

A STUDY OF ONE ASPECT OF ATTACHMENT BEHAVIOR:
HOME REARED VERSUS DAY CARE INFANTS'
REACTION TO STRANGERS

by

Jeanne E. Lemieux

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APPROVED:

Dr. J. W. Maxwell, Chairman

S. C. Farrier

J. F. Keller

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CHAPTER 1

Introduction

Day care has recently become a much more prominent thread in the fabric of American society. Many mothers presently are opting to reenter or remain in the work force during the infancy of their children. This raises many questions such as: What will the effects of early substitute care have on the development of the child? If a detrimental effect in the emotional development of the child is ascertained, can this effect be circumvented through parent education and a quality day care environment? Quality day care herein is defined as the environment where a low child-adult ratio exists. The adults involved are competent, knowledgeable, sensitive to the child's needs, and are intense in their response to the child. The answers to these questions as stated above will require a large research effort by child developmentalists.

Ethology is the scientific study of animal behavior. In this context, ethological-evolutionary theory is that which purports to explain behavior, such as attachment, culminating from an evolutionary process. The alleged function of attachment behavior, according to this theory, is promotion of primary caretaker proximity or contact. One possible detrimental effect of day care purported by the ethological-evolutionists is that the daily separation of the infant and the working mother will result in the

development of anxious or insecure attachment. It is believed that secure attachment is derived from both the accessibility and potential responsiveness of an attachment figure or figures in infancy and childhood. Such an accessible and responsive attachment figure provides an individual at adulthood with the "...confidence that, standing behind them, there are one or more trusted persons who will come to their aid should difficulties arise" (Bowlby, 1973, p.359). Therefore, a "healthy" adult is seen in this context as one capable of providing a secure base from which others can operate and is also able to rely on one or more significant others to provide him with such a base in return (Bowlby, 1973). It is this human being that is believed to be the happiest and is most able to utilize his talents to the greatest extent.

There is a definite uncertainty as to whether the parenting of working mothers and fathers can provide the necessary environment for the development of a secure base for their children. Whether the substitute environment of day care can provide this secure base is not known.

The observation of infants' reactions to strangers, an index of attachment behavior, provides a focal point from which to assess the rearing environment's effect on the infants' development of attachment to their mothers. It is this aspect of attachment that this study will examine.

Purpose and Justification

The purpose of this study was to ascertain whether the variable of day care in the life of an infant causes disruption to his attachment to his mother sufficient to elicit attachment behaviors different than those of his counterpart home reared infant when both are placed in a strange environment.

There is a divergence of opinion as to whether day care significantly affects the attachment between mother and child as measured through attachment behavior. Ainsworth believed that long daily separations promote anxious attachment relationships or in younger children can lead to defensive processes akin to detachment (Ainsworth, 1973). Blehar and Moore's studies would tend to support this assertion. Blehar, in her study of day care children, found them to be "more distressed by separations and engaged in more orality; they were more avoidant of proximity and interaction both with the mother upon reunion and with a stranger present...They interacted less with their mother across a distance" (Blehar, 1973, p.ii). Moore's (1964) study of children of full-time and part-time mothers is in agreement with this finding. He found that his younger stable care group, children with not more than one change of caretaker for at least two years before the age of five and who had not otherwise been separated for more than thirty-five days in all,

were more insecure in their attachments than home reared children. Caldwell (1970), on the other hand, believed that if the child is in quality day care the primary emotional attachment to his mother is not jeopardized. Caldwell found in her study no significant differences between the home reared child and the day care child on any of the ratings of the child's relationship with his mother. This likewise was true for the ratings of mother attachment to the child. Attachment patterns were found to be associated with the developmental level of the child and with the quality of stimulation available to the child within the home. These studies vary enough in their results to warrant further research. Moore concurred with this, suggesting that further study is needed to verify the probability that substitute care during the critical period under three has profound effects (Moore, 1964).

Consequently, considering the present trend of day care in America, especially at the infant level, this study's results would be of benefit to researchers and day care personnel alike. This research provides another step toward determination of environmental conditions which foster the development of secure or insecure attachment. The results of this study will further validate or reject the premises made by the former researchers in this and related areas of study.

It is the desired goal of this research to facilitate interest in more complex longitudinal studies which may create a knowledge base essential for the creation of the proper environment for the development of healthy attachment behavior.

CHAPTER 2

Review of the Literature

Attachment herein will be defined as the propensity to seek proximity to and contact with a specific figure over time. Attachment behaviors are defined as the behaviors that elicit proximity, contact and communication with the figure or figures to whom the person is or is becoming attached (Ainsworth, 1973). Those behaviors seen as eliciting proximity are crying, smiling; behaviors eliciting contact are following, approaching, clambering up, embracing, clinging; behaviors eliciting communication are vocalizing and looking.

One can be attached to more than one person, but one cannot be attached to many people (Ainsworth, 1973). The attachment relationship between mother and infant seems to be a primary one, however. Schaffer and Emerson (1964), in their Glasgow study of sixty infants from the early months of the first year until the age of eighteen months, found that in the early months of attachment the larger the number of figures the child was attached to the more intense his attachment to his mother as the principal figure was likely to be.

There is ample evidence that the infant-mother attachment is of primary importance. The exact extent of influence on subsequent development on the infant

however is pending research (Ainsworth, 1973). Yet it is known that the quality of the attachment relationship has direct influence on subsequent personality development. Bowlby (1969, 1973) has specified resultants of infants not being allowed to develop attachment. They may be: 1) the tendency to make excessive demands on others and to be anxious and angry when they are not met, as in dependent or hysterical personalities; or 2) the blockage in capacity to develop deep relationships, found in affectionless and psychopathic personalities.

Age at Onset of Attachment Behavior

There seems to be a general consensus of opinion that attachment behavior is first shown approximately at seven months. This is the age at which Piaget found children considering objects as entities in their own right and to show orientation towards them even in their absence (Piaget, 1954).

Schaffer and Emerson (1964) believed that an infant does not become capable of forming attachment previous to the age of seven months. Bowlby (1969) concurred with this, believing that by the end of a half-year the elements of attachment behavior are clearly established. Bowlby, therefore, concluded that the three months preceding this-fourth, fifth and sixth-are a time of high sensitivity to the development of attachment behavior. Ainsworth likewise found that at this age there seems to be a marked

increase in the infant's initiative for promoting proximity and contact with his mother and/or other attachment figures.

The appearance of attachment behavior can, however, range from four to twelve months. Therefore, not all children will exhibit attachment behavior at precisely seven months. In most children the attachment behavior will be exhibited strongly and regularly up until the third year (Bowlby, 1969).

Attachment behavior is not constantly present or constantly exhibited by the child. The presence or intensity of the behavior is greatly influenced by the situation at hand (Ainsworth, 1973). Two conditions which activate attachment behavior are separation and threat (Maccoby, 1970). It is at this point that an observer is able to specify that indeed an attachment behavior does exist between partners.

Effects of Employment on Attachment Behavior

The effect of maternal employment with subsequent extended daily separation can only be conjectured at this point. "...We still cannot specify in any precise way the minimal environmental conditions necessary for the establishment of attachment relationships" (Ainsworth, 1973, p. 28).

