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## Videotape peer-modeling and self-modeling with preschoolers

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**University of Nevada, Las Vegas, 1994**

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Videotape Peer-modeling and  
Self-modeling with Preschoolers

by

Kimberly Ann Smith

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in

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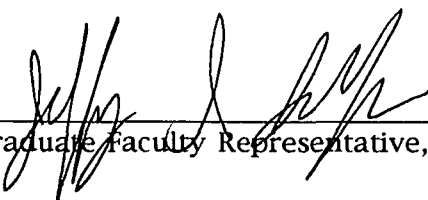
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The Thesis of Kimberly A. Smith for the degree of Master of Arts in Psychology is approved.

  
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### Abstract

The purpose of the present research was to decrease disruptive and aggressive behaviors using videotape peer-modeling and videotape self-modeling of preschoolers who were enrolled in a Day Treatment Program for emotionally and behavioral disturbed children. A multiple baseline design was used. The children received no treatment, viewed a video of a peer engaging in appropriate behavior, then the children viewed a videotape in which they were engaging in appropriate behavior, and a follow-up phase was used. Results indicated that for disruptive behaviors videotape self-modeling may have decreased the frequency more than videotape peer-modeling did. For aggressive behavior, both videotape peer-modeling and videotape self-modeling decreased the frequency of aggressive behavior. Possible reasons for the difference in outcomes between the two interventions and the two behaviors are discussed.



## Videotape Peer-Modeling and Videotape Self-Modeling of Preschoolers

Videotape modeling is viewing a model on videotape engaging in a behavior that one is not currently engaging in. Videotape self-modeling is viewing oneself engaging in some behavior, typically appropriate behavior. Either method, videotape modeling or videotape self-modeling, has been shown to be an effective means of inducing behavior change.

The success of videotape modeling is well documented (Davis, 1979; Dowrick, 1979; Dowrick & Dove, 1980; Dowrick & Raeburn, 1977; Hall & Erffmeyer, 1983; Kehle, Clark, Jenson & Wampold, 1986; O'Connor, 1969, 1972; Pigott & Gonazles, 1987), but not all individuals exposed to videotape modeling have improved. Studies that used unedited videotape self-modeling, the inappropriate behavior was not edited out, have found an increase in anxiety, an increase in inappropriate behavior, and one study reported individuals committing suicide as a result of viewing themselves engaging in inappropriate behavior (Alkine & Brunse, 1974; Schafer, Sobell & Sobell, 1972).

Although studies have documented the success and failure of videotape self-modeling, the literature has not pinpointed the reason for videotape self-modeling's effect on behavior change. There are many theories which could explain the reason for videotape self-modeling's success. Foremost among these are Attribution, Self-perception, and Social Learning theories.

### Attribution Theory

Attribution Theory attempts to explain how individuals form beliefs about the causation of others and their own actions (Heider, 1958). Attribution Theory further explains the rules which individuals

use to infer the causes of observed behavior. Individuals try to decide if an act performed by them or others has an external or internal cause. An external cause is one which is situational, something about the situation caused the individuals to behave in such a manner. An internal cause is attributed to personality, some individual trait caused the individuals to engage in the behavior.

Jones and Nisbett (1972) and others (Hung & Rosenthal, 1981), found that individuals will attribute their actions to external causes. However, individuals will attribute the same behavior in others to internal causes. For example, a person who runs a red light may attribute their indiscretion to running late. However, that same person after watching someone else run a red light will attribute the cause of the action to the fact that the person is a poor driver.

There are several reasons for the difference in interpretation. The difference between how individuals interpret other's or their own behavior could be due to the information available to them (Storms, 1973). There is a different view point between those individuals who are performing the behavior (actors) and those who are observing (observers). Actor's cannot physically observe their own behavior. They can observe the antecedent and/or consequences of the behavior but not the actual behavior. Actors may not have enough time or the mental capacity to contemplate past behavior, monitor present behavior, and plan future behavior simultaneously. Actors may focus their attention on the environment, while observers may focus on the

actor and not on the environment. Also the actors have more information about their past history, whereas, the observers may be making a judgement on just one observation.

Storms (1973) has shown that attribution change can occur by changing one's viewpoint. Storms (1973) found that by changing the visual orientation of actors and observers, their attributions changed. Actors tended to attribute behaviors more to internal causes after viewing themselves, and observers after viewing a situation from the actor's perspective, attributed the actors behavior more to external causes. By observing behavior, individuals attributions can change. Videotape self-modeling is one way to allow actors to observe their behavior from a different visual orientation.

Biggs (1979 as cited in Dowrick & Biggs, 1983) found that individuals who view their own behavior attributed their behavior to internal causes. This internal attribution tended to occur more frequently when the behavior was favorable. Findings show that individuals will give an internal cause to behavior when the outcomes are positive, but will give an external cause when the outcomes are negative (Johnson, Feigenbaum, & Weiby, 1964; Jones, Davis, & Gergen, 1961).

Kopel and Arkowitz (1975) have shown that shifting attributions result in a behavior change. If an internal cause for the behavior is given the behavior will persist (Davison & Valins, 1969; Lepper, 1973). The above studies indicate that individuals will attribute their behavior

to external causes, however, they will attribute others' behavior to internal events. By shifting individuals viewpoints, through the use of videotape self-modeling, their attributions will change which will produce a behavior change. Further, individuals observing themselves engaging in appropriate behavior with a positive outcome may produce a change in attribution, which can produce a behavior change. These attributions are established and changed with or without other incentives. On this last point Self-perception Theory differs from Attribution Theory.

