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Reduction of Aggressive Behavior of a Preschool Child Using Extinction and Teacher Attention Procedures

Greg Randle
Western Michigan University

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REDUCTION OF AGGRESSIVE BEHAVIOR
OF A PRESCHOOL CHILD
USING EXTINCTION AND
TEACHER ATTENTION PROCEDURES

by

Greg Randle

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REDUCTION OF AGGRESSIVE BEHAVIOR
OF A PRESCHOOL CHILD
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TEACHER ATTENTION PROCEDURES

Greg Randle, M.A.
Western Michigan University, 1981

The subject was a 2\(\frac{1}{2}\)-year-old male who engaged in a high rate of aggressive behavior that appeared to be maintained by teacher reprimands and physical contact. An extinction procedure in which all aggressive behavior directed toward peers was ignored was used in conjunction with teacher attention directed to the victim. Teacher attention was also used to positively reinforce the subject for interaction with peers. These procedures reduced the subject's aggressive behavior to a much lower rate. Although the subject's undesirable behavior was modified, a questionnaire responded to by the teachers indicated the need for open communication between the behavior modifier and staff in studies such as this one.
ACKNOWLEDGEMENTS

The researcher would like to express appreciation to the staff of the Learning Village, especially the teachers of the Toddler Program. Without their assistance this project would not have been possible. The researcher would also like to thank Elizabeth De la Ossa for her help and guidance in all stages of the project. Sincere gratitude goes to Bronwyn, who urged the researcher on in completing the final draft.

Greg Randle
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CHAPTER I

INTRODUCTION

The subject of this research project engaged in a high rate of aggressive behavior that was sometimes causing injury to his peers and disrupting the entire day care program in which he was enrolled. When not engaging in aggressive behavior the subject usually remained physically withdrawn from his peers. Upon observing the subject and keeping an informal record of his behavior and its consequences, it became apparent that the teachers were responding to most of the aggressive behavior by attending to the subject. Teacher attention usually occurred in the form of verbal reprimands and physical contact. During an aggressive behavior, one of the teachers usually rushed up to the subject, grabbed his hand or some other part of his body to stop the ongoing aggressive behavior and to protect the victim. The teacher then explained to the subject that this type of behavior was not allowed.

Disruptions in normal social development, such as in this study, can usually be traced to the reinforcement contingencies and models in the child's environment (Sheppard and Willoughby, 1975). So, when a child does not exhibit normal social behavior or engages in deviant social behavior, it is frequently because the child's
environment has failed to teach appropriate social behavior or because the environment is prompting and/or reinforcing antisocial behavior.

In many studies dealing with child behavior problems, treatment consists of simply reversing the existing contingencies which are maintaining the problem behavior. The adults are instructed to attend to the child whenever the child engages in appropriate social interaction and to ignore the child whenever the child is alone or engaging in antisocial behavior. Such contingent adult attention has been shown to be effective in increasing the frequency of social interactions and decreasing the frequency of antisocial behavior.

In one such study (Allen, Hart, Buell, Harris, and Wolf, 1964), a preschool girl who engaged in a low rate of social interaction with her peers was helped to achieve a higher, sustained rate of social interaction. Positive reinforcement in the form of teacher attention was given consequent upon interaction with another child and withheld consequent upon solitary play or attempted interaction solely with an adult. As a result, interaction with children occurred much more frequently and one-to-one interactions with adults decreased.

In a similar study (Foxwell, Thomson, Coats, Baer, and Wolf, 1966), the subject was completely withdrawn at the outset of the study. A teacher made herself
the child's special friend, thus increasing her reinforcing effectiveness to the child. The child was then reinforced for all child-oriented responses with attention from the teacher. As a result, child-oriented responses increased to a more acceptable level.

Two preschool boys who exhibited a high frequency of operant crying were helped to develop more effective responses to mild frustrations (Hart, Allen, Buell, Harris, and Wolf, 1964). Teachers gave no attention to outcries and gave immediate approving attention to every appropriate response to mildly distressful situations. Operant crying had practically disappeared in each case within a week.