Gewirtz (1969) reported that his study showed the family environment developed social responsiveness in his subjects more than other forms of environments. It was found that "the greater the total amount of time the mother

spends in caretaking and other interaction with the child, the more securely attached he is" (Maccoby, 1970, p. 135). The question, therefore, is whether an employed mother can give her child the amount of time necessary to develop security. Moore's (1964) longitudinal study in London of 167 children up to the age of six to determine what differences, if any, could be detected in later behavior between home reared and substitute care children would give evidence to the contrary. It was found in his study that if a child's stable care was begun before his third year of life, the children tended to be somewhat insecure, and the mother's themselves had not been able to form close relationships with them. Ainsworth (1969) has listed a number of indices of maternal behavior that she believes contribute to the development of secure attachment. Her list includes:

- a) frequent and sustained physical contact between infant and mother, especially during the first six months, together with mother's ability to soothe a distressed baby by holding him;
- b) a mother's sensitivity to her baby's signals, and especially her ability to time her interventions in harmony with his rhythms;
- c) an environment so regulated that the baby can derive a sense of the consequences of his own actions.

It would seem that an employed mother having only evenings and weekends with her child would have greater difficulty developing these maternal behaviors.

Some evidence has been cited which indicates that if an insecure relationship between mother and child exists, the development of attachment to other figures may be stifled (Ainsworth, 1973). Caldwell (1973), however, concluded from her study of forty-one children age thirty months (eighteen in the Syracuse Children's Day Care Center since approximately one year and twenty-three home reared children) found that with quality day care the acquisition of adaptive social skills and healthy physical and emotional development can be attained.

Fear of Strangers

Fear of strangers is a special case of the widespread tendency of organisms to fear the strange (Ainsworth, 1973). It is considered as one index of attachment behavior. The relationship between attachment behavior and fear of strangers can be demonstrated by the finding that stress will increase proximity-seeking in children. This behavior is functional in reducing stress according to the findings of Kiesler (1966). Often only physical contact with the mother will serve to terminate the behavior.

Morgan and Ricciuti (1969) found in their study that there are three major determinants of negative reactions toward strangers during the first year of life. The first is the developmental level or age of the infant. The second is the degree of proximity to the mother. A difference in behavior was even noted between the child

being in the lap of the mother and in a tenda beside its mother. The third determinant was the particular identity, behavior and proximity of the stranger.

Age at which Fear of Strangers Appears

Spitz (1965) maintained that stranger anxiety manifests itself at approximately eight months. He thought that when the child demonstrates fear of strangers, we are only then able to determine that the child's attachment to his mother exists.

Spitz also maintained that stranger anxiety is synonymous with separation anxiety. He argued that infants fear strangers because of their anxiety over possible separation from their mother. Bowlby argued, however, that separation anxiety is quite distinct from fear of strangers. Bowlby (1969) acknowledged the capability of infants to possess "real fear" of strangers.

Tennes and Lampl's (1964) study supported Spitz's finding that fear of a stranger occurs at around eight months of age, finding that among their eighteen subjects the peak intensities in stranger anxiety occurred between seven and nine months. They also found in their study that the fear of being touched or picked up by a stranger occurred earlier than the fear of the sight of a stranger.

Other researchers have refuted the fact that the peak of stranger anxiety emerged during the fourth quarter of the first year (Maccoby, 1970). Morgan and Ricciuti (1969)

found that at approximately twelve months infants exhibited more negative than positive responses toward strangers. This would coincide with Ainsworth's (1963) experience with the Ganda infants she studied where not until forty weeks did the children react in a terrified manner toward her.

A possible reason for discrepancy in the estimate of the age at which fear of strangers begins and the peak of intensity has been suggested by Bowlby (1969). He indicated that it can be attributed to the fact that the environment or conditions present have significant influence on the demonstration by the infant of fear of strangers. Examples of these qualifying conditions as put forth by Ainsworth (1973) are: the infant's developmental stage, his previous experience with strangers and with other people generally, and perhaps his constitutional predisposition to fearfulness; how the stranger behaves, how close he is, and perhaps also how strange the stranger seems; whether the mother is present or absent (and if present how close), whether she herself is alarmed or anxious, and whether she encourages or rebuffs the infant's desire to cling; and the quality of the infant-mother attachment relationship, whether secure or insecure, and whether it has been disturbed (and attachment behavior heightened) by special circumstances such as illness, weaning or separation.

Sex Differences Experienced with Fear of Strangers

In Bronson's study of visual novelty compiled from a longitudinal study of sixty children over an eight and one-half year span of time in Berkeley, he found within his boy sample more fear of strangers (shyness) than was exhibited by his girl sample (Bronson, 1970). Possible reasons for this finding according to Bronson are:

1) environmental factors - quality of mothering or the degree of routine exposure of a diversity of persons or places and 2) possible genetic, prenatal or postnatal events.

Several studies have found that the reaction of infants is consistently more positive towards female strangers than towards male strangers. Lewis and Brooks-Gunn's (1972) study of twenty-four infants between eight and eighteen months of age introduced to five different social events (strange adult male and female, strange four-year old female, mother and self) found this to be true with both sex subjects, although girls reacted more negatively toward the male stranger. Likewise, in Morgan and Ricciuti's (1969) study the female stranger elicited more positive reactions under all variable possibilities.

When confronted with strangers closer in age to the children more positive responses are elicited. In Lewis and Brooks-Gunn's study the child stranger elicited

positive reactions from the subjects at touch position. Possible explanations for this were listed by them as: the infant's recognition of a person nearer to himself in image, less incongruent than an adult...or less fearful of something nearer to self in size, when sitting in the baby tenda of the experiment. Brazelton (1969) would support this belief feeling that infant's preference for children is due to the infant's recognition of his own repertoire.

Previous Experience as a Determinant of Fear of Strangers

At the introduction of strangers to infants one would expect the flight to the mother of an infant as an indication of attachment behavior in the child. Morgan and Ricciuti (1969) in their study found no significant correlations between any previous experience variables and their reaction to strangers in the experimental sessions. However, Caldwell (1970) found that children in the primary care of their mothers tended to exhibit a higher intensity of attachment behavior towards the mother than the child who had several caretakers. Schaffer and Emerson's findings would concur with this. It seems reasonable, therefore, to expect that babies who see many people and go many places would be less anxious about strangers than those who have been relatively isolated.

Summary

Previous research in the field of attachment behavior suggests that infant-mother attachment is of primary importance. Undesirable personality characteristics may result from its absence. The appearance of attachment behaviors occurs at approximately seven months. The exhibiting of such behaviors is influenced by the environment, such as the presence of a stranger. The fear of strangers, an index of attachment behavior, is observed to occur around eight months. The fear of strangers is effected by the age of the child, the proximity of the infant's mother and the particular identity, behavior and proximity of the stranger. Male strangers have been found to arouse more negative reaction than female strangers. The effect of previous experience variables, including maternal employment with subsequent day care, is contested.

Theoretical Framework

The purpose of this study was to ascertain if day care significantly alters the child's propensity toward the formation and maintenance of attachment bonds towards its mother. Taking an ethological-evolutionary point of view, there was cause to question whether the mother-child bonds and the child-mother bond can be created and subsequently survive such daily separation.