#### Self-Perception Theory

Self-perception Theory consists of two parts (Bem, 1965). First, Bem states that individuals partially recognize what their internal states are by observing their own behavior. Secondly, individuals act like outside observers, relying on the same external cues as observers to infer their own inner state. In order to explain their behavior, individuals may look for cues in their environment, such as the presence or absence of incentives. Once individuals perform a behavior they can then interpret the behavior. One method to get individuals to perform a behavior, using minimal external pressures, is the foot-in-the-door-method (Freedman & Fraser, 1966).

Freedman and Fraser (1966) found that a people's initial compliance with a small request would increase the likelihood that they would comply with a larger request later. Lepper (1973) and others (Davison & Valins, 1969) found that behavior change will persist when

individuals believe that the behavior change occurred due to some internal cause. Because there was minimal external pressure present, the individuals believed that the behavior change took place due to internal causes.

Self-perception Theory posits that if a lack of external incentive to perform behavior is evident then individuals will attribute their behavior to internal causes and will persist in the behavior. Videotape self-modeling takes this idea and allows for individuals to attribute their behavior to internal causes. During the videotaping of the behavior, incentives can be available but not taped. Also through editing, different aspects of behavior can be shown together, so that incentives are not evident.

In Self-perception Theory, as in Attribution Theory, individuals are observing their behavior to determine its cause. In both Theories, behavior is believed to come first and then the explanation follows. According to Attribution Theory individuals will attribute their behavior to external causes, but attribute others' behavior to internal causes. However, according to the Self-perception Theory, individuals attempt to determine their internal state by observing their behavior. Self-perception Theory is information-processing: individuals take the available evidence (which includes overt behavior) and then make a decision about their attitude.

Both theories assume that individuals' attitudes are influenced by their behavior. These theories address why behavior change occurs.

However, these theories do not adequately address how behavior change occurs. Bandura's Social Learning Theory more thoroughly addresses how behavior change occurs and does not examine individuals' attitudes, only the consequences of their behavior.

### Social Learning Theory

According to Bandura's Learning Theory individuals learn new behavior through observing other's behavior (Bandura, 1969). Learning through observing others is known as either observational learning or vicarious learning. In vicarious learning one learns new behaviors by observing the behavior of others and the consequences of that behavior. Observers do not need to perform the new behavior while viewing it. In fact, it has been shown that observers can wait for weeks to perform the behavior and still be successful at performing it (Hicks, 1965).

There are three methods which observers can use to view appropriate behavior being performed: live (person in room), symbolic (filmed), or imaginal (imagine an individual performing the appropriate behavior). When individuals observe a model either through live, symbolic, or imaginal modeling, more than the behavior is demonstrated. Observers also view cues and the situation in which the model's behavior occurs (Bandura, 1965). Thus observers view the behavior and the relevant situational stimuli that accompanies it.

Modeling has been shown to be effective in changing behavior (Bandura, Blanchard, & Ritter, 1969; Davis, 1979; Dowrick, 1979; Hicks,

1965; Stokes & Kennedy, 1980). However, there are processes which can dilute modeling's effectiveness; attention, retention, motor reproduction and motivation (Bandura, 1969). If individuals are not paying attention to what is being modeled, they are unable to retain what was observed and minimal learning will occur. In addition, observers may not be able to reproduce the behaviors. At any time during the process, motivation may falter so that individuals may not learn all the appropriate behaviors or may not be motivated to reproduce the appropriate behaviors. Both internal and external processes can dilute modeling's effectiveness. Attention, retention, and motivation can be viewed as internal processes. One external process that can dilute modeling's effectiveness is whether the subject observes a coping or a mastery model. A coping model is a model that performs the target behavior in successive steps, whereas a mastery model is a model which performs the target behavior the first time (Meichenbaum, 1971).

Another external factor that can effect modeling's outcome is whether the model gets rewarded, punished, or if there is no consequence to the model for the behavior. Walters and Thomas (1963) demonstrated that the consequences of the model's behavior influenced how effective modeling was on the observer's behavior. Depending on the consequences of the model's behavior, the observer may increase self-controlling responses or increase aggression and non-compliance. Grosser, Polansky, & Lippitt (1951) supports Walters and Thomas (1963) findings.

Studies have shown that individuals who observe symbolic (filmed) models engaging in aggressive behavior without adverse consequences, displayed increased aggression (Hicks, 1965; Walters & Thomas, 1963). Further, individuals in a control group who did not observe symbolic models did not display the same level of aggression. In Hicks' (1965) study, children who observed a male peer model engaging in aggressive acts without adverse consequences, were more likely to increase their own aggression acts after viewing the film. When observed six months later, those children who had observed an adult male model engaging in aggressive acts without punishment showed increased aggression. Other studies (Walters & Parke, 1964, Walters, Parke & Cane, 1965) indicated that if a peer model is either rewarded or not punished for a transgression, observers are more likely to transgress than those who observed a peer model who was punished for the transgression. The findings of the above studies indicate that the type of deviant behavior measured does not influence the observers' behavior. It is the consequences of the model's behavior that influence the observers' behavior.

The literature indicates that modeling is effective in producing behavior change. Modeling is most effective when the model possess similar characteristics as the observer. Videotape self-modeling takes that basic premise and creates a model which individuals can identify with, namely themselves.



