To the Graduate Council:

I am submitting herewith a thesis written by Robert Douglas Simon entitled "Increasing Peer Interactions with an Affection Training Procedure." I recommend that it be a accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Child and Family Studies.

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INCREASING PEER INTERACTIONS WITH AN AFFECTION TRAINING PROCEDURE

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Robert Douglas Simon

August 1978

134043

ACKNOWLEDGMENTS

The author wishes to express his gratitude to Dr. Vey Michael Nordquist for his guidance and suggestions in this study.

Sincere appreciation is also expressed to my wife, Lynne, for her encouragement, patience, and understanding.

R. D. S.

ABSTRACT

The main purpose of this study was to determine if an affection training procedure could be used to increase peer interactions. A secondary purpose was to see if any changes in behavior generalized across settings and behaviors.

A review of the literature in this area revealed that teacher attention, peer attention, peer modeling and reinforcement, and altering physical and spatial events are all procedures which have been effectively used to increase peer interactions. These procedures, however, are often complex and require a lot of time to implement. It was hoped that an affection training procedure, which was simpler and required less time, could be used to increase peer interactions. Some studies in the animal and clinical literature suggested that affection might be used for such a purpose.

The subject was a five-year-old boy who attended the University of Tennessee Nursery School. He had a history of producing inappropriate social behaviors and rarely interacted with peers. The subject received treatment which consisted of eight peers and the subject shaking hands, saying "hello," patting backs, clasping arms, tickling, and hugging for approximately ten minutes each day for five weeks. Treatment was then suspended for three weeks, followed by two more weeks of treatment.

The affection training procedures were effective in increasing peer interactions. More peers began approaching the subject and they spent more time talking and playing with the subject. No generalization of behavior changes across settings or behaviors was observed. The subject's deviant behaviors persisted, and he did not appear to approach peers more following treatment.

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CHAPTER I

INTRODUCTION

One of the primary means by which young children are socialized is through peer interactions. Most behavior analysts agree that early peer interactions are fundamental for normal human development. Strain, Cooke, and Appoloni (1976) found that in studies of childhood traits labeled atypical 14 to 30% of the children identified as being behavior problems were so identified because of low rates of social interactions. Strain and Timm (1974) noted that isolate behaviors were often present with such behaviors as lack of speech and opposition. A lack of peer interactions has also been identified by the National Society for Autistic Children as an essential feature of childhood autism. Strain, Cooke, and Appoloni (1976) presented several correlational studies which suggested a relationship between childhood isolate behaviors and schizophrenic adult behaviors. The authors acknowledged that these studies were plagued with methodological problems, but they concluded that such relationships might exist, depending upon intervening environmental factors.

In light of the importance of early peer interactions, behavior analysts have constructed several procedures for developing and maintaining peer interactions (Nordquist, 1978).

These procedures are teacher attention (Allen et al., 1964; Hart et al., 1968; Allen, Turner, & Everett, 1970; Nordquist & Bradley, 1973; Strain, Shores, & Kerr, 1976), peer attention (Patterson, Littman, & Bricker, 1967; Wahler, 1967), peer modeling (O'Conner, 1972; Guralnick, 1976) and changing physical and spatial events (Johnson, 1935; Body, 1955; Quilitch & Risley, 1973).

Teacher Attention Procedures

Allen et al. (1964) increased the frequency of an isolate child's peer interactions by making teacher attention contingent upon peer-directed play. The importance of contingent teacher attention over noncontingent attention was demonstrated by Hart et al. (1968). Abundant amounts of noncontingent attention had no effect on the frequency of cooperative play of an aggressive five-year-old child. When teacher attention was made contingent upon cooperative play, aggressive behaviors were reduced. In a similar study, Allen, Turner, and Everett (1970) were able to eliminate the tantrums, classroom disruptions, noncompliance, and peer aggression of a child by making teacher attention contingent upon appropriate peer interactions. Nordquist and Bradley (1973) used a prompting-differential attending procedure. After prompting a peer to interact with an isolate child, the teacher dispensed approving statements to both peer and isolate child, which resulted in increased interactions. Strain, Shores, and

Kerr (1976) obtained similar results by employing a prompting differential attending procedure that involved prompting the subject to interact with a peer.

Peer Attention Procedures

Some studies provide limited but convincing evidence that peer attention may increase peer interactions (Patterson, Littman, & Bricker, 1967; Wahler, 1967). In a correlational study, Patterson, Littman, and Bricker (1967) discovered that peers who reinforced aggressive acts from others were likely to receive the same treatment in the future. Peers who counteraggressed were not likely to be attacked later, and the successfully counterattacking child was more likely to be aggressive in the future. Though peer reinforcement contingencies apparently effected some types of peer interactions, the precise effects were not established. Wahler (1967) provided experimental evidence of the reinforcing effects of peer attention on certain behaviors. Wahler (1967) found those behaviors ignored decreased while those which peers attended to increased.

Peer Modeling Procedures

In peer modeling the subject observes a peer's behavior and attempts to imitate that behavior. O'Connor (1969) exposed isolate children to either a movie of children engaged in progressively more social interaction, a placebo film, or

no film. Pre and postmeasurements were taken of peer interactions. The modeling group significantly increased in social interactions while the control group remained unchanged. Two subjects, however, accounted for most of the change. Guralnick (1976) demonstrated that inappropriate language behaviors of a handicapped child could be improved by the subject's observing a trained peer use appropriate language forms. In an earlier experiment Gurlanick (1976) showed that interactions and positive verbalizations increased only when peers attended selectively to the handicapped child's appropriate behaviors. This might indicate that peer modeling is not sufficient to develop imitative responses without social contingencies.

Changing Physical and Spatial Events

Physical and spatial events have been altered to develop and maintain peer interactions (Johnson, 1935; Body, 1955; Cooper et al., 1966; Quilitch & Risley, 1973). Johnson (1935) reported that when few pieces of play equipment were available, children engaged in more teasing, crying, and hitting. Body (1955) found that the temperature of play equipment, as well as the amount, effected interactions. Quarrels occurred more often in hot, unshaded areas. These studies (Johnson, 1935; Body, 1955), however, do not provide a functional analysis of the effects of equipment and space. A functional analysis was provided in Quilitch and Risley (1973) when it was

reported that some toys (checkers and cards) were "social" toys, because when children played with these toys, they interacted 78% of the time. When children played with "isolate" toys (tinker toys and puzzles), they tended to play alone.