Adult social reinforcement helped a 4½-year-old boy with an excessively short attention span to acquire more extended attending behavior (Allen, Henke, Harris, Baer, and Reynolds, 1967). When the child remained with a single activity for one continuous minute, teachers immediately gave him attention and approval for as long as he remained with that activity. Consequent upon all other behavior teachers withheld their attention. The frequency of activity changes decreased markedly within seven days.

A child who had reacquired crawling behavior as a substitute for already established walking behavior was studied in a nursery school situation using adult social reinforcement (Harris, Johnston, Kelley, and Wolf, 1964).
Adult attention was given as an immediate consequence of walking behavior and was withheld as an immediate consequence of crawling behavior. This systematic use of adult attention brought about rapid changes in the child's behavior and indicated that adult attention had powerful reinforcement values.

A class of 28 well-behaved children in a middle-primary public school was the subject pool for studying the effects of teacher behavior on the classroom behavior of children (Thomas, Becker, and Armstrong, 1968). Approving (praise, smiles, contacts, etc.) and disapproving (verbal reprimands, physical restraint, etc.) classes of teacher behavior were systematically varied. Measures were taken on both teacher and child behavior. Each day a sample of ten children were observed. Disruptive behavior increased each time teacher approval was withdrawn as a consequence of appropriate child behavior. When the teacher's disapproving behavior was tripled, marked increases appeared in gross motor and noise-making categories of disruptive behavior. The results demonstrated that approving teacher responses served as positive reinforcement in maintaining appropriate classroom behavior.

Strain and Timm (1974) measured the social interaction between a behaviorally disordered child and her classroom peers under two conditions of contingent adult attention. In one condition, verbal praise and physical
contact were directed to the subject's peers for appropriate interaction with the subject. In the other condition, verbal praise and physical contact were directed to only the subject for interacting appropriately with her peers. Results indicated that application of contingent adult attention to peers rapidly increased appropriate social behavior by the peers and also the subject. A similar increase in appropriate social behavior of both the subject and her peers occurred in the second condition. During both conditions, the recipient(s) of contingent adult attention initiated more appropriate social interactions than the interacting partner.

Adult attention was effectively utilized in a behavioral study (Williams, 1966) performed in a private home. In this instance, the child would scream and fuss when his parents left the bedroom after putting the subject in his bed. He would not stop this behavior until the parents returned to the room. An extinction procedure was instituted in which the child was put to bed and the parents left the room and shut the door. When the subject screamed and raged the parents did not go back into the room. By the tenth occasion, the subject no longer whimpered, fussed, or cried when his parents left the room. The parents simply removed their reinforcement, in the form of attention, for tantrum behavior.

The researcher of the present study decided
that a form of treatment using adult attention, as in the forementioned studies, would be necessary if the subject's aggressive behavior was to be modified. Simply ignoring the subject's aggressive behavior would not be sufficient, however, since this could and probably would result in bodily harm to the victims. The subject was physically larger than his peers and could easily overpower them. Pinkston, Reese, LeBlanc, and Baer (1973) successfully reduced a preschool child's aggressive behavior to his peers by ignoring the subject's aggressive behavior and attending instead to whatever child he was attacking. By using a similar procedure in the present study, no harm would be allowed to come to the subject's victims yet the aggressive behavior could hopefully be extinguished. Also, it was expected that if the subject's aggressive behavior was ignored and at the same time peer interaction was reinforced by teacher attention, his peer interaction would increase.
CHAPTER II

METHOD

Setting

The study was conducted in the Toddler program of the Kalamazoo Learning Village populated by four teachers and twelve preschoolers between the ages of 1½ and 2½ years. The children attended the Learning Village five days a week from 9:00 A.M. to approximately 5:30 P.M.

Subject

The subject was a healthy 27-month-old boy. He was placed in the Learning Village by the Michigan Department of Social Services. The subject lived with his mother, who was separated from his father. The subject's mother was employed and received Aid for Dependent Children payments for the subject. The subject could not talk clearly and engaged in a high frequency of "babbling." He engaged in very little social interaction with his peers and those interactions he did engage in usually ended with aggression from the subject.