### The Theory Of Videotape Modeling

The theories presented can all add to the understanding of how and why videotape modeling is effective. Modeling has been shown to be effective in increasing behaviors, even with behaviors that one does not wish to increase, such as aggression.

It has been shown that when individuals identify with models similar to themselves behavior change occurs (Bandura, Grusec, & Menlove, 1967). Videotape self-modeling offers a highly similar model, oneself, and has been shown to be effective in producing behavior change (Aker, Tourangeau, & Staines, 1976; Melnick & Stocker, 1977). An advantage of videotape self-modeling over traditional modeling techniques is that videotape self-modeling allows individuals to view themselves behave in ways that are relevant to them. Viewing oneself engage in only appropriate behavior can be much more attractive than viewing someone else engage in the behavior. Individuals are more likely to identify with themselves than an unknown model. Identifying with the model makes the goal of achieving appropriate behavior easier to reach.

Some may argue that just the exposure to being videotaped would bring about change, but studies have shown this is not the case (Hung & Rosenthal, 1981; Melnick & Stocker, 1977). Social Learning Theory adds to the knowledge of how videotape self-modeling is effective by giving a foundation as to how effective modeling is in producing behavior change. Attribution Theory and Self-perception Theories add to the

knowledge by answering the question as to why videotape self-modeling is effective.

Attribution Theory forwards that when individuals change their attribution then their behavior changes. An effective way to change attributions is to change individuals viewpoints, to have actors become observers. Videotape self-modeling allows actors to become observers, thus assisting in producing an internal cause for behavior. When individuals view themselves engaging in appropriate behavior, they will attribute the behavior to internal causes, thereby producing a behavior change. According to Attribution Theory, individuals will attribute their behavior to internal causes because they are following the same rules as observers. According to Self-perception theory, individuals will attribute their behavior to internal causes if they can not identify a high extrinsic justification for their behavior. Videotape self-modeling can allow individuals to view themselves performing appropriate behavior without any apparent extrinsic justification. During the videotaping there may have been an extrinsic justification, but during filming this is not shown. Therefore, individuals can view themselves engaging in appropriate behavior without the extrinsic justification being shown. As no extrinsic justification is apparent an internal cause for the behavior will be assumed.

Parts of all three theories can add to the understanding of how videotape self-modeling is effective. Attribution Theory and Self-perception Theory state that giving an internal cause to behavior will

produce a change. Each theory explains how to produce an internal causality differently. Putting the differences together creates videotape self-modeling. Attribution Theory states changing the viewpoint brings about attribution change, while Self-perception Theory forwards that lack of extrinsic justification will produce an attribution change. Videotape self-modeling combines these two ideas. Individuals can view themselves engaging in appropriate behavior, thus becoming the observer, while a lack of extrinsic justification is apparent.

After an attribution change has occurred, behavior change occurs and is maintained. Social Learning Theory explains how the change occurs and is maintained. Social Learning Theory studies have shown that individuals are more likely to perform a modeled behavior, when models are similar to the observer (Bandura, Grusec, & Menlove, 1967) and when the model receives reinforcement or no consequences for the behavior (Hicks, 1965; Walters & Parke, 1964; Walters, Parke, Cane, 1967; Walters, & Thomas, 1963). A similar model could include one self. Therefore, videotape self-modeling would be effective when using oneself and a small reinforcer. The small reinforcer would be perceived as a low extrinsic justification while serving to reinforce the behavior. In sum, all the theories add to the knowledge of how and why videotape self-modeling is effective.

The above discussion focused on reasons that modeling may work. The focus of the next section is on studies that show videotape self-

modeling is an effective intervention. Videotape self-modeling has been used to change a variety of behaviors with various age groups. The focus of this review will be on children with disruptive and/or aggressive behavior. Videotape Self-modeling has been defined as observing oneself on videotape engaging in a target behavior (Dowrick & Biggs, 1983). The majority of studies attempting to determine the effectiveness of videotape self-modeling with children have used single subject designs (Davis, 1979; Dowrick, 1979; Dowrick, 1978; Pigott & Gonzales, 1987). Often the number of subjects in the study is one and therefore, no control group is used. Instead, the efficacy of videotape self-modeling using a single subject design is often measured against a no treatment baseline condition, in which pre-intervention and post-intervention behavior is compared. A variety of behaviors have been examined by studies using the no treatment comparison design.

Studies have often utilized special education classrooms to determine the effectiveness of videotape self-modeling. Davis (1979) conducted a study in a special education classroom. All the data was collected by the teacher's aide and neither the teacher nor the teacher's aide were blind to the children's participation and progress in the study. Although data was collected on three children, only one child's data was reported. The child was an eleven-year-old fourth grade student who had behavior problems in the classroom. The study targeted two behaviors; fighting and inappropriate responses to the teacher's imposition of control. The baseline data were collected for two

weeks. The student, Eric, viewed a tape for ten days in which he had role-played the appropriate behavior. He then viewed another tape for ten days in which he was responding appropriately to the teachers' control. During the intervention phase, Eric fought once. After that there were no more fights observed. During the post intervention phase, Eric had two days out of ten in which he made inappropriate responses. This study showed that videotape self-modeling can be used for more than one behavior with children who have a lowered mental capacity.

