, and cans, as well as toys like cars, balls, and rattles to trade with the child.
Certainly, two of the most common problems of children are limited attention and infrequent and brief interactions. Unless your child attends and stays interacting with people habitually, he is not very likely to learn to be social and communicative. It may surprise you but every time your child attends to you and stays in an interaction he can be learning from you.

This guide offers some major ways we have found successful in getting a child's attention and keeping him interacting. Attention problems may not lie in the child himself alone; rather, what you do may have more effect on how well he attends than you think. A child may leave an interaction when the stimulation you offer does not match his abilities or interests or when it looks like it will result in a discouraging failure.

While the four major strategies below are presented in different guides, you will eventually be doing them at the same time after practicing them individually on your own. Watch people who are successful in keeping children interacting (without verbal or physical controls); see if they are using these strategies. Then observe how easily they do them.

Your child is more likely to attend to you if you are doing CHILD'S things he can do or at least try. The more you do things he can do, the more he knows what you are doing and the more successes he has.

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**ACTIONS**

<table>
<thead>
<tr>
<th>Less Like This</th>
<th>More Like This</th>
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<tbody>
<tr>
<td>Child: (Wiggles on sight of Mom.)</td>
<td>Child: (Wiggles on sight of Mom.)</td>
</tr>
<tr>
<td>Adult: &quot;Oh, you are so excited to see me.&quot;</td>
<td>Adult: (Wiggles.) &quot;Ooo.&quot;</td>
</tr>
<tr>
<td>Child: (Reaches and plays with toys.)</td>
<td>Child: (Wiggles and screeches.)</td>
</tr>
<tr>
<td>Adult: &quot;You want to play now?&quot;</td>
<td>Adult: (Wiggles.) &quot;Hi, honey.&quot;</td>
</tr>
<tr>
<td>Child: (Attends to toys without responding.)</td>
<td>Child: (Wiggles.) &quot;Ha, ha, ha.&quot;</td>
</tr>
</tbody>
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**SOUNDS**

<table>
<thead>
<tr>
<th>Less Like This</th>
<th>More Like This</th>
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<tbody>
<tr>
<td>Child: (Shakes noisy toy.) &quot;Gaga ba rara.&quot;</td>
<td>Child: (Shakes noisy toy.) &quot;Gaga ba rara.&quot;</td>
</tr>
<tr>
<td>Adult: &quot;Oh, you sure can make a lot of noise.&quot;</td>
<td>Adult: (Shakes toy in his hand.) &quot;Gaga ba loud.&quot;</td>
</tr>
<tr>
<td>Child: (Throws toy; crawls after it.)</td>
<td>Child: (Laughs; shakes toy in Mom's face.) &quot;Gaga ou ou.&quot;</td>
</tr>
<tr>
<td>Adult: &quot;Be careful; you'll break something.&quot;</td>
<td>Adult: &quot;Me.&quot; (Shakes it in child's face.) &quot;Shake, shake, shake.&quot;</td>
</tr>
<tr>
<td>Child: (Plays alone with back to Mom)</td>
<td>Child: &quot;Me.&quot; (Knocks it on the floor.) &quot;A, a&quot;</td>
</tr>
<tr>
<td></td>
<td>Adult: &quot;Hit, hit, hit.&quot; (She knocks with new rhythm.)</td>
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</tbody>
</table>
**WORDS**

<table>
<thead>
<tr>
<th>Least Like This</th>
<th>Most Like This</th>
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</thead>
<tbody>
<tr>
<td><strong>Child:</strong> (Waves excitedly.) “Hey doggie.”</td>
<td><strong>Child:</strong> (Waves excitedly.) “Hey doggie.”</td>
</tr>
</tbody>
</table>
| **Adult:** “Isn’t he a nice dog? He’s a terrier. They are very friendly.” | **Adult:** “Hey, Boris.” ([Pets the dog.])  
**Child:** “Hey, Bobo.” ([Pets the dog; touches Child: his nose; looks to Mom.]) |
| **Adult:** “His name is Boris. Can you say ‘Boris’? That’s his name.” | **Adult:** (Touches nose.) “His nose is wet and cold.”  
**Child:** “Cold nose. Sick?” (Touches nose Adult: again.) |
| **Child:** (Ignores mother; walks away.) “Where are you going? Don’t you like the dog?” | **Child:** “Wet nose. Got a cold.” |
| **Child:** (Plays on his own.) | **Child:** “He’s okay. Cold and wet is good for dogs.” |