Problems With the Use of Teacher Attention, Peer Attention, Peer Modeling, and Physical and Spatial Events to Develop and Maintain Peer Interactions

The previously-cited procedures have varying degrees of effectiveness. Each has problems which limit its usefulness. With the differential use of teacher and peer attention, peer interactions must occur before they can be reinforced. This process can be time-consuming if the subject rarely engages peers (Allen et al., 1964; Hart et al., 1968). Furthermore, it has been shown that teacher attention procedures must remain in effect for at least a week before durable results are achieved (Allen et al., 1964), and sometimes this procedure just does not work as a motivational variable to increase children's behavior (Levin & Simmons, 1962 a, b). Teacher attention to peers has also been shown to disrupt attention (Allen et al., 1964). Strain, Cooke, and Appoloni (1976) have reported the problem of maintaining control over peer attention as the major problem with the peer attention procedure. The problem with altering physical and spatial

features is that these elements are often permanent. Furthermore, with the exception of the last procedure, these procedures require the manipulation of social contingencies in the natural environment.

In light of these limitations, behavior analysts must continue to search for procedures to increase peer interactions. A method is needed which demands less time and effort and which does not involve manipulating social contingencies. Such a method might involve a "trapping effect (Baer & Wolf, 1969). If the subject could initially be induced to produce a relatively simple interaction response, perhaps the positive stimulation from this initial interaction would result in more interaction responses. Everything would proceed from here almost automatically. As peers began having more positive interactions with the subject, they, too, would begin approaching the subject more. No more control over the subject's or peer's behavior would be needed, other than to get the subject to make the initial response.

Affection Training As a Method of Developing and Maintaining Peer Interactions

According to social learning theory (Zaslow & Breger, 1969), people learn to seek contact with others because of the early pairing of people with positive stimulation and stress reduction. When a child indicates pain or discomfort,

parents usually respond with some type of affectionate behavior, such as kissing, hugging, rocking, or smiling. The resulting stimulation and stress reduction might be the primary basis for the first positive attachments to people. Thus, peer interactions might be increased through the use of some type of procedure involving affectionate behaviors. Support for this assumption can be found in animal and clinical literatures. Though the clinical literature presents methodological problems and one must be cautious when applying the results of animal research to humans, this literature can serve as a guide until experimentally designed research with human subjects becomes available.

Animal Research

Experimentally designed animal research has yielded some intriguing findings concerning the role of early social relationships in the development of the monkey (Harlow & Harlow, 1962; Harlow, Dodsworth,& Harlow, 1965; Griffin & Harlow, 1966). When monkeys were reared under conditions of total social isolation, they developed behavioral repertoires dominated by self-directed activities, such as self-clasping, self-mouthing, huddling, and sterotypic rocking. Aggressive behaviors were either self-directed or inappropriately directed during social encounters. Exploration, play, and social contact patterns also failed to develop appropriately.

These abnormal behaviors persisted as the monkeys matured, with the adult isolate monkeys lacking normal sexual and maternal behaviors.

The profound social deficits evident in isolate-reared monkeys have been shown to be reversible (Suomi & Harlow, 1972; Gomber & Mitchell, 1973; Novak & Harlow, 1974) following a treatment that involved the isolate receiving intimate social contact with younger, socially experienced monkeys. The younger monkeys' clinging responses were still an integral part of their social repertoires. The therapist monkeys' initial responses to the isolates were to approach and cling. The isolates were immobile and withdrawn at first, but once they began to reciprocate, appropriate interaction patterns emerged. These findings are consistent with other research which show the therapeutic value of intimate physical contact. Harlow and Harlow (1968) discovered that isolate monkeys who eventually submitted to their infants' efforts to maintain close physical contact usually exhibited adequate maternal behavior toward subsequent offspring. Exposing isolates to heated surrogates (Suomi & Harlow, 1972) has also significantly decreased disturbed behavior, and Harlow and Harlow (1968) reported that monkeys, raised so they can see and hear other monkeys but not touch them, failed to acquire normal social behaviors.

Suomi and Harlow (1972) theorized that affectionate behavior appeared to be important in reversing the disturbance

patterns of isolate monkeys, because close physical contact reduced anxiety in the new situation and subsequently, reduced interfering behaviors. While receiving this contact, the isolates could not effectively continue the self-directed activity. The isolates could then respond to the social stimuli gradually increasing in complexity. Isolate-reared monkeys had the social capability, but what was lacking was appropriate social stimuli.

Clinical Research

Among humans, autistic children offer the most striking examples of children who do not frequently engage in peer interactions. There is much similarity between the behaviors of autistic children and those of the isolate-reared monkeys. Autistic children engage in a variety of self-directed behaviors, such as flapping fingers and arms, self-huddling, self-clasping, self-mouthing, and rhythmically rocking (Foxx & Azrin, 1973; Rincover & Koegel, 1977). Some autistic children also engage in self-directed aggressive behaviors or aggressive behaviors which are inappropriately directed during social encounters (Wolf, Risley, & Mees, 1967; Bucher & Lovaas, 1968).

Ortigues and Aubry (1955) used affection in treating a 15-month-old autistic boy. The subject lacked language, appeared to be deaf, and exhibited general psychomotor

retardation. He lacked responsiveness to human contact, reacting to people with apathy and passive withdrawal. His eyes would turn to watch what was happening around him, but otherwise, his face was inert and expressionless. He looked at objects but not at people. Treatment consisted of a therapist sitting on the subject's bed while hugging and caressing him and using what the authors vaguely referred to as "other forms of bodily mothering types of control." The subject soon began to look at people and to smile. Several weeks later, he started approaching other children and playing simple games with them. The subject began showing signs of hearing.

Langford (1955) employed affection when he treated a 17-month-old autistic child. The girl layed in her crib and sucked her thumb most of the time. When spoken to, she closed her eyes and appeared disinterested. When someone held her hand, she showed no reaction. She would not talk, walk, or show any interest in toys. "A program of tender, loving care" was initiated in which the subject received increased attention and affection from the nurses. The subject's parents were encouraged to visit her twice each week and to play with her. Nurses verbally reinforced the parents. After three weeks of treatment, the subject smiled and appeared alert and responsive to people. She was feeding herself and sought attention from adults. A three-year and a six-year

follow-up study revealed that her improvement had continued. At the time of the last follow-up, the subject was in the second grade. Langford reported that she "gets on well, both academically and with other children."