Behavioral Definitions

After the preliminary observation, the subject's
aggressive behaviors were divided into two separate categories; Aggression Directed Toward Persons and Aggression Directed Toward Objects. Aggressive behaviors under the Aggression Directed Toward Persons category were defined as follows:

1. Hitting (Child) - reaching out with one or both hands and striking another child.
2. Hitting (Adult) - reaching out with one or both hands and striking an adult.
3. Grabbing - reaching out with one or both hands and taking an object or objects in the possession of another person or being used by another person.
4. Pushing - thrusting another person away from himself, away from another person, or from an object with his arm or arms.
5. Biting - placing his mouth on some part of another person's body without first puckering.
6. Kicking - moving his leg or legs so as to strike another person with his foot or feet.
7. Pinching - using his thumb and forefinger to squeeze another person's skin.

Aggression Directed Toward Objects was defined as follows:

Object Aggression - throwing an object for a distance of at least three feet or intentionally knocking an object over.

A measure recorded during baseline and treatment...
phases was proximity. It was of experimental interest to see if proximity would increase due to the treatment. This measure was defined as follows:

Proximity - being within one foot of another child during the ten second interval between each one minute interval without performing an aggressive behavior.

Another measure taken only during the treatment phases of the experiment was peer interaction defined as follows:

Peer Interaction - an initiation by either the subject or a peer followed by a response by the other, or a continuous series of interactions emitted by the same two or more persons. An interaction could consist of verbal or nonverbal responses. Aggressive behaviors were not counted as interactions.

Teacher attention, serving as positive reinforcement for peer interaction, was defined as follows:

Teacher Attention - verbal approval and physical contact from a teacher directed to the subject and the peer or peers with whom the subject is interacting.

Observation and Recording

The researcher recorded the subject's behavior equipped with a clipboard, recording forms, stopwatch, wristwatch, and signaling cards. The researcher remained
in a position where the subject was always in full view and did not interact with him or his peers in any way. Observations were recorded four mornings a week for approximately thirty minutes a day. All of these observations were made during freeplay, outdoor play, or small group activities that the subject willfully and usually voluntarily participated in.

Observations were made in ten minute sessions divided into one minute intervals. Between each one minute interval was a ten second lapse during which only proximity was recorded.

The peer interactions were tallied only once per one minute interval, so these interactions which exceeded one per one minute interval were not recorded.

Interobserver reliability was checked fifteen times during baseline recording and three times during the treatment phases. Another observer recorded the subject's behavior following the same recording methods of the researcher. Agreement was evaluated for aggressive behavior and proximity during baseline. During treatment, agreement was evaluated for aggressive behavior, proximity, and interaction with peers. The percentage of agreement for the recorded behaviors was calculated as (agreements)/(agreements + disagreements).

Procedures

Baseline: The subject was observed for a total
of thirty ten minute sessions without any systematic intervention. The teachers were given no instructions concerning the subject and were only aware that the researcher was observing him. The subject engaged in a high rate of aggressive behavior (see Table 1) so treatment was implemented.

The treatment phases ran continuously from 9:30 A.M. to 10:30 A.M. four mornings a week with an average of three 10 minute sessions being recorded during each treatment session.

Treatment phase 1: During this and all treatment phases the teachers were instructed to totally ignore the subject and instead attend to the victim of his aggression, touching and talking soothingly to the child when signaled with a red card. This signal was given when the subject performed an aggressive behavior under the category of aggression directed toward persons. When signaled with a green card the teachers were instructed to give attention to the subject. This signal was given when the subject was interacting with one or more of his peers. There were no instructions concerning aggression directed toward objects since it was of experimental interest to see if aggression directed toward objects would decrease in frequency as a function of reduction in aggression directed toward persons. This treatment phase lasted for
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thirty ten minute sessions (Sessions 31-60).

Treatment phase 2: This phase differed from treatment phase 1 only in that the teachers were instructed to begin ignoring the subject's aggression directed toward objects. The subject seemed to be engaging in a high frequency of object aggression so as to receive the attention that he no longer got for aggression directed toward persons. During baseline and treatment phase 1 the subject had been instructed by the teachers to pick up and return to its original position any object that he had thrown or knocked over. This phase endured for only six ten minute sessions (Sessions 61-66). After a ten minute session in which the subject performed 22 behaviors categorized as aggression directed toward objects, the director of the program informed the researcher that she could no longer tolerate ignoring the subject's object aggression as it was getting out of hand and being modeled to the subject's peers.