**SENSITIVELY RESPOND TO YOUR CHILD’S INTERESTS**

We usually attend to and stay with people who are responding to our interests, at least some of the time. With children we find that any kind of response—visual, touch, movement, sound, or word—that is sensitively linked to the child’s immediate interests can be successful in getting the child to attend more and stay longer in interactions.

Consider this: Every time you attend positively to what your child is doing, you are complimenting him. You are showing him you value what he values. Even if his interests seem unimportant to you, respond to them. He will do three things: Attend to you more, stay longer learning with you, and begin doing what you are interested in. You will also find that your child will learn best if he is pursuing his own natural motivations. Whether you want him to develop motor, cognitive, or communicative skills, you may best meet that goal by allowing your child his own self-selected play. Only if you get into his world should you expect him to attend and stay interacting in yours.

**ACTIONS**

<table>
<thead>
<tr>
<th>Least Like This</th>
<th>Most Like This</th>
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</thead>
<tbody>
<tr>
<td><strong>Child:</strong> (Reaches doll to her father.)</td>
<td><strong>Child:</strong> (Reaches doll to her father.)</td>
</tr>
</tbody>
</table>
| **Adult:** “Come on. It’s time for dinner. Don’t dawdle.” | **Adult:** (Hugs doll) “Time for dinner.”  
**Child:** “Sally’s hungry” |
| **Child:** (Hugs doll.) “My Sally dolly.” | **Adult:** (Feeds doll) “Here’s your spinach.”  
**Child:** “Spinach? Yuck. She wants cereal.” |
| **Adult:** “You don’t want a cold dinner, do you?” | **Adult:** “Here’s some cereal.” (Feeds again. Lays doll down) “Naptime.” |
| **Child:** “Are you hungry, Sally?” (Still attending to her doll.) | **Child:** (Reaches to be picked up.)  
**Adult:** (Picks child up.) “Off to dinner.” |
| **Adult:** (Takes doll and carries child crying to dinner) | **Adult:** (Picks child up.) “Off to dinner.” |

**BE MORE INTERESTING THAN YOUR CHILD’S DISTRACTIONS**

Just as we adults attend to the most interesting things around us, children appear to do the same. When we want to keep a child’s attention, we try almost anything to make ourselves more interesting than his distractions. We have found that we must compete with the child’s interesting world. By making ourselves interesting, we are helping him learn that staying with people will be rewarding.
So, if you want to ask “Why doesn't my child pay attention to me?” look to making yourself more interesting. Sometimes, matching and responding keeps the child there, but often you may need to be creative. Do novel, unexpected things to maintain his attention. Make your interactions animated and full of surprises, or else your child will seek fun elsewhere.