Waal (1955) utilized a form of affection training to treat a two-and-one-half-year-old autistic boy. The subject protested violently against socializing with other children. He had tic-like movements in his face and shoulders. He would engage in self-injurious behavior. The treatment method used was similar to the rage reduction method described by Zaslow and Breger (1969). A therapist gave bodily massages, not soothingly, but provokingly to reduce anxiety. Hands, chest, and chin were tickled and the eyes were touched to stimulate peeping, eye contact, and to evoke distant looks. Parts of the body found chronically tense were massaged hard, despite protest. Following emotional outbursts, the subject appeared to relax. He would caress, suck, or lick the therapist's hand. After several weeks of treatment, the subject began smiling and asking to be hugged. He sought the company of his therapist. Towards the end of the therapy it was reported that "all the children liked him and he showed growing interest in the children by showing them toys, and so on."

Zaslow and Breger (1969) developed a method for treating autistic children called rage reduction. Transactions between

therapist and subject are primarily sensori-motor. Negative motor resistance is directly confronted and even induced so that affectively positive relationships can be started. The subject is placed in a horizontal holding pattern on the therapist's lap. The head is supported with one arm, leaving one hand free to hold the subject's hand or arm. The subject's other arm is tucked to the side. The shoes are removed so that feet and toes can be massaged. The subject is allowed to rage and struggle. The head is turned to maintain face contact at all times. The therapist talks gently, saying "I love you," and "It's all right if you want to be a baby." It is important that any sensori-motor resistance is overcome with superior pressure. Pressure should be relaxed once dominance is established and resistance removed. At this point in the treatment the subject is made to look at the therapist and to execute some simple task. If the subject refuses, the treatment starts over. Three clinical case studies were reported in which the subjects became more responsive to peers and others.

Zaslow and Breger (1969) accounted for the rage reduction method's success by stating that they had created a stress-to-relaxation cycle, the basic unit of comforting and the basis of the mother-infant bond. The tactile-kinesthetic, auditory, and rhymical stimulation stemming from holding and stress reduction in human contact forms the primary basis for

positive attachment. Autistic children reject others because they have not learned to associate people with this stress reduction and positive stimulation. By holding the child until the rage subsided, Zaslow and Breger (1969) believed that they were allowing subjects to experience stress reduction and to start to pair people with positive stimulation.

Purpose of the Present Study

The preceding animal and clinical literature suggest the possibility of using affection to enhance peer interactions. The primary purpose of the present study was to construct an affection training procedure to increase peer interactions in a five-year-old boy who exhibited an extremely low frequency of peer interactions. A second purpose was to investigate the behavior and setting generality effects of affection training. If affection training was found effective in producing changes in school-related interactions, would concurrent changes occur in other school behaviors and would any of these changes generalize to the home?

CHAPTER II

METHOD

Subject

The subject was a five-year-old boy who had a history of producing inappropriate social behaviors. The subject's family consisted of his parents, a one-year-old sister, and a four-year-old sister. His parents and teachers were concerned about his antagonism and inappropriate play. They expressed the belief that if something were not done to correct these problems his chances of proceeding successfully through the first grade were poor. The parents had been taking the subject to the Children's Hospital in Knoxville for physical therapy to improve his gross and fine motor skills. He had also been tested several times by clinical and school psychologists and had scored in the low range of intelligence on the Stanford-Binet Intelligence Test.

The subject seldom approached other children and resisted most approaches made to him. Most of his time was spent in solitary play which often assumed a ritualistic nature, such as lining up blocks meticulously and/or stacking them on top of each other. The subject displayed a lot of self-stimulatory behaviors, such as flapping his arms and hands, licking his hands, jumping up and down, and rocking back and forth. He frequently engaged in object play, the

inappropriate use of objects such as smelling or tasting them. When peer interaction did occur, it was brief and marked with antagonistic behaviors ("I hate you." "Get away from me." "Don't look."). The subject produced these behaviors in the home and school.

Setting

The subject attended the University of Tennessee Nursery School. The school was designed for preschool children and consisted of a program from 12:30 p.m. until 3:00 p.m. The study was conducted in a classroom, approximately 20 feet by 40 feet. The classroom contained various play materials, such as building blocks, art materials, books, toy cars, dolls, and modeling clay. The subject was observed during his indoor free-play period. This period lasted for 30 minutes. During this time the children were free to interact with whatever play materials were available. There were nine children, two teachers and a graduate assistant in the classroom.

Apparatus

An observer in the home used a portable Sony (model TC-68) tape player to play a 15-minute tape that announced the beginning and end of each 10-second scoring interval and allowed five seconds to record observations.

In the school each observation consisted of a 15-minute videotape of the subject's indoor free-play behavior. Two

Sony cameras (model AVC 1400) equipped with zoom lens were wall-mounted on Pleco Pan/Tilt Units (model TV-J8C). The cameras were located to afford the greatest range of coverage. They were remotely controlled with a Pleco variable-speed control panel (PT 1500-M Joystick) placed in an adjacent room. This allowed for the cameras to be moved up and down and to the right and left without the operator being in the classroom.

Audio voice signals were transmitted by a Vega wireless microphone and transmitter (Model 88) to a receiver (Model 89) located in the same adjacent room. The receiver was connected by a line to a Shure M63 audio master. An audiotape of prerecorded 10-second intervals was connected to the audio master. Both the video and audio signals were recorded on a video recorder (Sony AV 3600) attached to the audio master. The microphone and transmitter (Vega Model 88) were housed in a smock-like jacket worn by the subject. For a more detailed description of the telemetry system, see Nordquist, Kell, Giraid, and Furbish (1978).