Treatment phase 1 (reinstated): This phase consisted of the same conditions as those instituted in treatment phase 1. This reinstatement lasted for four ten minute sessions (Sessions 67-70).

At this point the researcher was not satisfied with the progress of the treatment as the subject's aggressive behavior was still occurring at a high frequency (see Table 1). Therefore, treatment phase 3 was instituted.

Treatment phase 3: At the beginning of this
phase, the researcher urged the teachers to begin using more excitement in their voices and to make use of physical contact when reinforcing the subject for interactions with his peers. Up to this point they had been showing very little excitement and using almost no physical contact. They were also urged to place more emphasis on attendance to the victims of the subject's aggression. The teachers had usually only been rescuing the victims from the subject's attacks and then merely releasing them. This phase lasted for thirty-eight ten minute sessions (Sessions 71-108).

Followup: One month after treatment phase 3 was ended, the researcher accumulated followup data to determine if the reduction in aggressive behaviors had been maintained. All recordings were made as they had been during the treatment phases of the study. Followup recording consisted of eighteen ten minute sessions.
CHAPTER III

RESULTS

Interobserver reliability during baseline observation was .80 for recording of aggressive behaviors and .75 for recording of proximity. During treatment interobserver reliability was .86 for aggressive behavior, .83 for proximity, and .82 for interaction with peers.

The effects of the treatment program are shown in Figure 1. Treatment phase 1 brought about a reduction in both aggression directed toward persons and aggression directed toward objects. Table 1 shows aggression directed toward persons as having occurred at a mean rate of 9.32 per hour and aggression directed toward objects at 4.35 per hour in treatment phase 1. Treatment phase 2 produced an increment in both behaviors instead of reducing these aggressive behaviors to an even lower rate as expected. Shortly after treatment phase 2 was ended treatment phase 3 was instituted. Figure 1 shows that shortly after this phase was put into effect a marked decrement in aggressive behaviors occurred and remained at a low rate of frequency. Table 1 shows aggression directed toward persons as having occurred at a mean rate of 7.27 per hour during treatment phase 3. This number is not actually representative of the reduction in treatment phase 3 as the aggressive behavior
Fig. 1. Frequency of Aggressive Behavior
dropped rapidly at the beginning of the phase from a high rate of frequency to a much lower rate of frequency (see Figure 1). During the last five hours of treatment phase 3 aggression directed toward persons occurred at a mean rate of 2.60 per hour and aggression directed toward objects at a mean rate of 1.40. Although these aggressive behaviors were still occurring at the end of the treatment program, they were occurring at a much lower rate than during baseline observation.

During baseline observation the subject was in proximity 37% of the intervals in which this measure was recorded. During treatment phase 3 the subject's proximity was 58%. Figure 2 shows a large increment in the number of proximities per hour occurring at the beginning of the treatment and remaining at a higher rate of occurrence. Figure 2 also shows that there was no large increment in the number of one minute intervals in which the subject interacted with his peers each hour. Unfortunately, this measure was not recorded during baseline and there is no objective way of saying he engaged in a greater frequency of peer interactions during treatment.

During followup observation, aggression directed toward persons occurred at a mean rate of six per hour and aggression directed toward objects at a mean rate of .66 per hour. The followup figure for both types of aggressive behaviors combined indicates that these behaviors
Fig. 2. Mean Number of Peer Proximities per Hour and Number of One Minute Intervals in Which Interaction Occurred.
were maintained at a lower rate than baseline performance (see Table 1). During the followup recording sessions, the subject was in proximity 59% of the intervals in which this measure was recorded as compared to 37% for baseline. Peer interaction occurred in 27% of the one minute intervals during followup. Peer interaction was not recorded during baseline. However, peer interaction occurred during 39% of the one minute intervals in treatment phase 3 so the followup figure represents a slight decrement from the treatment phase 3 figure.
CHAPTER IV

DISCUSSION OF RESULTS

As shown in Figure 1, the subject's aggressive behavior was not reduced to an acceptable rate until treatment phase 3 when the teachers became more efficient in implementing the treatment program. At this point, the aggressive behavior decreased quite rapidly shortly after the phase was instituted. At the researcher's request, the teachers began using physical contact as a reinforcer and used excitement in their voices when praising the subject. The effect of these reinforcers appears to be quite powerful.