The ethological evolutionary point of view is that an infant has instinctive behavioral systems which, when activated, promote contact or proximity with its primary caretaker. This system has been developed thru evolution to protect the young from danger. When the rearing environment alters significantly from that environment of evolutionary adaptiveness, the more chance of an unstable, anxious personality emerges. Bowlby (1969) based his theory on the belief that the biological function of attachment behavior is to protect the infant from dangers, and especially the danger of attack from predators. He therefore stated that infants, at birth, are equipped with certain behavioral systems which predispose them to form attachments (Ainsworth, 1969). A reciprocal behavior found in the mother with the purpose of safeguarding the young is the retrieving behavior. This manifests itself in modern day mothers as a strong force experienced by her to be close to her babies or young child. It has been noted that whether an individual submits to this force depends on many variables, personal, cultural, and economic. This would support the contention that it is important when studying the employed mother that one ascertain the reference group with which she is allied (Research Issues, 1961).

At infancy a child's behavior such as crying is seen as an evolutionary adaptive behavior to elicit a mother's proximity. Generally around twelve months a more sophisticated attachment behavior evolves, described as goal-corrected behavior. At this point the child begins to take a definite initiative in promoting proximity and contact with its attachment figure. The behavior is activated by the conditions of loss of sight or touch of the attachment figure. Once the goal-corrected behavior is activated by one of the conditions above, the seeking of his mother continues, with appropriate correction, until such time as the child is again within sight or touch of his mother, whereupon the system is terminated (Bowlby, 1969). It is this phase of attachment behavior that this study observed.

Hypothesis

From the ethological-evolutionary point of view purported by Bowlby (1969), it can be hypothesized that there would be significant differences in the day care infant's responses versus the home reared infants'. This theory asserts that deviation from the rearing environment of the evolutionary adaptiveness produces a diminution of the strength of attachment behaviors. Only two studies (Blehar's, 1973, and Caldwell's, 1970) have dealt with this facet of day care specifically.

In both Morgan's (1969) and Lewis' (1972) study, where infant's reactions to strangers were being studied in a similar fashion to the present study, it was found that the proximity of the strangers to the child affected variation in responses. The infant's natural interest in exploring the new maintains a positive or neutral response up until the distance of the stranger becomes threatening, i.e., close and touch positions. Therefore, at the far and middle position it was believed that no significant variance in the responses of the day care and home reared children would occur.

Hypothesis 1: Day care infants will react significantly more positively to strangers than home reared infants as measured by facial and motor activities in the close and touch positions.

Morgan's (1969) and Lewis' (1972) studies have found that the reaction of both boy and girl infants is consistently more positive towards female strangers than towards male strangers. It was believed, therefore, that this investigation would support the finding of these two studies.

Hypothesis 2: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by facial and motor activity at all distance positions.

CHAPTER 3

Procedures

This study was based on the research design of Lewis and Brooks-Gunn (1972) and Morgan and Ricciuti (1969) and adapted to the study of home reared versus day care infants. Day care infants were defined as those children who were apart from their mothers on an average of twenty-five hours per week for six or more months prior to being tested. This research project observed the differences in the facial expression and motor activity of home reared versus day care infants as indexed in Morgan and Ricciuti's study.

Sample

In this study, the subjects were between the ages of ten and eighteen months. Eight subjects received partial rearing in a day care setting and eight were reared only at home. There were five female and three male subjects in the day care group and two female and six male subjects in the home reared group. All home reared children were second or subsequent children in the family to lessen the variance between them and day care children in contacts made with others. All the day care children were firstborn to the parents in their present marriage. One day care child lived in a home with four children of her father's first marriage. All the subjects' families resided in or within the surrounding areas of Reston, Virginia. The

infants were selected on the basis of the control criteria of age, birth order and environment of care.

The subjects were acquired in several ways. An article was placed in a local newspaper, the Reston Times, explaining the nature of the study and asking for willing participants to contact the experimenter. An ad was arranged in the local publication of Parent and Child, Inc. Personal contacts or friends' acquaintances who fit into the two categories were requested to participate in the study. A notification explaining the nature of the study was given to parents whose children were enrolled in a local infant day care center asking for their participation in the study. Names of Day Care Providers were obtained through the Fairfax County Office on Children and Common Ground Babysitting Referral Service. The experimenter contacted those Providers and asked for their assistance in explaining the study to prospective parents. Upon the prospective parents' show of interest, determined by the Provider, the experimenter contacted the parent. When the experimenter contacted or was contacted by the prospective parents by telephone, an explanation of the purpose of the study was given with an explanation of what it would require of them and their child. If the parent was willing to participate, a specific appointment was made for them to bring their infant to the experimenter's home where the experiment was conducted in a controlled

environment. A day previous to the agreed upon time, the experimenter called the participating parent to see that the time was still convenient for them. At this time the test procedure was explained to them to ease the situation at the time of experimentation.

Experiment

Two behavioral indices - facial expression and motor activity - were used to rate the infant's reactions to the strangers (see appendix 1). The checklist was the one used by Morgan and Ricciuti and similar to the one used by Lewis and Brooks-Gunn.

The infants' responses were measured at four distances: point at which the stranger enters the room (Far), point when the stranger is in the middle of the room and is approaching the infant (Middle), when the stranger is two to three feet from the infant (Close) and when the stranger is touching the infant (Touch). The distances were marked by tape on the floor so that the strangers made a slight stop in movement to cue the observers and photographer.

A positive score was assigned on the observation checklist (appendix 1) when the child responded with a broad smile or a slight smile. A neutral score was designated if no facial change was observed. A negative score was assigned when the infant responded with either a slight frown or a puckering cry.

In the motor activity scale, a positive score was assigned when the following behaviors were elicited:

reaching out to stranger, trying to approach stranger, touching stranger's hand when it is put nearby. Looking at the stranger, exploring the surroundings visually and/or tactually, inattention to stranger and environment and looking at their mother was noted as a neutral response. Negative responses were designated when the infant turned to and tried to get to its mother, avoided the strangers glance by turning away or looking down, pulled its hand back when the stranger approached or attempted to withdraw or escape bodily from the stranger.

The combined scores were derived by combining the scores of the facial scale and the motor scale. The positive-positive designation was given when the infant elicited both a positive facial activity and a positive motor activity. A positive-neutral score was arrived at when one positive facial or motor activity was coupled with one neutral facial or motor activity. Examples of this combination score would be a response where the infant looked at the stranger with a broad smile or where the infant tried to approach the stranger with a neutral expression. When the infant reacted neutrally both in its facial and motor activity, a neutral-neutral score was given.

A negative-neutral score was assigned when one facial or motor activity of the infant was negative and one facial or motor activity was neutral. Examples of this

combined score would be a response where the infant looked at his mother with a puckering cry or where the infant avoided the stranger's glance by looking down with a neutral expression.

Morgan and Ricciuti ran seven pretest sessions to check the reliability of the coding of the checklist. A high observer correlation was obtained. Lewis and Brooks-Gunn made no mention of any reliability testing. The checklist was deemed to be valid in testing attachment behavior for this study as a result of the two published studies mentioned above.