**Keeping Your Child Attending and Interacting**

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<thead>
<tr>
<th>Less Like This</th>
<th>More Like This</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult:</strong> &quot;Stack the blocks like this.&quot; (Stacks blocks precisely next to each other.)</td>
<td><strong>Child:</strong> (Reaches for another toy.) <strong>Adult:</strong> &quot;Look.&quot; (Drops a block from her head.)</td>
</tr>
<tr>
<td><strong>Child:</strong> (Reaches for another toy.)</td>
<td><strong>Child:</strong> &quot;Hat.&quot; (Drops block from her head)</td>
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<tr>
<td><strong>Adult:</strong> &quot;Stack the blocks like me.&quot;</td>
<td><strong>Adult:</strong> (Stacks two blocks.) &quot;Stack, two hats.&quot;</td>
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<tr>
<td><strong>Child:</strong> (Crawls away.)</td>
<td><strong>Child:</strong> &quot;No hats, blocks.&quot; (Proceeds to stack the blocks.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Less Like This</th>
<th>More Like This</th>
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<tbody>
<tr>
<td><strong>Adult:</strong> &quot;Draw some circles for me.&quot;</td>
<td><strong>Child:</strong> (Makes random lines; looks away.) <strong>Adult:</strong> &quot;Draw some circles for me.&quot;</td>
</tr>
<tr>
<td><strong>Child:</strong> (Makes random lines; looks away to children)</td>
<td><strong>Child:</strong> (Makes random lines; looks away.) <strong>Child:</strong> (Makes random lines; looks away.)</td>
</tr>
<tr>
<td><strong>Adult:</strong> &quot;Draw circles, like this.&quot; (Draws perfect circles abruptly.)</td>
<td><strong>Adult:</strong> (Puts crayon above ear; moves back.) &quot;Find the crayon.&quot;</td>
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<tr>
<td><strong>Child:</strong> (Still looking away, starts to leave.)</td>
<td><strong>Child:</strong> &quot;I got it (Puts it above his ear.) <strong>Adult:</strong> &quot;I got it (Draws circle and hands crayon to child.)</td>
</tr>
<tr>
<td><strong>Adult:</strong> (Takes child's hand and prompts a circle.)</td>
<td><strong>Child:</strong> &quot;Make a circle head.&quot; (Draws circle) <strong>Adult:</strong> (Draws an ear.)</td>
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<tr>
<td><strong>Child:</strong> (Puts head on the drawing pad.)</td>
<td><strong>Child:</strong> (Draws a stick over ear.) &quot;He's got one too.&quot;</td>
</tr>
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</table>

**ALLOW THE CHILD CONTROL**

Another often powerful way to keep a child attending and interacting is to let him have some control over you. We frequently observe that children communicate more when playing alone than with people. We suspect one reason is that the child has control over his things and communications, while people often restrict him by taking the lead and making judgments.

Children often leave people who direct and control them. Those children then choose situations that they can control and see effects of their efforts. We often keep children attending to us simply by showing them they can affect us. Having effects on people can become a major reason for staying in interactions. Certainly, it is a major reason we continue to interact with people.

Regardless of your child's developmental level, he needs to learn he can have effects on others.
A d u lt (Rocks child back and forth on the floor.)
Child: (Smiles.)
A d u lt "You like to rock, don't you?"
Child: (Reaches for dog.)
A d u lt "Baby rocks back and forth."
Child: (Wiggles to get away.)

IMITATE YOUR 
CHILD

Sits in rocking position with child and waits silently for child to do something.)
Child: (Wiggles.) "Ooh."
Adult: (Wiggles. Says exaggerated "Oooh," and gently pushes for a rock.)
Child: (Laughs and pushes adult back.)
Adult: (Falls back dramatically.)
Child: (Screeches; pulls at adult's clothes.)
Adult: (Pops up immediately.) "Up, gotcha."
Child: (Laughs wildly. Pushes adult again.) "Go down."

Imitating a child is one of our most successful ways of getting his attention. When we imitate, we are doing something he can do and wants to do. So when we follow the child's abilities and motivation, he often rewards us by staying for more learning. As we have sprinkled our interactions with imitations we have found children more willing to stay and do the things we choose.

Keeping Your Child Attending and Interacting

Less Like This | More Like This
---|---
Adult: "Let's wash dishes."
Child: (Claps the suds and laughs.)
Adult: "That won't get the dishes clean."
Child: (Puts the suds to his mouth.)
Adult: "Now you are eating it; we'll never get done."
Child: (Gets down and plays by himself.)

Adult: "Let's wash dishes."
Child: (Claps the suds and laughs.)
Adult: "Claps the suds with a washcloth."
Child: (Puts sudsy cloth in cup.) "Soapy cup."
Adult: "Soapy cup. Get it clean."
Child: "It's clean now. More water."
Adult: "More water. Rinse it out."
Child: "Rinse, rinse, rinse."
AN INTERACTIVE GUIDE TO UNINTelligible SPEECH

WHAT DO I DO WHEN I DON'T UNDERSTAND MY CHILD'S SPEECH?