The above study focused on decreasing inappropriate behavior in children with a lowered mental capacity. Other studies have focused on increasing appropriate behaviors in these children. A single case study was performed utilizing a four year-old retarded hyperactive boy (Dowrick & Raeburn, 1977). The purpose of the study was to enhance age appropriate self-directed play. Baseline data was collected for fifteen minutes, three days a week for three weeks, by two trained observers who were "blind" to the subject's current phase of treatment. The observers recorded the duration of play activity of the child. Data was collected in the same manner for two weeks, when the child was medicated with Haloperidol. Two videotapes, six minutes in length, were made. One, the treatment videotape, showed the boy engaging in continuous play activity. The second, non-treatment videotape, showed the child acting as he usually did. The child viewed one of the videotapes before a play session. While viewing the videotapes, the

child was sometimes on medication, other times he was not. The child viewed the two tapes for three weeks while on medication. The order of the tapes was no treatment film, treatment film, and then no treatment film. Medication was then withdrawn and the child viewed the no treatment film for two days and then the treatment film for five days. The viewing of either tape while either medicated or non-medicated lasted for six weeks. The results indicated that the inappropriate behavior decreased. However, the change was not a steady increase in appropriate behavior. Rather, it was a stepwise function that started at 20 percent and ended at 90 percent. Follow-up data collected by observation one week, four months, and six months after intervention showed that improvement was maintained.

Other studies have attempted to increase appropriate behavior in the absence of disruptive behavior. Pigott and Gonzales (1987) focused on increasing positive behaviors in an electively mute third grade boy. The investigators attempted to increase the boy's answering of questions which were directly asked of him and also increase the boy's volunteering rate for answering questions asked of the class. All data was collected by trained observers who counted the frequency of times the boy was asked a question by his teacher, the number of times he answered the question in a loud voice, and the number of times he raised his hand to answer a question asked of the entire class. A multiple baseline design across behaviors was used. Baseline data, consisting of three observations, was collected over a three week period,

and then a videotape of the boy answering direct questions and volunteering to answer questions was produced. The boy viewed the answering direct questions videotape prior to school for two weeks. His parents gave him mild praise while he viewed the videotape. Intervention data was collected for three weeks. At the completion of the intervention data collection for the first tape, the second tape showing the boy volunteering to answer questions was used. This tape was also viewed prior to school for two weeks while the parents gave mild praise. The intervention data was collected for three weeks. The results indicated that videotape self-modeling had a significant influence on behavior. The first tape viewed, answering direct questions, produced a responding rate of 80 percent up from a responding rate of 0 percent. After viewing a tape of himself volunteering to answer questions his volunteering rate rose from 60 percent to 80 percent. No follow-up was conducted.

Another positive behavior that studies using videotape self-modeling have attempted to increase includes verbalizations. A single subject study using a multiple baseline design was completed to show how videotape self-modeling could be used to increase verbalization and sociability of a withdrawn five year old (Dowrick, 1979). Three videotapes were made for this study. The first videotape depicted the five year old, Charles, approaching peers. The second depicted Charles engaging in non-verbal interactions, and the third videotape showed Charles engaging in verbalizations. Due to the child's

lack of verbalization, medication (5 mg. diazepam) was used to increase verbalization for videotaping. Charles began to chat fluently with a companion and a videotape of this was made for later viewing.

In order to videotape Charles approaching a peer group and performing non-verbal interactions, a videotape was edited. Twice a week Charles viewed a different videotape for three minutes, at a Child Psychiatric Unit for a total of thirteen weeks. After viewing one of the videotapes, Charles was placed in a playroom for twenty minutes with an individual who was blind to the experiment. Activities that demanded frequent cooperation between children were arranged.

Two observers, one the experimenter and another who viewed a videotape of the session at a later time, recorded Charles behavior. Results indicated that Charles exhibited an increase in verbal interaction. Follow-up data collection was completed by telephone contacts with the mother three months, six months, and one year later. The mother who kept daily ratings indicated that Charles had not regressed.

Videotape self-modeling has also been used to decrease inappropriate behavior in children. Dowrick (1978) used self-modeling to improve parent-child relations. Two videotapes were made. One showed the child playing cooperatively with his mother and the other showed his mother socially rewarding the child. Trained observers recorded the behavior of the mother and child three times a week for twenty minutes. The mother recorded the child's tantrums and



aggression throughout the day and rated overall cooperativeness for the day on a five point scale. An ABCA design was used. After the baseline phase, film A, the video showing the child playing cooperatively, was viewed by both mother and child. Film A was viewed for one week and then film B, the video showing the mother socially rewarding the child was viewed by both the following week. Baseline data was again collected. Follow-up data was collected by telephone conversations and observations at the treatment center one, three and six months later. No statistical analysis was reported, but the graphs depicted behavior change in the predicted direction.

Only three studies used a control group when determining the effectiveness of videotape self-modeling with children. In 1986, Kehle, Clark, Jenson, and Wampold used self-modeling for four male students, age range ten to thirteen years, who were in a special education classroom that employed the token system. The purpose of the study was to reduce disruptive behavior. An ABA withdrawal design was used. Trained observers recorded the behavior of the experimental group and the one control subject. The baseline gathering lasted from four to six days. During the intervention phase each child viewed their edited videotape for eleven minutes for a period of five days. After completion of the intervention, disruptive behavior was recorded for six or seven days. Six weeks later a follow-up was conducted that consisted of data collection for three days. Disruptive behavior decreased from 75 percent occurrence before the study to 30 percent occurrence after

intervention. The one control subject viewed an unedited videotape, no tape, and then an edited tape. After viewing the edited tape the control subject's behavior decreased. For all subjects the effects were immediate, dramatic, and were shown to be maintained in the follow-up six weeks later.