The experiment attempted to measure the reactions of the eight day care children and the eight home reared children, between the ages of ten and eighteen months, to two different strangers - adult female and adult male.

Each infant was brought by its mother to an uncluttered, well-lit room and placed in a baby tenda at the appointed time. The mother was seated next to the infant within reach of the child. In the same location, out of the view of the infant, a movie camera on a tripod recorded the testing. The movies at a later time were shown in slow motion to three different observers who coded the responses on the Morgan and Ricciuti's checklist. These observations are the data used by the researcher to compile the statistics from the study.

Two strangers were located in an adjoining room. At a given signal from the experimenter, each of the strangers (one at a time) knocked previous to entering the room where the infant and mother were seated. The mother was instructed to say "come in" and to refrain from further vocalizing during the experiment. This was to lessen the possibility of the vocal tone of the mother giving a cue to the infant as to how to react to the testing situation. Each stranger then entered the room at the far end through a door and walked slowly toward the infant, not vocalizing, but smiling. Upon reaching the infant, the stranger touched the infant's hand, then turned and walked slowly from the room. The strangers attempted to approach each infant at the same pace and attempted to have the same facial expression towards each infant. There were approximately one to two minutes between each stranger's visit; however, if the infants needed more time to regain their quieted position, it was given. With each infant, the order of the stranger's appearances were rotated to control the variable of reaction to order. The initial appearance of the strangers was determined by a flip of a coin.

Design

The environment was controlled. Each infant-stranger encounter took place in the same room, at the same hours, and with the same procedures being followed. No toys, bottles or other personal objects that might have captured

or distorted the child's attention were allowed in the testing room. It was also determined that the five conditions of the child which activate, influence and intensify attachment behavior (fatigue, hunger, ill health, pain, and cold) were not present.

An attempt to control the impact of the strangers was made. The same two individuals were used for each encounter. The order of appearance was rotated so that each stranger did not appear always first or always last. The first appearance was determined by a flip of a coin. All strangers wore the same clothing on each test day to control the variable of visual stimuli.

The age and birth order of the infants was controlled. The age group between ten and eighteen months lay in the range where former testing had proven stranger anxiety to exist.

The amount of separation of the home reared infant was ascertained at the first contact by phone between the experimenter and the parent. If the separation per week exceeded ten hours the infant was not allowed to take part in the study.

Coding the Infant's Behavior

Three observers were shown the movies of the testing to induce a more concise coding of the behavior being elicited by the child. The movies were shown at one-third the normal speed so the observers were able to qualify the

behavior of the child. After each distance, the projector was stopped to enable the coding onto the Morgan and Ricciuti checklist. If any question arose from that frame the observers were allowed to view it again. It was the belief of the researcher that this procedure would induce a more reliable and valid observation than was previously obtainable in the Morgan and Ricciuti study and the Lewis and Brooks-Gunn study.

Morgan and Ricciuti's checklist (appendix 1) was the one used to assess the infant's facial and motor responses at each distance - far, middle, close and touch. A frequency of facial responses and motor responses was determined separately first. Then a composite behavior was determined. A behavior was declared to have occurred when at least two out of the three observers agreed that the behavior had been elicited. For the facial behavior the observer's responses were in agreement eighty-four percent of the time and in the motor behavior one hundred percent. Chi Squares were applied to the frequencies to determine levels of significance.

CHAPTER 4

Results

Demographic characteristics and employment characteristics were obtained through a questionnaire given to each participating mother at the time of testing (appendices 2 and 3). These characteristics are represented on Tables 1 and 2. The mothers of the subjects were married and completed high school with the majority having gone beyond the high school level and fell within the age range of 26 to 35. The majority of the mothers in both rearing groups had held a professional or managerial position previous to their firstborn. The primary reason for the day care childrens' mother's employment lay equally between economic reasons and their enjoyment of working and being with people. One day care mother claimed her primary reason for entering the employment force as professional motivation. Every day care mother reported believing that her husband's feeling about her working to be positive. All day care mothers had reentered the labor force at least six months previous to testing time, two having been back for fourteen months.

The characteristics of the children were also obtained from the questionnaire given to each participating mother. As stated previously, the childrens' ages ranged from ten to eighteen months in both rearing groups. The age when

Table 1

DEMOGRAPHIC CHARACTERISTICS
OF THE DAY CARE MOTHERS

Age	
20-25.....	1
26-30.....	3
31-35.....	4
Educational Level	
High School Graduate.....	1
Some College.....	2
College Graduate.....	3
Further Education Beyond College.....	2
Marital Status	
Married.....	8
Number of Children	
One Child.....	7
*Four or More Children.....	1
Number of Months Employed Since Birth of Child Being Tested	
Six.....	3
Seven.....	2
Eight.....	1
Fourteen.....	2

*This child is the firstborn in a second marriage where the children from the father's first marriage live in the home.

Table 2

DEMOGRAPHIC CHARACTERISTICS
OF THE HOME REARED MOTHERS

Age		
26-30.....		4
31-35.....		4
Educational Level		
High School Graduate.....		2
Some College.....		2
College Graduate.....		4
Marital Status		
Married.....		8
Number of Children		
Two Children.....		5
Three Children.....		3
Position of Child Being Tested		
Second Born.....		5
Third Born.....		3
Ages of Other Children		
Two and a half.....		1
Three.....		1
Four.....		2
Five and a half.....		1
*Six.....		5
Seven.....		1
Number of Years Since Full-Time Employment		
Two.....		1
Three.....		1
Four and a half.....		1
Five.....		1
Six.....		3
Eight.....		1

*In this grouping is a set of twins.

the day care children first entered day care ranged from three months to ten months. Half of the day care children were cared for in a day care center while the other half were in day care homes. All were cared for in the presence of other children. The number of hours the children were cared for ranged from thirty to fifty hours per week with the majority being cared for forty hours. The home reared children in the study were cared for almost exclusively by their mothers; only five mothers reported any amount of other care. These characteristics are represented on Tables 3 and 4.

Data Results

The frequency distribution of the responses for the home reared versus the day care groups are presented in Tables 5 and 6. The combined scoring is presented in Table 7. The frequency distribution of the responses for adult female versus adult male is presented in Tables 8 and 9. The combined scoring is presented in Table 10.

Hypothesis 1a: Day care infants will react significantly more positively to strangers than home reared infants as measured by facial activities in the close position.