Every time you and your child communicate, you have the opportunity to show him how to be better understood. We have found that a few strategies help children change to be more understood. You can do these strategies in any interaction, and we encourage you to make them a habit since your child is learning from you every time you are together.

BE CONVINCED

... Of your power ... you influence your child's speech in every contact the two of you have.

PROGRESSIVELY MATCH

... Talk in ways your child can do; give him models that are likely to give him successes. Show him a next step, but not too much. Regularly, ask yourself; am I talking in ways my child can do? Your child needs practice hearing speech in pieces he can do, otherwise he may fail and withdraw.

IMITATE

... Occasionally we imitate a child's unclear speech for a few reasons. First, imitating often keeps him interacting; if we lose him, he loses learning. Second, this way the child gets the instructive feedback about what you heard. We often find that when imitated, the child will get the point and will return with changed sounds that are closer to ours.

WAIT WITH ANTICIPATION

... For your child to change. When your child talks in a way you believe he can do better; wait, show you expect more, then support him with a matched model after he tries something more. Our experience is that children often get attention for any old ways of talking. They need to learn that in the "real" world people will expect more and leave if he does not try to speak more like them. Waiting tells the child, not to do it perfect, but to just change, come closer. Waiting also tells your child that he will get more from people if he moves from his old habits and changes. Another benefit we regularly find when we wait is surprise; the child often gives us something we did not think he could do.
TRANSLATE...SECOND LANGUAGE TRAIN

. . . Consider your child’s unclear speech as his own special language and your job is to get him to use your language. The task then is to catch your child at the precise moment he is communicating something unclearly and give him a word for his unclear sounds. There is considerable reason to believe that a child can learn how to say things best at the time he is motivated to doing so. Just as you would respond to a visiting German child who says “auto” with “car” you can get into the habit of “second language training” your child to shift from his language to yours.

ACCEPT ‘BETTER’

. . . Do not demand “perfect”. . . Your child learns to speak clearly in small steps. Encourage him to change, come a little closer to you. Be very careful not to make him feel failure if he does not do the word just like you do. Just because certain speech is right for you it may be too much, thus not developmentally right for the child. Come to appreciate small changes in your child’s speech; when you show you do, he will often reward you with even more changes. If he feels he has failed, he may leave the interaction and lose chance to learn clearer speech from you.

QUANTITY . . . AS WELL AS QUALITY

. . . Learning to speak clearly involves coordinating the brain and muscles in very complex ways. It requires a great deal of practice. The more you and your child communicate in ways that let them take the lead and talk frequently, the more likely he is to speak more like you. Catch your child on the run; salt and pepper your time with him with little exchanges that let him talk.

STRANGER EARS

. . . You probably know that you understand your child much more than others. That’s natural. At first, it is important to accept any attempts to communicate. But then it comes the time when many adults are accepting the same old ways of talking, not realizing that it is like telling the child “the old ways are okay, you don’t have to change.” To get more from your child, act like a stranger. With your “stranger ears” on, try to attend more to your child’s speech that strangers would understand and less to the old immature ways of talking.

STRESS FOR ATTENTION

. . . When communicating with your child, stress those sounds that need changing; make them stand out when you respond to him. He needs to attend to some sounds more than others; he needs you for that.

BOTTOM LINE:

BE CONVINCED YOU ARE YOUR CHILD’S BEST SPEECH TEACHER

James D. MacDonald, The Nisonger Center, The Ohio State University
ECO LINK

Becoming Play Partners

What do children need to learn to become social and communicative? What goals should early education and clinical approaches address in order to foster social and communicative development? What do parents need to know about how children learn to communicate? What can they, as parents, do to help them communicate? Why are these particular competencies necessary?

NOTE: Competency here means a generalized habit of behavior that is needed across the child’s range of social relationships; as such, a competency involves a system of related skills, attitudes, and patterns.