Behavior Definitions

With the exceptions of antagonistic behavior and ritualistic play which were developed by the experimenters, the following definitions of the behaviors monitored were adapted from Wahler (1976):

Peer interaction. This category was scored for any instance of the subject's interaction with peers. Interaction implied that the behavior of the subject and the peer were interdependent. The subject's behavior had to be directed to the peer, and that peer's behavior had to be directed to the subject. Peer interaction was indicated by scoring two categories, peer interaction and nonaversive social attention. If an interaction was initiated by the subject, the first interval was scored as social approach, while the peer's response was scored as social attention. Subsequent intervals were scored as peer interaction until that interaction terminated. Interaction with children and with adults was scored in the same interval if the subject interacted with both.

Social approach. This category was scored for spontaneous physical or verbal contact with someone. The subscript "a" for an adult and the initials of the child were used to identify the person making the approach. This category included deliberate physical contact, directed verbalizations, or other nonverbal methods to attract another's attention or to initiate an interaction. "Spontaneous" meant that the approach was not initiated by some third party. If the interaction begun by the subject's approach was terminated in the interval in which it was started and was begun again by the subject in the following interval, it was scored as social approach in both intervals. If the interaction started by an

approach was carried uninterrupted into subsequent intervals, it was scored as peer interaction.

Nonaversive social attention. This category included deliberate physical contact made with the subject, verbalizations directed to the subject, and a kind of looking at each other that entailed mutual recognition. A subscript identified the dispenser of the attention. A record of this behavior was important if the experimenter was to demonstrate that any subsequent changes in peer interactions were not due to increased adult attention.

Antagonistic behavior. Any instance of physical or vocal hostility directed to an adult or child by the subject was scored as antagonistic behavior. It was judged antagonistic because of speech content, voice quality, or the subject's assertive behavior. For the speech to be scored as antagonistic, it had to contain a threat of punishment or unpleasant consequences or have expressed dislike for a person. Antagonistic behavior was also scored if the subject verbally rejected the company of another. For voice quality to be antagonistic, the speech had to be spoken in a loud or threatening tone. A harsh, demanding tone was also seen as antagonistic. This category was scored for any physical aggression directed at a person and for gestures of displeasure, such as wrinkling the brow or shaking a fist.

Self-stimulation. This category included the subject's manipulation of his body or repetitive motor movements. A motor movement was defined as repetitive if it continued for three or more, essentially identical, occurrences during a single 10-second interval. For continued scoring of self-stimulation for repetitive behaviors, this criterion had to be met in each interval so scored. Self-stimulation was scored when the subject put his hands or fingers to his mouth or nose. Behaviors were not marked as self-stimulatory if they were components of toy play, social approach, and/or peer interactions. Posture changes that were not repetitive were not self-stimulatory.

Object play. This category was scored for any instance of simple repetitive manipulation of an object which was not part of a more complex activity. A repetitive manipulation was one continuing for three or more, essentially identical, occurrences during a single 10-second interval. For continued scoring the criterion had to be met in each interval so scored. Object play activities are usually termed "absent-minded" and consist in fidgeting with objects. Object play usually involved the subject's hands and active movement of an object. Object play was also scored any time the subject put an object to his nose or mouth.

Ritualistic play. Ritualistic play was scored when the subject painted a sheet of paper in one solid color or built

a "pig pen," which consisted of lining up blocks meticulously in a straight line and stacking them on top of each other. Any other time the subject was observed placing several objects in a straight line or piling them up, it was judged as ritualistic play.

Sustained toy play. This category was scored for a full 10-second interval of appropriate interactions with toys, hobbies, books, games, or other objects not related to school-work. "Appropriate" meant that the object not be used in a ritualistic, repetitive manner. These behaviors were scored in conjunction with social interaction when the subject was continuously playing and interacting with one or more other people.

Observers and Reliability

Two undergraduate students served as observers. They were unaware of the experimental nature of the research. The observers were trained over a four-month period prior to base-line. Training consisted of observing videotapes of the subject's indoor free-play activities. Records of his behavior were obtained through a behavior checklist similar to that described by Hawkins, Peterson, Schweid, and Bijou (1966). Observers made coded checks for the occurrences of a behavior within successive 10-second intervals over a 15-minute observation period.

Both observers had to obtain an interobserver reliability score of 70% or better in each of the nine behavior categories. Reliability was determined by taking the total number of occurrences of a particular behavior as scored by one observer and the total number of occurrences of that same behavior as scored by the other observer and dividing the smaller number by the larger number. After obtaining interobserver agreement, the observers were checked for reliability against the experimenter in the same manner. Reliability checks between the observers and experimenter were conducted every two weeks after baseline. After baseline, the observers also periodically scored the same videotape and their observations were checked for interobserver reliability. This was done to insure that the experimenter did not develop private definitions of any behaviors with either the observer in the home or the school. If at any time during the experiment reliability fell below 70%, the observer was instructed to review the definitions and to practice scoring additional tapes until reliability was restored.

CHAPTER III

PROCEDURES

Baseline

Baseline lasted for four weeks, sufficient time to attain behavioral stability. During this time no procedure was in effect to modify the occurrence of any behaviors.

Affection Training—Phase I

The nine children in the school were informed by a teacher that they would meet in a circle each day following indoor free-play. As the children sat on the floor, the teacher told them that they were going to learn how to be friends. They were told that everyone wanted to be friends in the school but that it was harder for some people, like the subject, to be friends. The teacher informed the children that it hurt the subject when people touched him and that was why he did not let people play near him. They were going to be the subject's friends, and in the group they were going to help him to learn to let people touch him by touching him a lot.

Following this explanation, the children were informed that they were going to shake hands and say "hello" because this was part of being a friend. The subject was instructed to go to each member of the group, including the two teachers

and the assistant, shake their hands, and say "hello." The person approached was to respond appropriately by shaking the subject's hand and greeting him. The teacher provided reinforcement for the children's behavior by saying things like, "That is a good handshaking," or "I like it when you shake hands like that." If any children refused to participate in any group activity, they were told that it was all right if they did not want to. After this procedure was completed the group meeting was terminated. Group meetings throughout this experiment lasted approximately 10 minutes.

This treatment phase lasted five days. Each group meeting was begun with a brief reminder that they were learning to be friends, followed by the handshaking and verbal greeting.

Affection Training—Phase II

During this phase the children were informed that the subject was going to pat each of them on the back instead of shaking their hands. They were to respond appropriately by patting the subject's back. The same procedures were followed as in Phas I with the exception of an alternate approach procedure in which the subject initiated the patting on the first, third, and fifth days. The other children started the patting on the second and fourth days. Phase II lasted for five days.