Other studies using groups as opposed to single subject studies and videotape peer modeling, as opposed to videotape self-modeling, to increase social interactions have also been conducted. A twenty-three minute film depicting social interactions between children with positive consequences and a narrative sound track to emphasize the appropriate behavior was shown to six nursery school children (O'Connor, 1969). The control group (N=7), observed a neutral film about non-human characters. Immediately after viewing the films, the children from both groups were returned to their regular classrooms and observed for social interactions. The control group remained unchanged whereas the other group had significantly higher rates of social interaction. An informal follow-up was conducted by surveying teachers blind as to the children's group membership. They rated only one of the six treated children as isolative and four of the seven control children as isolative.

O'Connor (1972) did a second experiment to increase positive peer interaction in which shaping was added as a variable. This study also used a control group which did not view the peer videotape but did receive the shaping component of the study. Shaping was used alone or

in conjunction with the videotape. Shaping alone did not have a significant impact on the children's behavior. Videotaped peer modeling yielded the highest rate of positive peer interaction. A three and six week follow-up phase completed by a trained observer counting behavior showed that improvements were maintained for the videotape peer modeling plus shaping and videotape peer modeling only groups.

A study in which more than one subject was used and in which both a control group and comparison of different treatment methods was used has been completed. McCurdy and Shapiro (1988) compared the effects of observing a peer or oneself modeling appropriate classroom behavior. Five children (age range nine to eleven years old) who were in a classroom for socially and emotionally disturbed children were the subjects of the study. A multiple baseline design across conditions was used. When producing the videotapes the experimenter instructed the children to show their best behavior to the cameramen. After baseline data was collected three subjects observed a peer videotape for two weeks and then observed a video of their self for two weeks. Another subject after baseline, observed a video of their self and then follow-up data was collected. The last subject after baseline data observed a self video and then observed a peer video. After each session of viewing the videotapes the children were offered a snack. Treatment effects differed for all subjects and no statistical analysis was reported. However, graphs depicting a decrease of inappropriate behavior was

provided. No follow-up data was collected for the subjects except for the fourth subject who viewed only the self video.

These studies have shown that self-modeling can improve various behaviors. However, all of the studies have limitations. For example, the subjects were not exposed to other methods of behavioral change, with the exception of the special education class (Kehle, Clark, Jenson & Wampold, 1986). According to the Hawthorne effect, the children may have responded to any intervention that was implemented. In order to determine if the change in behavior was due to the Hawthorne effect or due to the intervention, videotape self-modeling should be the second behavioral technique the children encounter. In order to clarify if the videotape self-modeling or the first behavior technique was responsible for the change, a multiple baseline design or control group which only receives one treatment method other than videotape self-modeling should be used.

The majority of the studies utilized single subject designs and often had no control groups or did not compare videotape self-modeling with other treatment methods. The one study (McCurdy & Shapiro, 1988) which did compare videotape self-modeling to another treatment method peer modeling, reported no significant results. A possible reason this study did not find significant results is that although the children were given treats if they went to the viewing room, the snack was not contingent on viewing the video. In order to receive the snack, the children may have went to the room but not attended to the video.

Other reinforcers could have influenced the outcome of this study. In the classroom the children were given reinforcers for appropriate behavior. This reinforcement system was in place before the study started, which could have set up a reinforcement history for the students. This history could have influenced the children's behavior. The previous reward history is an example of a limitation of one study. Addressing some of the limitations of the reviewed studies is the purpose of the current study.

The current study was designed to overcome the methodological limitations of the previous studies. The subjects were preschoolers who have behavioral, emotional and/or social problems and are in a controlled setting that utilizes behavioral management techniques. As the children are already enrolled in a program in which they are receiving treatment, the videotape self-modeling will not be the first intervention method they have encountered. This study used a multiple baseline across behaviors design to demonstrate that videotape self-modeling can decrease inappropriate behavior (aggression and disruptive behavior). The children received no treatment, then viewed a video of a peer engaging in appropriate behavior, and finally the children viewed a videotape in which they were engaging in appropriate behavior. This design allowed videotape self-modeling to be compared to peer modeling and the treatment program in which they were enrolled. All data were collected by three trained observers who counted the occurrence of inappropriate behavior. The follow-up data

collection was completed two and one-half weeks after the intervention was withdrawn. The hypothesis was that videotape self-modeling will assist in decreasing the frequency and intensity of acting-out behaviors.

### Methods

#### Subjects

Prior approval for this study was granted by the University of Nevada, Las Vegas' Institutional Review Board on August 27 of 1993. Four preschool children, age four years old, participated in the study. The children were enrolled in a Day Treatment Program, that serves children with emotional and behavioral problems. After the children's parents and legal guardians gave permission, the children were allowed to participate. As the children were not cognitively capable to give their permission to participate, they were not asked. However, if the children refused to view the videotape or verbally stated that they did not want to leave the classroom, they would have been withdrawn from the study.

#### Setting

The Day Treatment Program is part of the Early Childhood Intervention Program at Children's Behavioral Services in Las Vegas, Nevada. The clients of the Day Treatment Program attend for two and one half hours per day, four days per week. There is a maximum of eleven children in the classroom. The classroom is set up similar to a

community preschool, in that the children engage in developmental learning activities, free play times, and structured group activities.