BECOMING PLAY PARTNERS

Social play is the competency in which a child develops increasingly close and more habitual joint activity relations with people. It is with these skills that he begins to engage others in extended playful interactions as his natural way of being with people. As he develops social partnerships, the child gradually becomes more like his partners, following their social rules and learning their social skills to the degree they are behaviorally and motivationally matched. Social play is to be distinguished from traditional work or teaching in that learning to be social generally involves no externally imposed goals; while social play results in considerable learning, it occurs in a context of balanced, undemanding social exchanges.

1. Respond to others with interest.
2. Frequently prefer social contact to being alone.
3. Stay with others for increasingly longer periods.
4. Initiate and respond to others.
5. Actively participate in the same activity with people.
6. Successfully have effects on others.
7. Imitates others’ actions and communications.
8. Allow others to engage in his play.
9. Frequently lead others in his choice of play.
10. Actively include others in his play.
11. Continue his personal explorations with others.
12. Frequently follow others’ lead in play.
13. Play functionally and meaningfully with others.
14. Play imaginatively with others.
15. Successfully control others in play.
17. Spontaneously interact with others outside of play.

1. Do you and your child play spontaneously as well as in specific activities?
2. Are you actively together in play, doing the same things?
3. Do you play for enjoyment more than to get a job done?
4. Is your play balanced? Do each of you do about as much as the other?
5. Are you matched? Do the two of you play and communicate like each other?
6. Is your play more friendly than stressful?
7. Are you playful across natural learning activities such as caretaking, teaching, leisure, and daily routines?

1. He will frequently and voluntarily try to play with you.
2. He will stay in extended play and try to keep you there.
3. He will try to act and communicate like you. You will clearly be influencing him.
4. He will often prefer playing with you rather than alone.
5. His play will change; it will become more assertive, functional, and meaningful.
6. He will pretend with you, even creating stories.

How Will You Know If There Is A Problem in Your Play Partnership?

1. Playtimes will be too rare or short-lived for much natural learning.
2. One of you will dominate the activity, doing most of it and controlling its choice and direction.
3. You will mismatch your child, acting and communicating in ways he cannot match.
4. One of you will become easily distracted.
5. Play will not be enjoyable or interesting.
6. You will feel a need to make it more work or school than play.
7. You will mainly talk as your child plays; thus there will be no joint activity.
8. There will be little give-and-take between you. Play will be more side-by-side than genuinely together.
9. Your playfulness will not extend beyond playtime.

How Can You Build A Play Partnership With Your Child?

1. Realize that play is the necessary work of a child; play is his learning.
2. Realize that playing with people is how children learn to communicate.
3. Be childlike through matching; act and communicate in ways your child can.
4. Be sure there’s a true give-and-take; your child must give to you as well as get from you.
5. Be playful in caretaking, teaching, and daily routines.
6. Get into the habit of keeping your child a little longer than usual.
7. Follow your child’s lead, helping him feel competent and not dependent on you.
8. Show your child new ways to play.

How Should You Communicate As You Play?

1. Be balanced; let your child do as much as you.
2. Be responsive; communicate to your child’s interests and behaviors.
3. Be more nondirective than controlling; comment more than question and command.
Interactive Goal: Become Turntaking Partners (Preverbal)

What Is It?
Turntaking partners share equal roles in the actions they exchange and the messages they send each other. When you watch turntaking partners, you get the feeling of smooth, friendly exchanges. No one person always takes the lead or runs the show. The partners build a joint activity from each other's input. They reciprocally influence each other. Through their shared partnership, each person learns to be more human.

How to Do It
Through turntaking, human beings learn to “give as well as get.” Infants begin to learn this lesson as they notice that adults give them more attention if they respond to each message they get. Many handicapped children fail to get this experience because other people try to do things for them. Build activities together with your child. Do the things he can do, then wait and see how he responds. Keep the interaction going by building up whatever the child just did. Join his world, perhaps by imitating him at first, then by acting and communicating in ways you think he might be able to do and in ways related to his previous movement or sound.

• Keep interactions going back and forth between the two of you.
• Share in the choice of activity.
• Initiate as well as respond.
• Give as well as take with action.