The facial expression index at the close position revealed that the home reared and day care infants' responses were almost identical. Sixty-six percent of the responses at this position were of neutrality. A small number of negative responses were elicited with one home

Table 3

CHARACTERISTICS OF
DAY CARE CHILDREN

Care of Child Being Tested	
Number of hours in care by others per week	
Thirty.....	2
Thirty-three.....	1
Forty.....	4
Fifty.....	1
Type of care during these hours	
Day care outside the home.....	4
Other children being cared for in the home.....	4
Day care center.....	4
Age When Day Care Began	
Three months.....	2
Four months.....	2
Six months.....	1
Seven months.....	1
Eight months.....	1
Ten months.....	1
Age When Being Tested	
Ten months.....	1
Eleven months.....	1
Twelve and a half months.....	1
Thirteen and a half months.....	1
Fourteen months.....	1
Fifteen months.....	1
Eighteen months.....	2
Significant Interruptions in Day Care	
None.....	7
One.....	1
Length of time	
One month.....	1
Sex of Child Being Tested	
Female.....	5
Male.....	3

Table 4

CHARACTERISTICS OF
HOME REARED CHILDREN

Care of Child Being Tested	
Number of hours in care by others per week	
Two.....	3
Three.....	1
Six.....	1
None.....	3
Type of care during these hours	
Day care outside the home.....	2
Other children being cared for in the home..	2
Day care inside the home.....	1
By employed caretaker.....	1
Combination of the above.....	2
Age When Being Tested	
Ten and a half months.....	1
Eleven months.....	1
Twelve months.....	1
Thirteen months.....	1
Sixteen months.....	2
Seventeen months.....	1
Eighteen months.....	1
Sex of Child Being Tested	
Female.....	2
Male.....	6

reared child contrastingly reacting positively at this position. Therefore, the above hypothesis was not supported.

Hypothesis 1b: Day care infants will react significantly more positively to strangers than home reared infants as measured by motor activities in the close position.

The motor activity index revealed that at the close position little variance could be found between the home reared and the day care subjects. There were no positive motor behaviors elicited by either group. The day care infants reacted slightly more negatively at this position than their counterpart home reared group, but the difference was not significant. Therefore, the hypothesis was not supported.

Hypothesis 1c: Day care infants will react significantly more positively to strangers than home reared infants as measured by facial activities in the touch position.

The facial expression scale at the touch position likewise had very little variance. The majority of the responses were in the neutral position. Approximately a quarter of the responses were at the negative level and only a few gave positive responses. Once again, the home reared group had one more positive response. The hypothesis was not supported.

Table 5

FREQUENCY DISTRIBUTION OF INFANTS' FACIAL RESPONSES TO
STRANGERS BY TYPE OF CARE AND POSITION OF STRANGER

	Close	Touch
Smile Broad-Smile Slight		
Home Reared	1	2
Day Care	-	1
Neutral Expression		
Home Reared	10	10
Day Care	10	10
Slight Frown-Puckering, Cry		
Home Reared	4	4
Day Care	5	5
Chi Square	1.11	.44

Table 6

FREQUENCY DISTRIBUTION OF INFANTS' MOTOR RESPONSES TO
STRANGERS BY TYPE OF CARE AND POSITION OF STRANGER

	Close	Touch
Positive*		
Home Reared	-	-
Day Care	-	-
Neutral**		
Home Reared	9	13
Day Care	6	10
Negative***		
Home Reared	7	3
Day Care	10	6
Chi Square	1.13	1.39

*Positive - Reaches out to Stranger, Tries to Approach Stranger, Touches Stranger's Hand When It Is Put Nearby

**Neutral - Looks at Stranger, Explores the Surroundings, Inattention to Stranger and Environment, Looks at Mother

***Negative - Turns to and tries to get to Mother, Avoids Stranger's Glance, Pulls Hand Back When Stranger Approaches, Attempts to Withdraw or Escape Bodily from Stranger

Hypothesis 1d: Day care infants will react significantly more positively to strangers than home reared infants as measured by motor activities in the touch position.

At touch position on the motor activity index, when comparing home reared versus day care infants, no positive responses were elicited. The great majority of responses elicited at this position were neutral. A small number of negative responses occurred within both groups. The day care group had a slightly higher occurrence of negative responses but far below any significant level. The above hypothesis was not supported.

Hypothesis 1e: Day care infants will react significantly more positively to strangers than home reared infants as measured by the combined facial and motor activities in the close position.

For the combined coding of facial and motor activity at the close position only one home reared infant showed any positive response. Forty percent of both the home reared and day care children reacted in a totally neutral manner at this position. The remainder of responses showed some level of negativism. A greater number of day care children showed total negativism toward the strangers at this position than the home reared children who reacted slightly more neutral negatively. These data do not support the above hypothesis.

Hypothesis 1f: Day care infants will react significantly more positively to strangers than home reared infants as measured by the combined facial and motor activities in the touch position.

A higher number of both the home reared and day care infants at the touch position for combined scoring showed total neutrality than at the close position. A few more became neutrally positive at this position. The remainder lay equally in the neutrally negative and totally negative response level. Both groups remained very similar in their behavior. The hypothesis was not supported.

After careful evaluation of the data resulting from the responses of the observers there appears to be no significant difference in the stranger elicited behavior of the two participant groups of infants. This is significant in itself because for this particular group of infants it can be said that the rearing pattern that they have experienced for at least the last six months has not influenced their behavior towards strangers, an index of attachment. The variable of day care in the life of these infants, therefore, did not cause sufficient disruption in their attachment to their mothers to elicit attachment behaviors different than those of their counterpart home reared infants when they were placed in a strange environment. This finding suggests that day care, as indexed by this study, is not as disruptive to the development of

Table 7

FREQUENCY DISTRIBUTION OF COMBINED INFANTS' RESPONSES TO
STRANGERS BY TYPE OF CARE AND POSITION OF STRANGER

	Close	Touch
Combined Facial and Motor Responses		
Positive-Positive		
Home Reared	-	-
Day Care	-	-
Positive-Neutral		
Home Reared	1	2
Day Care	-	1
Neutral-Neutral		
Home Reared	6	9
Day Care	6	8
Negative-Neutral		
Home Reared	5	3
Day Care	1	2
Negative-Negative		
Home Reared	3	2
Day Care	8	5
Chi Square	5.94	1.88

the child-mother attachment as espoused by ethological-evolutionists.

These findings suggest that day care is a viable alternative to mothers who need/wish to continue or reenter the work force during their child's infancy. It is a further validation of the contention made by Caldwell (1970) after her study, that one can have an infant in quality day care without having jeopardized the child's primary emotional attachment to his mother. Quality day care herein being defined as an environment which is sensitive to the child's needs, is intense in responding to the child and has a low adult-child ratio involving competent adults.

There is continued need to study more groups of infants in these two rearing groups to validate further the findings of this study and others such as Caldwell's. With the results of such studies, a knowledge base upon which day care personnel can create the proper environment for the development of healthy attachment behavior can be constructed.

Hypothesis 2a: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by facial activity at the far position.

The facial expression scale for the comparison of the adult female and the adult male at the far position

found the majority of responses occurring at the neutral level. There were a few positive responses elicited towards the female stranger which did not occur towards the male at this position, but below the designated level of significance. A few children reacted negatively towards both strangers. The data did not support the hypothesis.

Hypothesis 2b: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by motor activity at the far position.

At the far position over eighty percent of the responses were of the neutral nature. One more negative response was elicited towards the male stranger at this position than towards the female. The hypothesis above was not supported.

Hypothesis 2c: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by facial activity at the middle position.

At the middle position the infants reacted almost identically towards both strangers as assessed by the facial expression scale. The majority of the responses were neutral with a few responses being elicited in the positive and negative range. Consequently, the above hypothesis was not supported.

Hypothesis 2d: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by motor activity at the middle position.