Object aggression was not the target of any systematic control and the expected results occurred. Aggression directed toward objects appears to have decreased in frequency as a function of reduction in aggression directed toward persons (see Figure 1).

Proximity increased in frequency after the treatment was implemented (see Figure 2). This being a function of a reduction in the frequency of aggression directed toward persons is highly improbable, however, as a large percentage of proximities were interactions with peers which were reinforced.
CHAPTER V

TEACHER QUESTIONNAIRE

A few sessions into the treatment program the researcher began to realize that the only problem was not modifying the subject's behavior but also getting the teachers to properly institute the treatment conditions. After telling them several times how to properly initiate the treatment and still not achieving that goal, the researcher began to wonder if they were purposely being uncooperative; maybe resenting the researcher's presence. After the initial project of reducing the subject's aggressive behavior was completed, the researcher presented the teachers a short questionnaire as follows:

1. Do you feel that the subject's aggressive behavior was reduced?

2. If so, do you feel that this was the result of the program that I brought in or other factors? If other factors, what were they?

3. How did you feel about me coming into your program and instituting this project? Did this opinion change? If so, in what way?

4. Did this feeling effect your cooperation with the project?

5. Did you think that the project would be effective?

6. How do you feel about the techniques that were used to try and reduce the subject's aggressive behavior?
7. What parts of the project did you agree with? Disagree with?

8. If you do feel that the subject's aggressive behavior was reduced, how did this reduction effect the subject and his interaction with your program and the kids?

9. Please describe any changes you saw in the subject during and after the project?

10. Did this project effect your program? If so, in what ways?

The teachers were instructed to answer the questions as completely and honestly as possible. To facilitate honesty and frankness, they were also instructed to not sign their names to the questionnaires in order that their responses could not be identified with them individually.

These questions were designed to attain feedback concerning the project as perceived by the teachers as institutors of this project. Until after they had returned the completed questionnaires and the researcher had read their responses, the researcher did not realize the importance nor the implications of this communication.

Every one of the four teachers involved in this project felt that the frequency of the subject's aggressive behavior was reduced. That it was solely due to this program, however, was not the common belief. They believed that there were other factors facilitating or being facilitated by the project. These other factors they believed entered into the reduction were: their love for
the subject and discipline coming from love, letting the subject know that his aggressive behavior made them angry sometimes, and time in the sense of his learning to be sure that they would be consistent in their affection as well as in setting limits for him.

The staff felt good about the project at its onset but these feelings changed. From their reports the researcher learned that the program was not as efficient as first thought. Watching and interacting with twelve children, watching the subject's behavior and the researcher's card system all at once was quite difficult for the teachers. They felt pressured, nervous, as if they were being closely watched, and sometimes were afraid of doing something wrong in responding to the red and green signal cards.

One teacher in the current study also responded that she did not feel good about the project because of feelings that the researcher appeared to be quite judgmental after a while and that the researcher did not respect her beliefs on an equal footing with his own philosophy. The researcher now is more aware that he did not respect the beliefs of the teachers on an equal footing with his own beliefs but the researcher had no idea that it was apparent.

These feelings that the teachers had towards the researcher and the project did effect their cooperation
with the project. They communicated to the researcher that they tried to do as asked but that they felt that the emotions they transmitted to the subject were greatly effected. When praising the subject for interaction with his peers they had to fake enthusiasm. This bothered them. The teachers felt that emotions are so strong that children pick up on them even though one is supposedly, outwardly ignoring them. According to their viewpoint, if one is feeling anger towards a child but outwardly nonchalantly ignores him, ignoring him will be quite ineffective. For this reason, the teachers felt that ignoring is effective only to a certain extent.