Affection Training—Phase III

During this phase the children were told to clasp arms at the shoulders, arms touching from fingers to shoulders. The same procedures were followed, including the approach alternation procedure described in Phase II. During the second day of Phase III, spontaneous tickling began when the subject and another child were clasping arms. The subject asked to be tickled during every group meeting from this point on in the experiment. Upon hearing this request, the teacher would ask if anyone wanted to tickle the subject. Two or three children would be chosen to tickle the subject while he was lying on the floor. The teacher would gently hold the subject's feet so that he would not kick anyone when he became excited. The children were instructed to stop whenever the subject instructed them to. The children took turns tickling the subject until everyone had a chance or until the subject indicated that he no longer wanted to be tickled. This phase lasted for five days.

Affection Training—Phase IV

This phase consisted of hugging and spontaneous tickling and lasted for ten days. The same procedures as in Phase III were followed.

Reversal to Baseline

For the next three weeks the group meetings were suspended and no affection training exercises were conducted.

Affection Training—Phase IV Reinstated

For six days Phase IV training procedures involving hugging and spontaneous tickling were reapplied.

CHAPTER IV

RESULTS

Reliability

Interobserver agreement percents were computed separately for each of the behaviors. The mean agreement percents were as follows for the home observer: peer interaction, .86; nonaversive social attention from a child, .80; nonaversive social attention from an adult, .94; social approach from a child, .85; social approach to a child, .76; social approach to an adult, .85; antagonistic behavior, .76; object play, .74; self-stimulation, .74; ritualistic play, .98; and sustained toy play, .87.

The mean agreement percents were as follows for the school observer: peer interaction with a child, .81; nonaversive social attention from a child, .83; nonaversive social attention from an adult, .92; social approach from a child, .79; social approach from an adult, .74; social approach to a child, .77; social approach to an adult, .86; antagonistic behavior, .70; object play, .80; self-stimulation, .71; ritualistic play, .91; and sustained toy play, .76. No differences were observed between percents based on home sessions and percents based on school sessions.

Assessment of Affection Training Procedures in School on Peer Interactions

Changes in peer interactions across experimental phases are presented in Figure 1. During the first baseline condition, the subject interacted with children approximately 10% of the time. A gradual increase was observed across affection training Phases I, II, and III, reaching a level of 35% on the final day of Phase III. The most dramatic increase occurred during Phase IV of affection training when peer interactions reached a peak of 71% on the last treatment day. When baseline conditions were reinstated, peer interactions dropped sharply to 32% on the first day and were at 0% on the last day. When Phase IV was reinstated, peer interactions increased dramatically over the first three days to a peak of 90%. This peak was followed by a decline to about 20% over the next two days. Finally, peer interactions increased to 41% by the last day of treatment. The sudden drop over the last three days of Phase IV might be explained by the fact that these days were the last days of school and parents had been invited into the classroom to spend time with their children. Consequently, many of the children were interacting with their parents rather than with the subject.

Assessment of Affection Training Procedures in School on Nonaversive Social Attention from Adults

Changes in nonaversive social attention from adults are presented in Figure 2. The data clearly show that adult

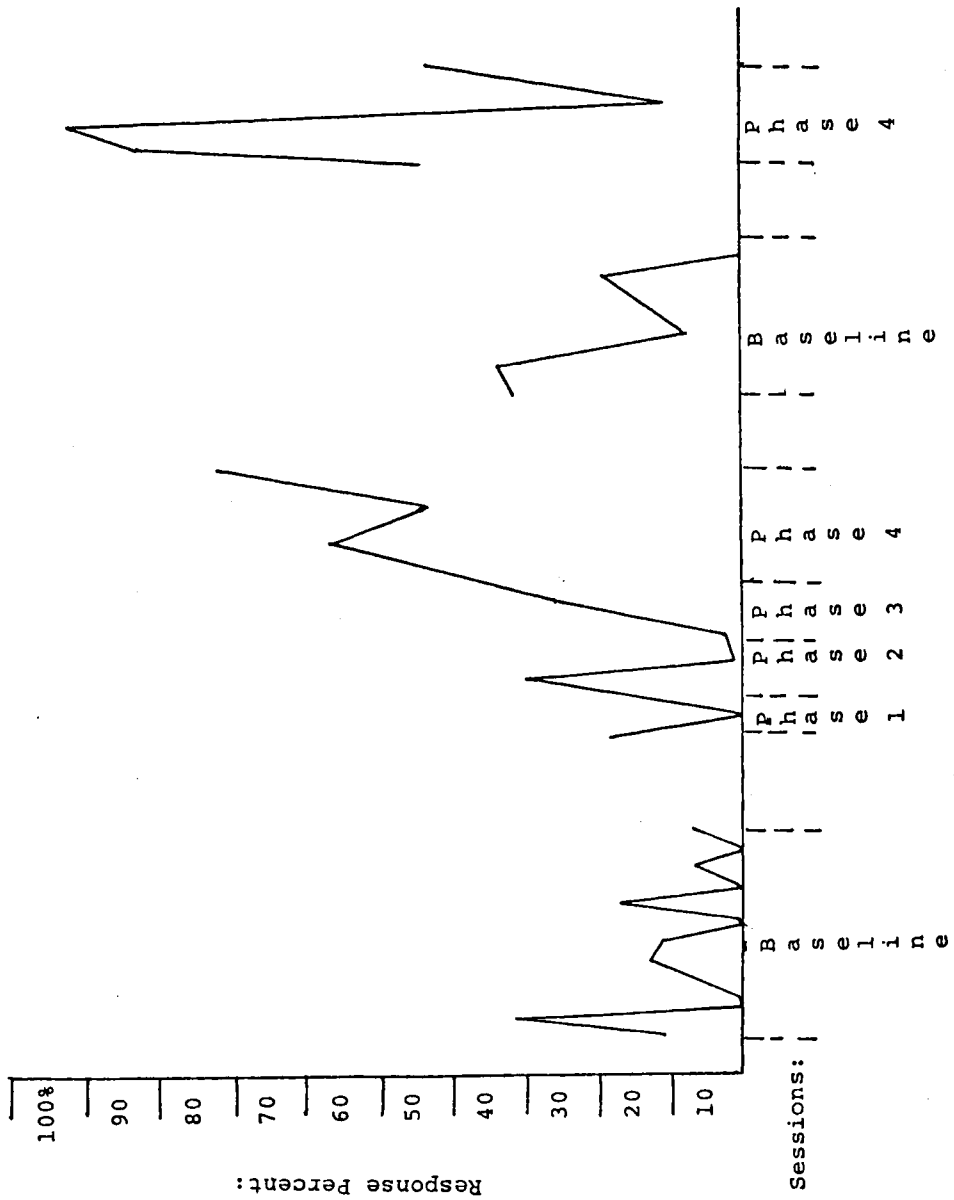


Figure 1. Peer Interaction Behavior at School.