LESS LIKE THIS

Nurse: “Okay, kiddo, we're going to get you up so you can take a look at things around here.”
Infant: (Flails around as the nurse lifts him out of his bassinet.)
Nurse: (Carries the baby around the room as she talks.) "See here's some nice flowers that your grandma sent you. And you love your teddy don't you. Yes, you want to outstretched sleep with him every night."
Infant: (Stares at nurse's face as she talks.)
Nurse: Better lay you back down before you get all tired out. Don't you think that's a good idea? I think it's a very good idea."

MORE LIKE THIS

Nurse: (Touches the side of the baby's cheek.) "Oo oo."  
Infant: (Looks in the direction of the touch.)
Nurse: "Hi!" (Puts her nose to the baby's nose briefly.)
Infant: (Bats away toward the nurse's face, which is now about six inches from his.)
Nurse: (Reaches toward baby's hands and grabs them briefly.) "Gotcha."
Infant: (Stops moving and stares at nurse.)
Nurse: “Oo oo—pretty.” (Touches infant’s cheek again.)
Infant: (Bats away toward nurse's face again.)

Why Less?
The nurse talks at the child as the child attempts to integrate himself with what she is saying. She takes over the interaction rather than responding to his present state. The nurse in this example needs to do less and observe the child more, so that the two can become reciprocal partners in their interaction.

Why More?
Now, the nurse does and says one thing, then waits for some reaction from the child. She responds to the actions that he makes toward her, then waits again. The two engage in a reciprocal routine based upon mutual interest and with the goal of establishing "togetherness" more than anything else. In this way the infant can see that he can have some effects on his world.

Why Is It Important?
The child who learns the concept “give in order to get” knows how to have effects on his world and lets his world have effects on him as well. Through turntaking the child can learn this basic social rule, give and take with others. This important concept can open a world of both knowledge and social interaction to the child.

Problems or Concerns:
Many parents and professionals concerned about a child's language development move immediately to skills such as word imitation and following commands to remediate the problem. It is important, as well, to determine if the child can get and maintain the attention of others. Communication is a social tool. It requires that two people engage each other's attention for the purpose of simply being together, more than to get a job done. Through turntaking, the child can learn to see the systematic nature of communication, that is, give and take with others.
APPENDIX P

LETTER OF THANKS TO FAMILIES PARTICIPATING IN THE RESEARCH STUDY
Dear Parents,
I’d like to thank you again for your willingness to participate in my research study. The time spent with you and your baby was greatly appreciated. The information you’ve shared and the time you’ve spent interacting with and observing your child have been valuable. The information gathered will be useful in helping professionals better understand and meet the needs of families whose children are in the process of learning to communicate.

Enclosed you will find a copy of the video tapes we took of you and your baby during the research visit. I hope you will enjoy watching them for years to come! As a small gesture of my appreciation you will also find enclosed a cheque for $25.00. I know this does not come close to reimbursing you for the time and energy you gave to the research project, but it is my small way of thanking you for your participation.

Best wishes to you and your family.

Sincerely,

Paula L. Wilkening, M.Sc
Doctoral Candidate
APPENDIX Q

LETTER OF THANKS TO AGENCIES PROVIDING SUBJECT REFERRALS
Dear Referral Agency,

Data collection for our research project focusing on parent-child interaction is now complete. Thank you very much for your help in the implementation of the study. We will be glad to share our results with you and other interested staff when the data have been analyzed.

Sincerely,

Paula L. Wilkening, M.Sc
Doctoral Candidate
APPENDIX R

FIELD NOTE TRANSCRIPTION MATRIX
<table>
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<tr>
<th></th>
<th>Behaviour</th>
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APPENDIX S
CROSS CLASSIFICATION MATRIX
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APPENDIX T

PARENT INTERVIEW MATRIX
# Parent Interview Matrix

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REFERENCES


Trad, P.V. (1993). The role of previewing as a form of intervention during the emergence of symbolic representation. *Infant-Toddler Intervention*, 3, 121-135.