At the middle position more children, although still very few, reacted in a negative fashion. The majority of the children gave neutral responses towards the strangers at this position. The above data did not support the hypothesis.

Hypothesis 2e: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by facial activity at the close position.

At the close position a high percentage of responses again were neutral in nature. A few negative responses occurred in the negative range. The only real difference in reaction occurred with the one positive response elicited towards the female stranger. The above hypothesis was not supported.

Hypothesis 2f: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by motor activity at the close position.

At the close position more children reacted negatively towards the male than towards the female and more positively towards the female than the male. This difference in reaction, however, was below a significant level. Therefore, the above hypothesis was not supported.

Hypothesis 2g: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by facial activity at the touch position.

One more positive response was elicited at the touch position towards the male than the female. Over sixty percent of the responses at this position were neutral. A small contingent of negative responses occurred at this position. The data do not support the above hypothesis.

Hypothesis 2h: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by motor activity at the touch position.

At the touch position the children reacted exactly the same towards the female and male strangers. Three quarters of the infants reacted neutrally towards both the female and male stranger. One fourth were observed to have a negative response. The hypothesis was not supported.

Hypothesis 2i: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by the combined facial and motor activity at the far position.

The combined scoring of the responses for the adult female versus the adult male at the far distance found over seventy percent of the responses at total neutrality. The only other type of response elicited towards the male

Table 8

FREQUENCY DISTRIBUTION OF INFANTS' FACIAL RESPONSES TO
STRANGERS BY SEX AND POSITION OF STRANGER

	Far	Middle	Close	Touch
Smile Broad-Smile Slight				
Adult Female	2	2	1	1
Adult Male	-	2	-	2
Neutral Expression				
Adult Female	12	10	10	10
Adult Male	11	9	10	10
Slight Frown-Puckering, Cry				
Adult Female	2	4	5	5
Adult Male	3	4	4	4
Chi Square	2.12	.02	.99	.44

Table 9

FREQUENCY DISTRIBUTION OF INFANTS' MOTOR RESPONSES TO
STRANGERS BY SEX AND POSITION OF STRANGER

	Far	Middle	Close	Touch
Positive*				
Adult Female	-	-	-	-
Adult Male	-	-	-	-
Neutral**				
Adult Female	14	12	10	12
Adult Male	13	10	5	12
Negative***				
Adult Female	2	4	6	4
Adult Male	3	6	11	4
Chi Square	.24	.58	3.14	0

*Positive - Reaches out to Stranger, Tries to Approach Stranger, Touches Stranger's Hand when it is Put Nearby

**Neutral - Looks at Stranger, Explores the Surroundings, Inattention to Stranger and Environment, Looks at Mother

***Negative - Turns to and tries to get to Mother, Avoids Stranger's Glance, Pulls Hand Back when Stranger Approaches, Attempts to Withdraw or Escape Boldly from Stranger

stranger at this position was of total negativity. The female, however, had several responses in the positive-neutral range. Therefore, the hypothesis as stated above was not supported.

Hypothesis 2j: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by the combined facial and motor activity at the middle position.

The middle position brought more dispersion in response to the strangers. Approximately half of the responses for both strangers were of total neutrality. The totally negative responses comprised about thirty percent of the responses towards both strangers. One infant reacted towards the male in a negative-neutral manner. The hypothesis, therefore, was not supported.

Hypothesis 2k: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by the combined facial and motor activity at the close position.

The close position brought about the highest amount of difference in responses to the two strangers. While over seventy percent of the infants at this distance reacted towards the male subject with total negativity, fifty percent of the infants were reacting in a totally neutral manner towards the female stranger. One infant also reacted towards the female in a positive-neutral manner. Although a pattern of difference can be seen

at this position it is of a magnitude that could have occurred by chance alone. The data do not support the hypothesis.

Hypothesis 21: Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by the combined facial and motor activity at the touch position.

At touch position all types of combined responses except the totally positive can be observed towards both strangers. Fifty percent or more of the responses towards both strangers were of total neutrality. The next highest percentage of responses were of total negativity. A few responses were in the positive-neutral and neutral-negative position. This being the case, the hypothesis was not supported.

The results clearly show that the sex of the stranger for this particular group of subjects had no real effect on them. These data suggest that the sex of the stranger is not significantly related to the behavior pattern of the infant.

This finding does not support Morgan and Ricciuti's (1969) and Lewis and Brooks-Gunn's (1972) finding that the female stranger elicited more positive reactions under all variable possibilities. The findings of this study are of particular interest since the male stranger had a beard, a potentially more threatening factor.

Table 10

FREQUENCY DISTRIBUTION OF COMBINED INFANTS' RESPONSES TO
STRANGERS BY SEX AND POSITION OF STRANGER

Combined Facial & Motor Responses	Far	Middle	Close	Touch
Positive-Positive	-	-	-	-
Adult Female	-	-	-	-
Adult Male	-	-	-	-
Positive-Neutral	2	2	1	1
Adult Female	-	-	-	-
Adult Male	-	-	-	-
Neutral-Neutral	12	9	8	9
Adult Female	10	7	4	8
Adult Male	-	-	-	-
Negative-Neutral	-	-	-	-
Adult Female	-	-	-	-
Adult Male	-	-	-	-
Negative-Negative	2	5	6	4
Adult Female	4	5	11	5
Adult Male	-	-	-	-
Chi Square	2.74	1.24	3.80	.84

Upon viewing the film, it was noted that the male, however, knelt down to the infants' sitting position while the female leaned down to touch the infant. Although an attempt had been made to control the strangers' approaches to create unity in the male and female behavior this slight deviation did occur. It would be judicious, therefore, that future research endeavor to strictly control the strangers' behaviors.

After extensive deliberation over the methods used for assessment previously, this study dealt with the data at their original level, nominal. The observation checklist used by Morgan and Ricciuti and Lewis and Brooks-Gunn was invalidly converted into scores of interval data. When the information was collected and then converted into interval data, the types of behaviors being elicited were masked. The neutral response, a numerically significant occurrence in this study, was not given significance by the use of interval level values in the two previous studies. Only the two extreme behaviors were assigned numerical significance. The use of nominal level data by this study is its strength.

Some internal inconsistency was realized between the observation checklist used by Morgan and Ricciuti and Lewis and Brooks-Gunn. Lewis and Brooks-Gunn determined the motor behavior, looks at stranger, as a positive response while Morgan and Ricciuti determined it

to be neutral. A decision was made to give this particular behavior a neutral designation because it only has differentiation when coupled with behaviors such as crying or smiling.

Both previous studies also designated the behavior within the positive and negative range with lesser or greater magnitudes. Such differentiation between these behaviors is not warranted by existing knowledge. In the facial scale, a higher score was given to the crying or broad smile behavior than to a slight smile or slight frown which is valid. However, it was found in this study that due to the facial structure of the child, etc. a child's behavior could be seen as smiling slight, slight frown or neutral expression by the observers even with the use of the movies. The use of strictly momentary observations by the two previous studies probably created even greater difficulty in accurate perception by observers. It seems judicious, therefore, that only a positive rating and a negative rating be used to lessen the circumstantial error created by fine distinctions. The modifications administered to the checklist and its subsequent data evaluations within this study as elaborated above qualifies the existing body of knowledge.