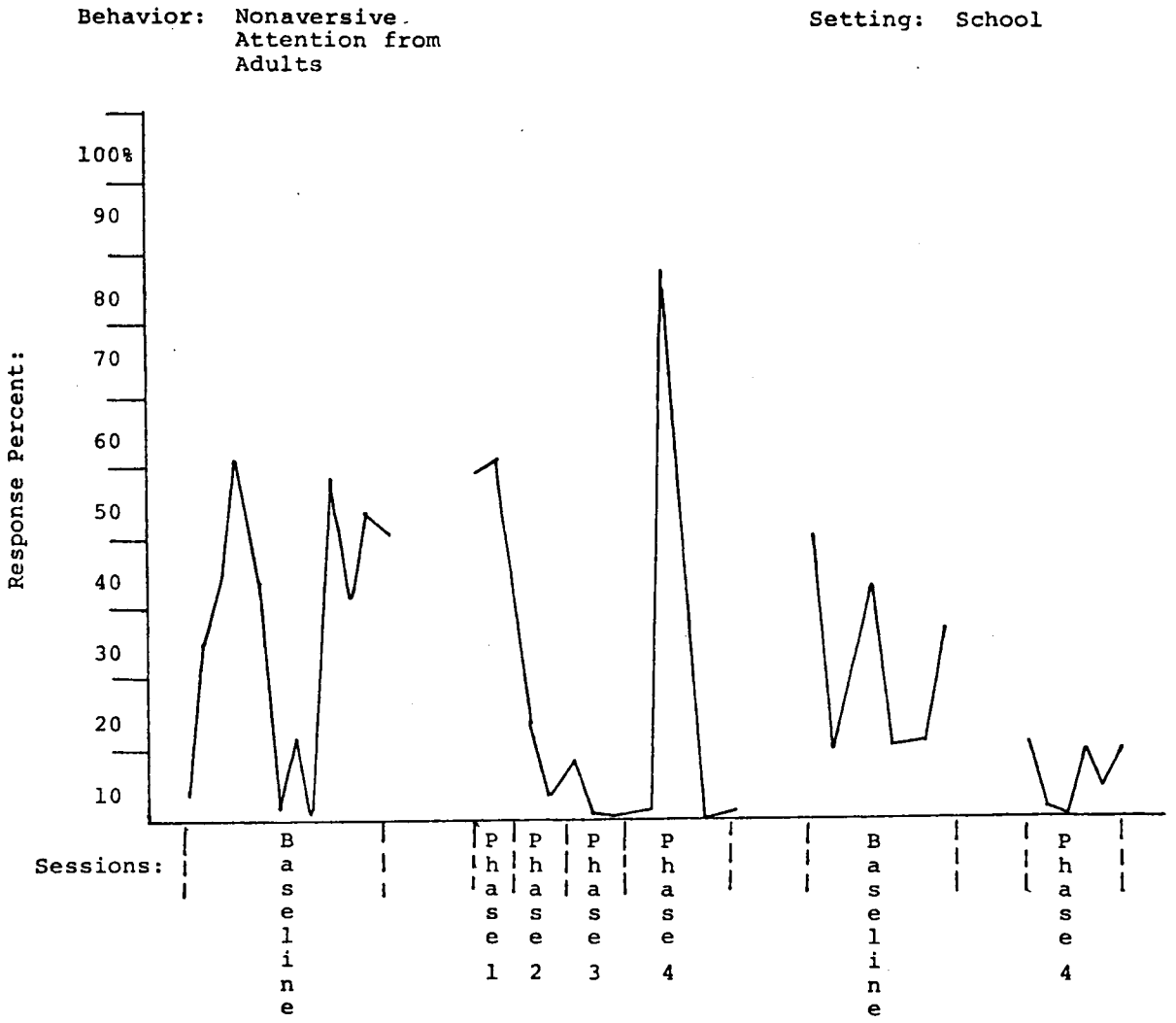


Figure 2. Nonaversive Attention from Adults at School.

attention was not contingent upon peer interactions. The subject received less adult attention during treatment. Under the first baseline condition, the subject received adult attention approximately 25% of the time. During treatment, adult attention dropped to about 15%, followed by an increase to about 25% when baseline conditions were reinstated. When Phase IV was reinstated, adult attention decreased to approximately 5%.

Assessment of Affection Training Procedures in School on Children and Subject Approach Data

The approach data were computed as the percent of children attending the class who approached or were approached by the subject. The teacher's attendance records were used to assess the number of children present each day.

Figure 3 presents the data on the percentage of children who approached the subject. It can be seen that the subject was approached by approximately 20% of the children during the first baseline period. During treatment, the subject was approached by about 25% of the children, with peak levels of 43% during Phases II and III and 50% during Phase IV. When baseline conditions were reinstated, the approach data declined to about 10%. When Phase IV was reinstated, the approach data rose to approximately 25% with a peak of 43%.