With the attitude of the staff towards behavior modification being largely negative, their opinions at the beginning of the project concerning its probability of success varied from not knowing to skeptical. However, the behavior problem with the subject was getting worse and they felt they should try it. It sounded logical.

The techniques used to reduce the subject's aggressive behavior aroused mixed feelings in the teachers. They thought that the basic ideas behind the techniques were good, but also thought the techniques were a little extreme. Annoyance at having to pull away from interaction with one child to give extra attention to the subject in his interactive situation was a common complaint among
the teachers.

The reinforcement system needed some alterations from the teachers' standpoint. It was difficult for them to react quickly enough after receiving a signal before the subject had stopped doing what he was supposed to be reinforced for. This is one reason they thought it hard to be enthusiastic when reinforcing the subject. This difficulty they noticed in reacting quickly to the subject's behavior is of vital importance and is something that should always be avoided in any behavioral project. A reinforcement contingency should be presented as quickly after the response occurs as the staff can present it. The rationale for reinforcing as quickly as possible is to avoid inadvertently reinforcing the wrong response by delay of reinforcement. Close observations of children (Browning and Stover, 1971) show that there is usually an extremely rapid sequence of behaviors occurring most of the time. A delay of reinforcement of even a few seconds is enough for one or more responses to follow the one which the staff wished to reinforce. The unfortunate result is that the staff member often accidently trains a wrong response. For these reasons, it is probably a good idea not to attempt to reinforce a behavior if the staff member is unable to reinforce that behavior as quickly as possible.

The importance of being consistent in not
reinforcing a response should also be stressed. In the current study, extinction was the method used to reduce aggressive behavior. Extinction may be defined as a procedure in which the response-maintaining reinforcers are no longer available for the occurrence of the response. It has been pointed out (Browning and Stover, 1971) that it is crucial that the reinforcer never be contingent upon the unwanted response during extinction. Extinction must be a 100% continuous nonreinforcement program. If a response is reinforced at all, the reinforcement schedule is merely thinned out making the response behavior more resistant to extinction.

Browning and Stover (1971) contend that the necessity of maintaining 100% continuous nonreinforcement on an extinction schedule should be reemphasized to staff constantly. One cannot impress enough to staff that it takes only a few instances of inadvertently and accidentally reinforcing an abnormal behavior to maintain its resistance to extinction.

The researcher now realizes that this lack of 100% nonreinforcement of the problem behavior by the staff probably played a large part in maintaining the subject's aggressive behavior throughout the beginning phases of this project. The teachers periodically became frustrated with the project, for reasons already discussed, and frustrated with the subject's behavior. Due to this frustration they
sometimes ignored the requirements of the treatment procedure.

All of the teachers agreed with ignoring the subject for aggressive behavior and attending to the victim, but they also all disagreed with giving the subject attention only when he was interacting with his peers in a positive manner without displaying aggression. The researcher's contention, of which he tried to convince them, was that their attention made contingent upon interaction with peers would bring about a rapid change in the subject's behavior. With this rapid change they would be ignoring the subject for a short period of time.

The importance of the contingent aspect of teacher attention was underlined in a study (Hart, Reynolds, Baer, Brawley and Harris, 1968) in which contingent teacher attention was shown to be effective in increasing cooperative play and sharing of preschoolaged children. Adults often assume, as the teachers in the current study, that when a child is noncooperative or behaving in a hostile or angry manner, that it is because the child is not getting enough positive attention from adults. This study (Hart, et al, 1968) tested this assumption by selecting a child who only occasionally interacted in a cooperative manner with other children. This child's frequency of cooperative play was measured during a baseline period. The total amount of teacher attention directed toward the
child was then greatly increased. It was given noncontingently upon the child's behavior. This produced no change in the frequency of the child's cooperative play. Less teacher attention was then given, but was contingent upon cooperative play. There was a significant increase in the frequency of the child's cooperative play. The previous condition was then returned to and the child was given a greater amount of teacher attention noncontingent upon his behavior. This resulted in a decrease in cooperative play to baseline level. Finally, a lesser amount of teacher attention was again given contingent upon cooperative play and again produced another significant increase in the frequency of the child's cooperative play. This study provides evidence for the researcher's contention that the teacher's attention given contingent upon peer interaction would have produced a significant increase in this behavior. However, the researcher was not successful in persuading the teachers to give their attention contingently.