The Day Treatment Program was directed by a graduate level therapist, with training in early childhood special education. There were two undergraduate level teachers, with training in secondary education and special education, who were responsible for the coordination and implementation of the classroom activities. Regular participation of the client's parents or guardians was required as part of the treatment.

The Day Treatment Program utilized a variety of techniques to bring about behavioral change in the clients. Some of these techniques included verbal praise, rewards (primary, secondary), ignoring, time-out, activity rewards, token systems, and verbal or physical prompting. Various other counseling options were also available for the families and children of the Day Treatment Program.

#### Procedures

Three trained observers gathered baseline data for up to two weeks using a multiple baseline design across behaviors. This design is one in which the length of baseline for subjects differ for each subject. The reason for the difference is that a subject will begin a treatment and other subjects will not begin the treatment until the first subject is finished with the treatment.

The observers were trained by first defining the behaviors to record (see Appendix A). Second, the observers watched a videotape of

actors and recorded the behavior. The watching of the videotape continued until the observers and the experimenter understood which behaviors were to be recorded and which were not. Then the observers went into the classroom where the study was to take place and recorded the children's behavior. Again, this process continued until everyone agreed on the behaviors to be recorded. Only after interrater reliability reached acceptable levels was data collection started.

Data was collected for all phases. Data was collected during large group and inside and outside play time, for approximately one hour a day. Disruptive behavior was recorded during the large group setting, and aggressive behavior was recorded during inside and outside play. All the observers agreed on the definitions of disruptive and aggressive behavior (see Appendix A). The following behaviors were counted: crying/whining, noncompliance (not doing as requested by the third request, behavior requiring a time-out or needing physical help to comply to request), calling out, noise making, and touching others without their permission and aggression. Aggression was defined as touching with force such as: shoving, punching, slapping, smacking, and kicking and other behaviors such as spitting, or throwing objects was also defined as aggressive acts. Each occurrence of aggression during large group and free play was counted.

The experimenter created the videotapes by filming the activities in the Day Treatment classroom over a period of two days. The entire class was filmed, to avoid the experimental subjects awareness of being



singled out. The experimenter edited the tapes so that they depicted the children engaging in only appropriate behavior in three settings. The tapes showed the children acting without disruption in large group and playing without aggression during playtime both inside and outside. Each setting was shown in the videotape for one minute, making the tape three minutes in length. The subjects viewed a tape of peers acting without aggression or disruptive behavior and then viewed a tape of themselves acting without aggression or disruptive behavior. They had the opportunity to view each tape ten times, a total of two weeks, at the Day Treatment Program. The volume on the television was turned down, so that complete attention could be focused on the behavior. The videotapes were viewed outside of the classroom, at the start of the day. The participants were not given a reinforcer.

Data was collected daily during all phases. The follow-up was completed by counting behaviors in the same manner as the other phases, after the subject had completed viewing the videotape of their self engaging in appropriate behavior. Large group was a ten minute structured group, free play inside is twenty minutes and outside play is fifteen minutes.

### Results

Three trained observers recorded the children's behavior. Inter-rater reliability was determined by using a Pearson  $r$  correlation. Before the study inter-rater reliability was  $r=.98$  for aggression and  $r=.93$  for disruptive behavior. Throughout the study inter-rater

reliability was reassessed. During the study inter-rater reliability was  $r=.90$  for disruptive behavior and  $r=.92$  for aggressive behavior. The observers counted behavior of four subjects, however, due to time constraints only baseline data was gathered for one subject and that data will not be reported.

The baseline for subject one was erratic and variable. During the intervention phases the subject's behavior continued to display an erratic and variable pattern. This subject showed an increase in disruptive and aggressive behavior during the two intervention phases. After the interventions were withdrawn the subject's behavior returned to baseline levels (see Table 1). In Table 1, two means and standard deviations are shown for subject one in the follow-up phase. The reason is that there is an outlier in the data. On day thirty-seven the child's behavior was twice as high as normal for that child. Therefore, the mean and standard deviation were calculated with and without the outlier. The top mean and standard deviation is calculated without the outlier. Without the outlier the follow-up phase is closer to baseline.

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Insert Table 1 about here

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Insert Figure's 1 & 2 about here

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Subject two displayed an erratic baseline; there was a pattern of high and low disruptive behavior displayed. Before intervention was started the subject's behavior showed a decrease and leveling off. Subject two's disruptive behavior increased during the peer-modeling phase, however during the self-modeling phase the disruptive behavior decreased. The baseline for aggressive behavior was stable and displayed an even pattern. Subject two displayed a steady decrease in aggressive behavior throughout the phases.

During baseline for disruptive behavior, subject three showed an increase in behavior. However, this was not a steady increase. There were some lower points, so that on average the subject was displaying the same level of disruptive behavior throughout baseline. Subject three continued to show an increase in disruptive behavior during the peer-modeling phase. The increase in disruptive behavior clustered at a high level without many lower points. For aggressive behavior the baseline was stable before intervention was started. Subject three displayed a decrease in aggressive behavior when the peer-modeling intervention was started.