Figure 4 presents the subject's approach data. Under baseline conditions, the subject approached approximately 25%

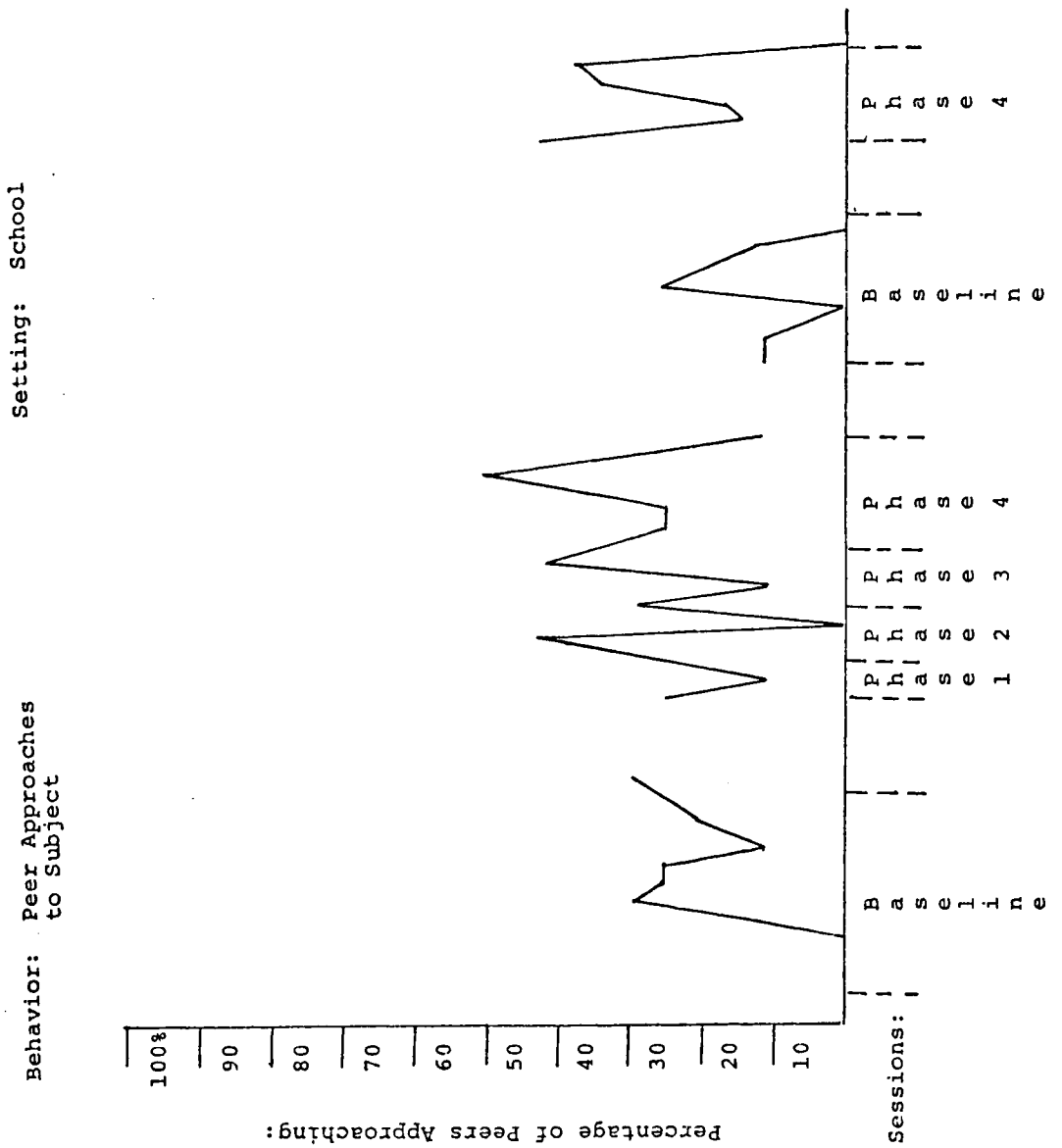


Figure 3. Peer Approaches to Subject at School.