One teacher argued that most 2½-year-old children engage in a high frequency of parallel play but a very low frequency of cooperative play or interaction. She was stating that the subject could not be expected to begin engaging in a high frequency of behaviors not yet in his behavioral repertoire.

Parten (1932) made detailed records of 20 one
minute observations of 42 nursery school children between the ages of two and five. Social participation during each sample was classified and scored according to six categories: unoccupied behavior, solitary play, onlooker behavior (watches, but does not enter play), parallel play (plays alongside, but not with other children using the same playthings), associated play (plays with others and shares material), and cooperative and organized play.

Parallel play, the most elementary form of social behavior, was much more characteristic of young preschool children, while older ones participated more frequently in associated or cooperative play. Composite social participation scores were highly correlated with chronological age ($r = + .61$). This indicates that as children grow older, they spend more time in social interactions of an associated or cooperative sort and less time in idleness, solitary play, and onlooker behavior.

Mussen, Conger and Kagan (1963) state that these changes in social behavior could be partly attributable to the older children's increased ability to participate in more activities of a complex and cooperative nature and the teacher's and peers' pressures to participate. Also, however, older children have probably had more experiences in which social responses were rewarded. Nursery school attendance and playground involvement gives the older child more opportunities to learn that group-
centered behavior can bring gratifications. As a consequence of many experiences, socially oriented responses become stronger and the child is likely to engage in more group activities. The social interactions become more frequent and more complex. A variety of outgoing responses become more prominent in the child's behavioral repertoire. Systematic observations (Charlesworth and Hartup, 1967) indicate that four-year-olds exceed three-year-olds in four types of socially reinforcing interactions: giving positive attention and approval, giving affection and personal acceptance, submission, and giving tangible objects.

Studies such as these reported seem to support the argument of the Toddler program teacher that children of the subject's age do not have the skills within their behavioral repertoire to perform peer interactive behaviors. They also seem to imply, however, that teachers may rapidly help many children through systematic programming of their adult social reinforcements. Further research in this area is needed. Some studies now in progress (Browning and Stover, 1971) suggest that this systematic programming of adult social reinforcements may perhaps bring rapidly into occurrence only behaviors which are already available within the repertoire of the child. If the desired behavior requires skills not yet in the child's repertoire, then the process of developing those
skills may require several weeks or months. So, if the subject in the current study had a behavioral repertoire deficient of skills needed for a high frequency of social interactions with his peers, the teachers were correct in their argument. Instead of contingent teacher attention, a shaping process in which gradually more appropriate social interactions with peers were reinforced would have been more appropriate.

The reduction of the subject's aggressive behavior had a definite effect upon his interaction with the Toddler program and the other children there. The teachers thought that tension was down in the program. Because of this, it was easier for them to teach and be productive. The other children began to play more with the subject and were not afraid of him. The staff could relax a little more instead of constantly staying near the subject to try and prevent his aggressive behavior. In the words of one teacher, the subject "seemed happier, more concerned for and gentler with other kids." The staff felt easier directly after the project. One staff member felt the subject to be more affectionate with the staff and more aware that he was hurting others during and after the program. He also seemed more relaxed and settled.

However, while the project was in progress it was viewed by the teachers as having had a strong and noticeable effect upon the Toddler program. As already
mentioned, the mechanics of the project and looking after the children often put a strain on the staff. It was hard for them to adjust to the turmoil of the program. They also thought that the subject was becoming too much the main focus in the room. This made them uncomfortable as this concentration upon the subject neglected the needs and problems of the other children in the program. This uncomfortable feeling intensified the already existing tension resulting from the staff's feelings of being watched critically and performing the tasks of the project with artificial feeling and no spontaneity. One teacher stated, however, that some of the tension could easily have resulted from the subject's aggressive behavior and the problems and feelings it caused.