Limitations

The largest limitation of this study was the sample size. This known had a distorting effect on the statistical

method, Chi Square, used to assess the significance of the scoring in a few cases. A larger sample size, therefore, in future research is warranted.

The sex differential of the sample was disproportionate. A more exhaustive attempt to control for this variable in later research is imperative.

It should be noted that the sample of this study was also biased to some degree. All the subjects came from the surrounding area of Reston, Virginia and therefore shared in the amenities of this unique environmental community. All of the subjects came from basically the same socio-economic group, middle class.

From the films, it was observed that the posture and movements of the mothers were diverse and often changed from one stranger to another. Although, the verbal communication was controlled in this study, the presence of body communication between mother and child was noted. Research in the future, therefore, should attempt to control this variable also.

CHAPTER 5

Summary

This study of day care and home reared infants' reaction to strangers was conducted to ascertain if day care, a growing alternate rearing pattern, disrupts day care infants' attachment behaviors in comparison to their counterpart home reared infants' attachment behaviors, as indicated by their behaviors elicited towards a female and male stranger. Attachment herein is defined as the propensity to seek proximity to and contact with a specific figure over time. The attachment relationship between mother and infant seems to be a primary one. The quality of this relationship is purported to have a direct influence on subsequent personality development. The development of secure attachment is derived from both the accessibility and potential responsiveness of an attachment figure or figures in infancy and childhood. Behaviors that promote proximity, contact and communication with the attachment figure are: proximity-crying, smiling; contact-following, approaching, clambering up, embracing, clinging; communication-vocalizing, looking. Therefore, the observation of infants' reactions to strangers, an index of attachment behavior, provides a focal point from which to assess the rearing environments effect on the infant's development of attachment to their mothers.

A divergence of opinion exists as to whether daily substitute care has a profound effect on attachment behavior. It is the belief of ethological-evolutionists, those who theorize that a behavioral pattern has developed thru a process (evolution) which results in infant/child behaviors which promote proximity and contact with their primary caretakers, that such daily separation will result in the eliciting of different attachment behaviors. Blehar (1973) and Moore (1964) would support this assertion. Both studies' results indicated a different behavior pattern among their day care subjects in contrast to their home reared subjects. Caldwell (1970) findings contradict this assertion, however. Her study implied that attachment patterns were rather associated with the developmental level of the child and with the quality of stimulation available to the child within the home. Therefore, the goal of this research was to further an eventual knowledge base from which a determination of the environmental conditions that foster the development of secure or insecure attachment can be made.

It was hypothesized, from the ethological-evolutionary point of view, that:

Day care infants will react significantly more positively to strangers than home reared infants as measured by facial and motor activities in the close and touch positions.

To test the above hypothesis, the observation checklist used by Morgan and Ricciuti (1969) and Lewis and Brooks-Gunn (1972) to assess attachment behaviors of children arising from their reactions to strangers, one female adult and one male adult, was employed. Both of these previous studies determined that the female evoked a slightly more positive response from the children than her counterpart male stranger. This study, therefore, hypothesized that:

Children in both the day care and home reared group between the ages of ten months and nineteen months will respond more positively to the female stranger than the male stranger as measured by facial and motor activity at all distance positions.

The infants were selected on the basis of the control criteria of age, birth order and environment of care. The subjects in this study were between the ages of ten and eighteen months, eight home reared and eight day care. The age bracket was determined as a result of previous findings by Schaffer and Emerson (1964), Bowlby (1969) and Ainsworth (1963). They found that attachment behaviors are exhibited strongly and regularly from approximately seven months up to the third year. Fear of strangers, an index of attachment, was likewise found to be exhibited during this age range. Researchers such as Ainsworth (1963), Morgan and Ricciuti (1969) and Spitz (1965) vary in the age where stranger anxiety peaks. However, all the above mentioned agree that stranger anxiety emerges during the

fourth quarter of the first year of life.

Day care infants were defined as those children who were apart from their mothers on an average of twenty-five hours per week for six or more months prior to being tested. All the day care children were firstborn to the parents in their present marriage. While, all home reared children were second or subsequent children in the family to lessen the variance between them and day care children in contacts made with others. The reason for this was that previous experience with strangers and with people in general had been stated by Ainsworth (1973) as a condition that has a significant influence on the exhibiting of fear of strangers by the infant.

The observation checklist, designed by Morgan and Ricciuti (1969), was employed to measure the reactions of the day care and home reared infants to the adult male and adult female stranger. The checklist was composed of two behavioral scales - facial expression and motor activity - to rate the infant's reaction to the strangers (see appendix 1). A movie camera was used to record the testing to insure the reliability of the observations. These observations are the data used by the researcher to compile the statistics from the study.

The responses of the infants were measured at four distances in the room - far, middle, close, and touch. The two former studies using this checklist reported

the infant's natural interest in exploring the new maintained the eliciting of a positive or neutral response up until the distance of the stranger became threatening, i.e., close and touch. Therefore the far and middle positions were not measured for the first hypothesis since it was believed that no significant variance in the responses of the day care and home reared children would occur.

To control the testing environment, each infant-stranger encounter took place in the same room, at the same hours, and with the same procedures being followed. Also, the five conditions of the child which activate, influence and intensify attachment behavior (fatigue, hunger, ill health, pain and cold) were determined not to be present. An attempt was made to control the impact of the strangers since Ainsworth (1973) and Bowlby (1969) maintain that how the stranger behaves, how close he is, and perhaps also how strange the stranger seems, were conditions that have a significant influence on the infants' responses to strangers. Therefore, the same two individuals were used for each encounter. The order of appearance was rotated so that each stranger did not appear always last or always first. Both strangers wore the same clothing on each test day to control the variable of visual stimuli.

All the subjects' mothers were married and had at least a high school level of education. The majority of the mothers had education beyond the high school level. The

age range was from 26 to 35. A professional or managerial position had been attained in the majority of the cases previous to the birth of the firstborn. The number of day care mothers stated their primary reason for employment to be for economic reasons was equal to the number who stated it to be due to their enjoyment of working and being with people. One day care mother claimed her primary reason for entering the employment force was professional motivation. Every day care mother reported believing that her husband's feeling about her working to be positive. All day care mothers had reentered the labor force at least six months previous to testing time, two having been back for fourteen months.

The age range when the day care children entered this rearing environment was from three to ten months. These children were in day care at least thirty hours a week with one being in day care fifty hours a week. All the children were cared for along with other children, four in a day care center and four in a day care provider's homes. The home reared infants, in contrast, had no more than six hours of alternate care, some having none.

No significant difference occurred between the day care infants' responses and the home reared infants' responses. It, therefore, is concluded that for this particular group of infants the rearing environment of at least the last six months did not influence their

reaction to these strangers. Stranger anxiety being used here as an index of attachment behavior. The daily separation of these day care infants was not a sufficient enough disruption in the attachment process to cause the exhibiting of different attachment behaviors than their counterpart home reared infants. This then supports Caldwell's (1970) belief that day care does not jeopardize the child's attachment to his mother. It contradicts the position of the ethological-evolutionists that day care is significantly disruptive to the development of child-mother attachment.