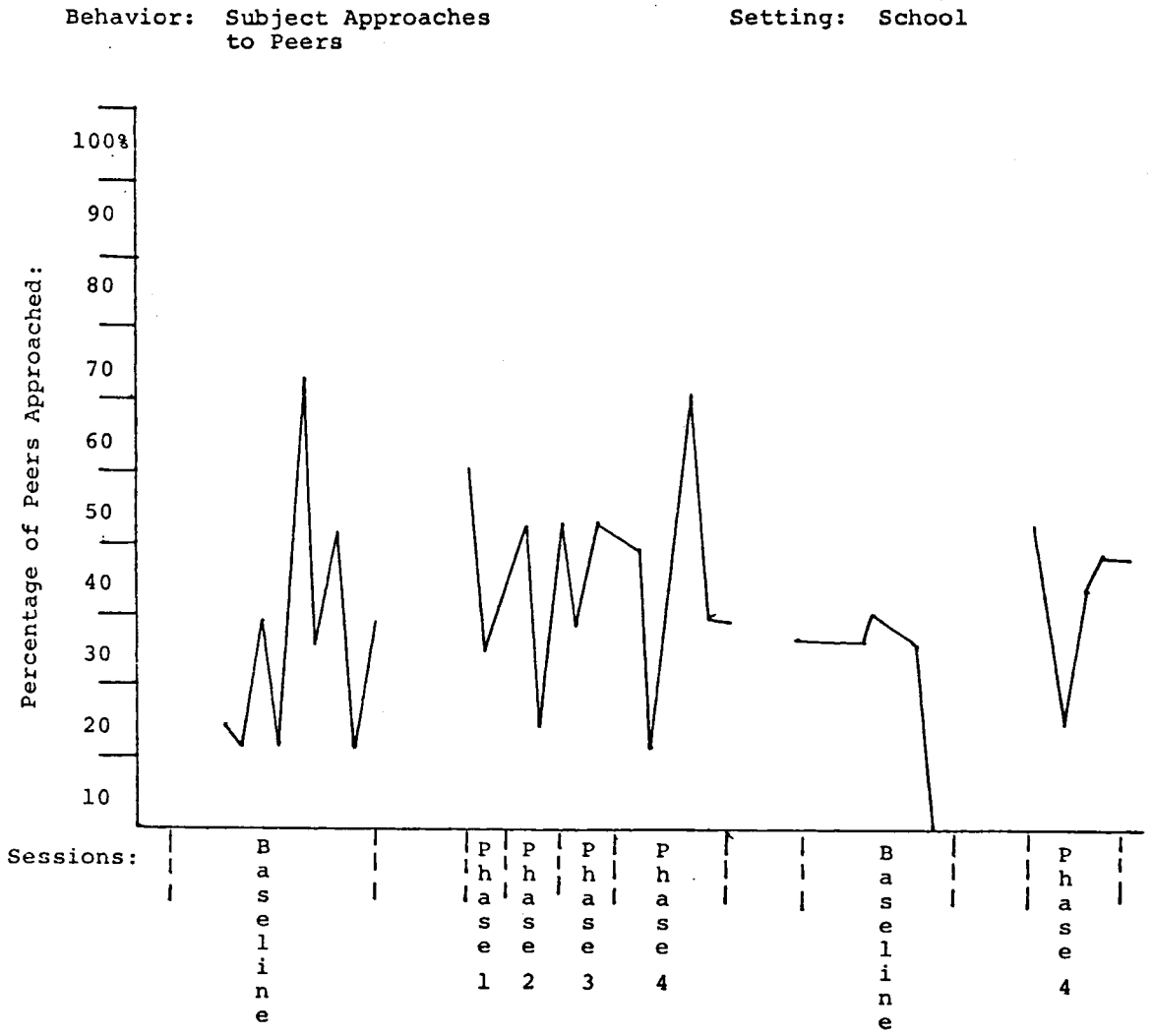


Figure 4. Subject Approaches to Peers at School.

of the children. During treatment, the subject approached about 35% of the children, with peaks of 50% during Phase I, 43% during Phases II and III, and 63% during Phase IV. Returning to baseline, the approach data again dropped to about 20% and returned to about 35% when Phase IV was reinstated.

Assessment of Affection Training Procedures in School on Deviant Behaviors and Sustained Toy Play

Affection training procedures did not appear to have any effect upon antagonistic behavior, self-stimulation, object play, ritualistic play, or sustained toy play.

Assessment of Affection Training Procedures on Home Behaviors

Affection training procedures did not effect any of the behaviors in the home.

CHAPTER V

DISCUSSION

The main objective of the present study was to experimentally evaluate the effectiveness of an affection training procedure for increasing peer interactions in a child who exhibited an extremely low frequency of interactions. The results suggest that an affection training procedure can be successfully used to increase peer interactions. However, some question as to the effectiveness of such a procedure might exist due to the decline in social interactions over the last three days of Phase IV. As previously stated, it is believed that this decline occurred because parents were present in the school and were interacting some of the time with their children. Because of the interference and its possible effects, this study needs to be replicated before stating emphatically that affection training can increase peer interactions. To avoid any other possible problems with the reversal method, it might be better to use a multiple baseline design across subjects in a future experiment. Normal subjects could also be used, since the procedure's effectiveness does not appear to depend upon the subject's being handicapped.

The approach data in the present study was rather weak and no definite conclusions can be drawn from it. However,

it does appear that during treatment phases more children approached the subject, while the subject's approach data appear to be rather consistent throughout this study. One explanation for this might be that, rather than the subject learning to view the other children as being more reinforcing, the other children found the subject more reinforcing after the affection training. The subject's deviant behaviors were not changed, so it cannot be argued that a change in these inappropriate behaviors caused the other children to find him more reinforcing. His enhanced reinforcement value might have resulted from his being paired with the positive social stimuli of close physical contact during the affection training procedures. Some researchers (Lovaas et al., 1966 b; Zaslow & Breger, 1969) have speculated that this is initially how people come to acquire their reinforcement value. This explanation could be experimentally tested by using a procedure for measuring reinforcement value similar to the one developed by Wahler (1969). Some children's performance level on a particular task with peer reinforcement contingencies in effect could be measured prior to and after affection training. A control group could be used which received no peer reinforcement or affection training. Following such an experiment, one might be able to better assess the effect of affection training procedures on peer reinforcement value.

Some might argue that the children approached and interacted more with the subject after treatment because the children believed that the teacher was instructing them to do this during affection training. This is unlikely, however, since affection training occurred 24 hours prior to the next free-play period, and the children did not have to participate in the affection training procedures if they did not want to. Furthermore, the children were asked to shake hands, say "hello," to pat, to clasp arms, to tickle, and to hug. These behaviors were rarely observed to occur during peer interactions. Interactions primarily consisted of the subject and a peer talking, playing toys, or playing a game.

A second purpose of this study was to investigate the behavior and setting generality effects of affection training. No generalization effects in line with those reported by other researchers (Baer & Wolf, 1967; Buell et al., 1968; Wahler et al., 1970; Johnston & Johnston, 1972; Sajwaj, Twardosz, & Burke, 1972; Nordquist & Bradley, 1973; Koegel & Rincover, 1974) were observed. However, this was an initial exploratory effort, and no attempt was made to program for generalization other than to hope for a trapping effect (Baer & Wolf, 1969).

The implication of the present research is that an affection training procedure might be used to increase peer interactions. One advantage of this procedure is that it does not involve the manipulation of social contingencies, as do

the teacher attention, peer attention, and peer modeling and reinforcement procedures. The data clearly show that the subject received less teacher attention during the treatment periods than during baseline. The teachers were not reinforcing the subject by attending to him more when he interacted with peers. Thus, affection training would save time for teachers. Affection training procedures do not require the training of confederate peers, which is time-consuming (Strain, Cooke & Appoloni, 1976). The affection training procedure involved less than one hour per week. Thus, the use of affection to increase peer interactions offers several exciting possibilities. Further research is necessary, however, to access the effectiveness of this procedure.

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VITA

Robert Douglas Simon was born in East St. Louis, Illinois, on July 29, 1949. He attended elementary schools in Tamms, Illinois, and Trenton, Tennessee. In 1967 he graduated with honors from Humboldt High School in Humboldt, Tennessee. In September 1967 he entered the University of Tennessee and graduated with honors in May 1971, with a Bachelor of Science degree in Liberal Arts with a major in History and a minor in Psychology. He taught at Jackson Central-Merry High School in Jackson, Tennessee, for one year before transferring to the Oak Ridge School System in Oak Ridge, Tennessee, where he taught for four years at Oak Ridge High School and one year at Jefferson Junior High School. He entered the Graduate School at the University of Tennessee in September 1976 and graduated with highest honors in August 1978, with a Master of Science degree in Child and Family Studies.

He is married to the former Lynne Ann Willis of Brooklyn, New York. They have two children, Jason Douglas and Courtney Leigh.