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Insert Figure's 3 & 4 about here

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### Discussion

This study examined the effects of videotape peer-modeling and videotape self-modeling on both disruptive and aggressive behaviors of

preschool aged children. The results of this study indicated that videotape self-modeling and videotape peer-modeling were partially effective in reducing aggressive behavior. Two of the three subjects' aggressive behaviors appeared to decrease when the peer-modeling were introduced. For subject two videotape self-modeling was effective in reducing aggressive behavior. However, videotape peer-modeling and videotape self-modeling did not have the same effect on disruptive behavior. Videotape peer-modeling may not be an effective means of reducing disruptive behavior, although videotape self-modeling may be. Subject's two and three displayed an increase in disruptive behavior when peer-modeling was introduced. Subject two's behavior decrease when videotape self-modeling was introduced. Subject one was diagnosed by the agency as being Anxious. As the videotape interventions did not appear to work for this subject, videotape self-modeling and videotape peer-modeling may not be an effective intervention for anxious individuals.

Subject one's frequency of disruptive and aggressive behavior increased during both interventions. After withdrawing the interventions, the subject's behavior reduced to baseline frequency levels. Subject one was given a diagnosis of anxiety disorder by the therapeutic day care that this study was conducted at. Anxious behavior was displayed during the large group setting by the subject's constantly playing with a ball or wand which the subject was given so that she would not bite her fingernails. The increase in subject one's behavior

could have been due to increased anxiety. When subject one's mother was shown in the videotape the subject appeared to become excited. A possible reason that the subject's behavior increased is that the subject did not like the peer that was shown or developmentally may not be as influenced by peers as by family. The solution would be to have a family member role model for subjects who do not identify with their peers but do identify with family members. Self-modeling may not work for individuals who have difficulty watching their self on videotape. Essentially, the disruptive behavior recorded appeared to be a function of anxiety rather than the conduct problems that videotape modeling treatment regimens are designed to target.

An underlying assumption of videotape self-modeling is that the observer likes watching their self on videotape. According to Sampson and Insko (1966) a person's judgement will change to match someone whom they like, or they will change their judgement to be different from someone whom they did not like. If the child watching the videotape did not like their self, they may perform behavior that is opposite of the image of their self shown in the videotape. Subject two and three increased their disruptive behavior when viewing the peer-modeling tape. If the children did not like the peer-models perhaps they changed their behavior to be different from the models.

The tapes were three minutes, each setting was shown for one minute. The three settings, large group, outside and inside play, that the observers recorded were shown in the videotape. When viewing the

tapes the children had difficulty paying attention. One possible reason for the children's inattentiveness could be due to the lack of sound from the tape. When viewing the videotapes the sound was turned down so that the praising that occurred in the classroom would not be heard on the tape, thus confounding the study. Also, according to Self-perception Theory if there is a lack of extrinsic justification individuals will attribute their behavior to internal processes. Therefore, if there was no sound the subjects would attribute their behavior to internal causes. After they attributed their behavior to internal causes they would maintain behavioral changes. However, without sound the children became restless and began to look around the room when they realized that there was not going to be any sound with the video. The lack of volume could have added to the lack of motivation of the children to watch the videotape.

Bandura (1969) stated that there are several processes that can interfere with the success of modeling. One of these processes is motivation. If decreased motivation occurs the subject may not learn all the appropriate behavior or may not be motivated to reproduce the appropriate behavior. When viewing the peer-modeling tape the subjects had to be redirected several times to sit down. Subject two and three wanted to play with other things in the room and did not want to view the peer-modeling tape. Subject three asked several times when the subject would be seen in the video. During the self-modeling tape subject two did not have to be redirected to sit down and viewed the tape

while sitting down. However, on occasions during the self-modeling videotape the subject appeared bored and would look around the room.

The hypothesis that videotape self-modeling would be more effective than videotape peer-modeling was not supported with aggressive behavior. Subjects' two and three aggressive behavior decreased during peer-modeling, and subject two's behavior continued to decrease during self-modeling. The subjects viewed the same videotape for disruptive and aggressive behavior. The subjects viewed others and themselves engaging in appropriate play situations in two different settings, inside and outside play. So that the children were exposed to two minutes of non-aggressive behavior, whereas they were only exposed to one minute of non-disruptive behavior in large group. The difference in the results between disruptive and aggressive behavior may be due to the length of time spent observing appropriate behavior.

Due to time constraints, getting trained observers to continue to record data became impossible. Trends in the data would have been more evident had the study continued. The trends could have supported or refuted the above hypothesis as to the reasons for the difference between subjects one and two. Both subjects' disruptive behavior increased during the peer-modeling intervention. However, subject two's disruptive behavior decreased during the self-modeling intervention. As subject three seemed to be following the same pattern as subject two, it would be informative to find out if that subject would

decrease disruptive behavior after viewing the self-modeling videotape. Also the trends would have been clearer if the acting out rate of the subjects were higher. Throughout the study, all subjects displayed a high variability between inappropriate and appropriate behaviors. If the study was able to continue, perhaps the variability would have decreased and stronger results could have been reported.

Future studies could guard against the difficulties that arose in this study by assuring that the observers are available for more than one semester and that the children have a high frequency of acting out behaviors before the study begins.



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## Appendix A

### Definitions for Observation:

#### Disruptive Behavior during Large Group

Counting of disruptive behaviors will start when the teacher indicates that group has started, "Ok, let's get started", "Let's go over the group rules". Touching of peers in any form, looking away from the teacher, whispering to peers or adults, biting fingernails, pulling on or chewing on clothing, twirling or chewing on hair, uncrossing legs are to be counted. If a child begins to rock their body counting will occur when they begin, count each occurrence after a pause. If they pound their feet or hands, again count pounding as one occurrence, after each pause count again. If the child is rocking and twirling their hair that is two different behaviors and should be marked as two. Calling out will be counted when the teacher indicates that a certain child is asked a question and the subject answers the question, also if before group the teacher stated that when a question is asked the children are to raise their hand and wait to be called upon. If the child calls out the answer after the rules have been explained, even if their hand is raised, this will be counted.