The responses of the infants towards the adult female and the adult male were not significantly different. This contradicts the findings of Morgan and Ricciuti (1969) and Lewis and Brooks-Gunn (1972) where a slightly more positive response was realized towards the female stranger than the male stranger. Due to the facial difference of this study's adult male, bearded, this finding is even more impressive. The stance of the strangers at touch position was determined by the film to be different. Therefore, in future studies it would be judicious to control the strangers' behaviors to a greater degree.

Implications for Further Research

Many variables are present in the multidimensions of infants' reaction to strangers. This study endeavored to

qualify many of these. Others still exist. Further research to cast light on the significance of these other variables is warranted.

The variable of parenting is one such variable that needs to be investigated. A study investigating the relationship of father parenting to the elicited reactions of the infant to male strangers would define one such variable. An assessment of how responsive and accessible the mother, father, or both parents are to their child would qualify another variable significant to the development of attachment behavior.

A further minimizing of the types of interaction variables in a single testing situation is likewise warranted. The sex of the subjects held constant or the sex of the stranger held constant would greatly minimize the possible interaction of the sex variables that this study was unable to control.

The homogeneity of the group of infants studied has been alluded to previously, other age, socio-economic and geographic subject groupings would be an additional step towards validating the findings of this study and others like it.

Another factor or variable that could be investigated separately in future research or in conjunction with the research done in this study is the composition of the

rearing environment of the day care child both in it's home and at the day care situation. This factor would broaden the understanding of what day care is as a phenomenon. The administering of an assessment of the environment such as Caldwell's Home Inventory to the various day care situations of the subjects would give a reliable basis for the actual comparison of the rearing similarities and differences between the two groups.

A more sufficient, concise measure of attachment behavior is needed. The two published measures at present, Morgan and Ricciuti's (1969) and Ainsworth and Wittig's (1969) do not sufficiently and concisely measure attachment. The use of filming to qualify the observation of any measure in future studies is earnestly recommended. The notation of variables present in this study, such as the posture of the strangers at touch position, was only possible from the use of the movies and would not have been perceived if momentary observation had been employed.

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APPENDIX

1. Observation Checklist
2. Survey of Mothers of Home Reared Children
3. Survey of Mothers of Day Care Children

Appendix 2

SURVEY OF MOTHERS OF HOME REARED CHILDREN

Age: _____ under 20 _____ 20-25 _____ 26-30
 _____ 31-35 _____ 36-40 _____ over 40

Education Level:

_____ Some high school
 _____ High school graduate
 _____ Some college
 _____ College graduate
 _____ Further education

Marital Status: _____ Married _____ Divorced
 _____ Widowed _____ Separated

Number of Children:

_____ 1 child
 _____ 2 children
 _____ 3 children
 _____ 4 or more children

Position of child being tested

_____ second born
 _____ third born
 _____ Fourth born
 _____ Other:

Ages of other children:

_____ Firstborn
 _____ Subsequent children

Employment History:

1. _____ Number of years in full time employment before firstborn. (If none, write 0)
 - A. Type of full time employment before firstborn.
 - _____ Service
 - _____ Clerical and Sales
 - _____ Professional and Managerial
 - _____ Other:

2. _____ Number of years in part-time employment before firstborn. (If none, write 0)
- A. Type of part-time employment before firstborn.
- _____ Service
- _____ Clerical and Sales
- _____ Professional and Managerial
- _____ Other:
3. _____ Number of years since full-time employment.
(If not applicable, write 0)

Care of child being tested.

1. _____ Number of hours in care by others per week.
- A. Type of care during these hours.
- _____ Day care outside the home
- _____ Other children being cared for in the home
- _____ No other children cared for in the home
- _____ Day care inside the home
- _____ by family member
- _____ by employed caretaker

Appendix 3

SURVEY OF MOTHERS OF DAY CARE CHILDREN

Age: ___ under 20 ___ 20-25 ___ 26-30
 ___ 31-35 ___ 36-40 ___ over 40

Education Level:

___ Some high school
 ___ High school graduate
 ___ Some college
 ___ College graduate
 ___ Further education

Marital Status: ___ Married ___ Divorced
 ___ Widowed ___ Separated

Number of Children:

___ 1 child
 ___ 2 children
 ___ 3 children
 ___ 4 or more children

Position of child being tested

___ firstborn
 ___ second born
 ___ third born
 ___ other:

Ages of other children:

___ Firstborn
 ___ Subsequent children

Employment History

1. ___ Number of years in full time employment before firstborn. (If none, write 0)
 - A. Type of full time employment before firstborn.
 - ___ Service
 - ___ Clerical and Sales
 - ___ Professional and Managerial
 - ___ Other:

2. _____ Number of years in part-time employment before firstborn. (If none, write 0)
3. _____ Number of years in full time employment since firstborn. (If none, write 0)
4. _____ Number of years in part-time employment since firstborn. (If none, write 0)
5. _____ Number of months employed since birth of child being tested.
6. Type of employment now engaged in: _____
7. The primary reason for entering the employment force is:
 - _____ Economic
 - _____ Professional motivation
 - _____ "Getting out of the house."
 - _____ Enjoy working and being with people.
8. My husband's feelings about my working, I believe are:
 - _____ Positive
 - _____ Negative
 - _____ Ambivalent
 - _____ Positive due to economic reasons

Care of child being tested

1. _____ Number of hours in care by others per week.
 - A. Type of care during these hours.
 - _____ Day care outside the home
 - _____ Other children being cared for in the home
 - _____ No other children being cared for
 - _____ Day care inside the home
 - _____ by family member
 - _____ by employed caretaker
 - _____ Day care center
2. _____ Age when day care began. (months)
3. Has any significant interruptions in day care occurred since the beginning of care?
 - _____ yes _____ no
 - A. Length of time
 - _____ one month
 - _____ two months
 - _____ other:

A STUDY OF ONE ASPECT OF ATTACHMENT BEHAVIOR:
HOME REARED VERSUS DAY CARE INFANTS'
REACTION TO STRANGERS

by

Jeanne E. Lemieux

(ABSTRACT)

The purpose of this study was to ascertain if day care significantly alters the child's propensity toward the formation and maintenance of attachment bonds towards its mother. It was maintained that the variable of day care in the life of an infant would cause disruption to his attachment to his mother sufficient to elicit attachment behaviors different than those of his counterpart home reared infant when they were placed in a strange environment. This assertion was based on the ethological-evolutionists theory which maintains that the rearing environment cannot alter significantly from that environment of evolutionary adaptiveness if a secure mother-child attachment is to be formed

The observation checklist, designed by Morgan and Ricciuti was employed to measure the reactions of eight day care and eight home reared infants, ten to eighteen months, to an adult male and an adult female stranger. The checklist was composed of two behavioral scales - facial expression and motor activity - to rate the infant's reactions to the strangers. A movie camera was used to record the testing to insure the reliability of the observations.

No significant difference occurred between the day care infants' responses and the home reared infants' responses. Daily separation for these day care infants, therefore, was not a sufficient enough disruption in the attachment process to cause the exhibiting of different attachment behaviors than their counterpart home reared infants.