Is there a need for such subjective material as responses to a questionnaire in a paper dealing with an objective science of behavior? When the objective results of a project are so dependent upon the feelings and emotions of the people instituting that project, the researcher feels that ignoring such information is a mistake. The researcher believes that he initially made this mistake. His efforts at objectivity obscured what could possibly have made this reduction of the subject's aggressive behavior an easier and quicker task. If the researcher had given more attention to the feelings and opinions of the staff from the beginning of the project, a free line
of communication could have been established and maintained. This would have exposed any difference of opinion concerning specific points or problems and exposed insights into certain problems of institution. This free line of communication would have facilitated the common desire of reducing the frequency of the subject's aggressive behavior. As it was, the researcher requested and expected the teachers to feel free to communicate with him even though he did not, as one teacher responded, respect their beliefs on an equal footing with his. Without being fully conscious of it, the researcher actually refused to recognize their philosophies and insisted that they accept his. He was at the height of his naivete at the beginning of the project when he mistakenly thought, "If I tell them to do it, they will ... exactly."

After experiencing these difficulties, it is the researcher's contention that behavior modifiers should take certain things surrounding mere objectivity, staff attitudes and opinions for example, into serious consideration. If these things are not considered, especially in a design such as this in which the researcher is totally dependent upon the teachers as institutors, all of the objectivity that a science requires will be to little avail. The objectivity should follow the recognition and consideration of existing subjective factors.
In experimental behavior research it is common and expected practice to institute an experimental reversal. The procedure is to reverse the first treatment procedure. In this current study, the teachers would have reversed what they did during the treatment phases. That is, when aggressive behavior occurred, the teachers would have gone immediately to the subject and given him their full attention. In other words, they would have returned to the consequences they provided for the subject's behavior during baseline. This procedure is designed to secure reasonably reliable information on whether the experimental intervention brought about the changes in the subject's behavior. If, for example, in this study adult attention was the critical factor in maintaining the problem behavior, the problem behavior should recur in stable form under the reversal condition. If it does, this provides evidence that adult attention was a positive social reinforcer for the subject's behavior.

In some cases it is highly impractical and sometimes infeasible to attempt an experimental reversal (Stachnik, 1978). In the current study, the researcher
repeatedly urged the staff to implement the treatment conditions and even near the end of the project did not have their full cooperation and support. If after four months of this urging and having successfully reduced the subject's aggressive behavior, the researcher had presented such a request as an experimental reversal in which he wanted the teachers to return to their old habits to see if the previous rate of aggressive behavior would return (that aggressive behavior that upset their whole program), the researcher feels confident in stating that they would have immediately thrown him out the door and requested that he not return. So, in many cases such as this and some even more extreme cases (Stachnik, 1978), an experimental reversal is out of the question.

Despite the undisputed value of experimental control, the behavior modifier must ask himself whether the degree of preciseness employed in a study is truly appropriate to the problem being investigated. The behavior modifier must strive for a degree of preciseness that is compatible with the urgency and practicalities of the treatment situation. Methodological sophistication should not be so idealized that a study can never be accomplished with the current subject, nor should it be so completely renounced that the behavior modifier relies entirely on his own subjective judgment (Browning and Stover, 1971). So, as just suggested, the behavior
modifier must sometimes forfeit the preciseness attained from an experimental reversal and simply be content with accomplishing what he set out to do; to modify a problem behavior.
CHAPTER VII

ONE TO ONE MODIFICATION

With the difficulties the teachers expressed having in this project in mind, the researcher feels that the utilization of a one-to-one relationship to modify the subject's behavior would have been much more effective and practical. With a behavior modifier working on an individual basis with the subject, error could have been greatly reduced. Such problems experienced by the teachers as missing card signals and being late in reinforcing the subject's interaction with teacher attention, could have been avoided with a one-to-one basis of behavior change. Also, there would have been no coping with the problems of resentful feelings stemming from the teachers having to repetitively desert meaningful interaction with a group of children to carry out the treatment.

The researcher feels that his efforts would have been more efficiently directed if he had directly interacted with the subject, instituting the treatment conditions to reduce the frequency of his aggressive behavior. This reduction of the subject's aggressive behavior would most likely have taken much less time with the previously discussed problems absent.
BIBLIOGRAPHY