#### Physical Aggression

Throwing objects that are not meant to be thrown (chairs, blocks, cars etc.). These objects do not have to be thrown at anyone to count, the object just has to be thrown. Objects that are meant to be thrown,

even if they are thrown at another person will not be counted (balls, frisbees etc). We will not determine if malicious intent was present. Hitting, pounding, kicking or slapping others is aggressive. If the child displays these behaviors against objects, such as walls, cabinets etc., while standing or sitting this will be counted as aggressive. Spitting at others, the child must direct the spit at another to be counted. Leaning towards another in an aggressive posture, fist clenched, eyebrows narrowed, curled lip etc. If the child leans their head and pauses and then leans their body that will be two occurrences. If they lean their body and head at the same time that will be one occurrence. If a child raises their hand with an angry face or the other person jerks away this would be aggressive. An angry face could be narrowed eyes, curled lips, or puckered lips. If the child raises their hand and pauses and then moves their hand that would be two occurrences. Any time there is a pause between aggressive acts that indicates another aggressive act. Slamming objects is aggressive. Slamming objects is defined as when an object is put down on the floor or table or other object with such force as a noise above what would be normal for that toy to make is made. Banging cars together is also aggressive. Each time the car is banged against another will be counted as an aggressive act. Other objects that are not intended to be banged together would also be counted. Banging objects such as blocks would not be counted.

Verbal Aggression will be counted as curse words said in any tone of voice such as bitch, fuck, shit, hell, fuck-you, mother-fucker, fag,

pussy. Threatening phrases such as "I'm going to kill you", " I'm going to cut you" "get out of here" are also considered to be verbal aggression.

Also when the child raises their voice this will be counted as a verbal aggression. Verbal and physical aggression can occur at the same time, count each occurrence. Also if aggression occurs during group it will be counted as aggression, not as disruptive behavior.

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Table 1  
Disruptive Behavior

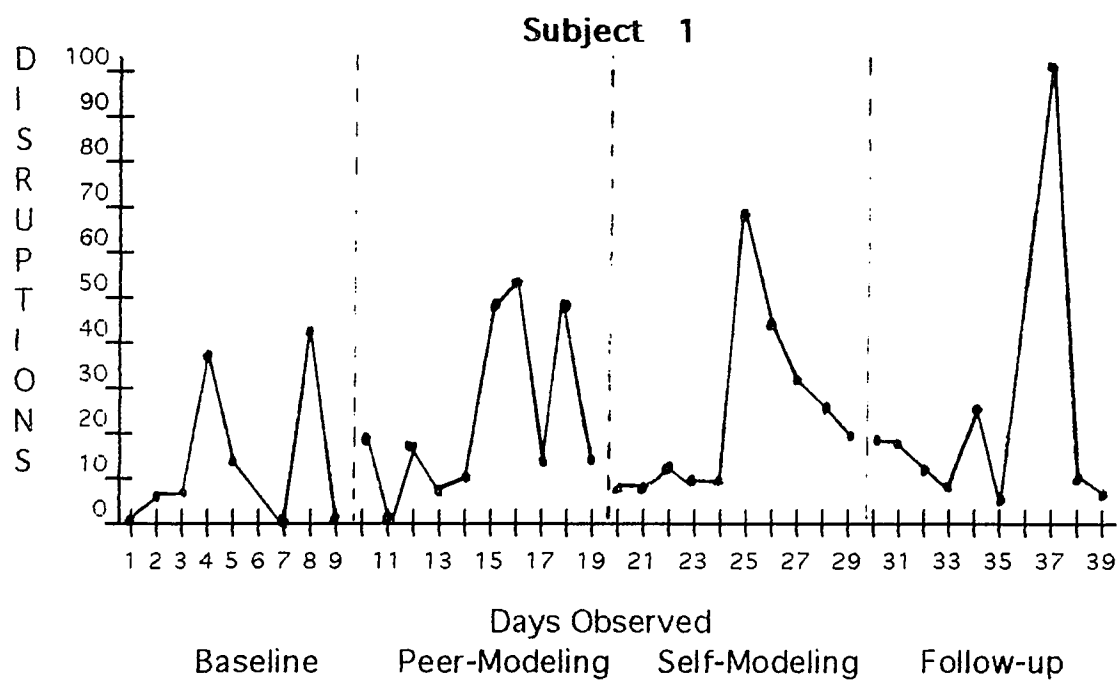
Subject	Baseline		Peer-Model		Self-Model		Follow-up	
	X	SD	X	SD	X	SD	X	SD
One	13.03	17.04	23.27	18.83	25.05	18.83	14.86	8.36
							24.32	29.43
Two	6.94	8.01	11.17	17.23	7.53	5.38		
Three	20.59	10.05	50.25	20.91				

Aggressive Behavior

Subject	Baseline		Peer-Model		Self-Model		Follow-up	
	X	SD	X	SD	X	SD	X	SD
One	.96	1.76	3.41	3.49	10.58	11.76	1.07	2.54
Two	1.44	2.10	.91	1.39	.33	.56		
Three	5.33	4.57	3.89	3.14				



## Subject One's Disruptive Behavior



Missing points indicate subject's absence

Figure 1

# Subject One's Aggressive Behavior

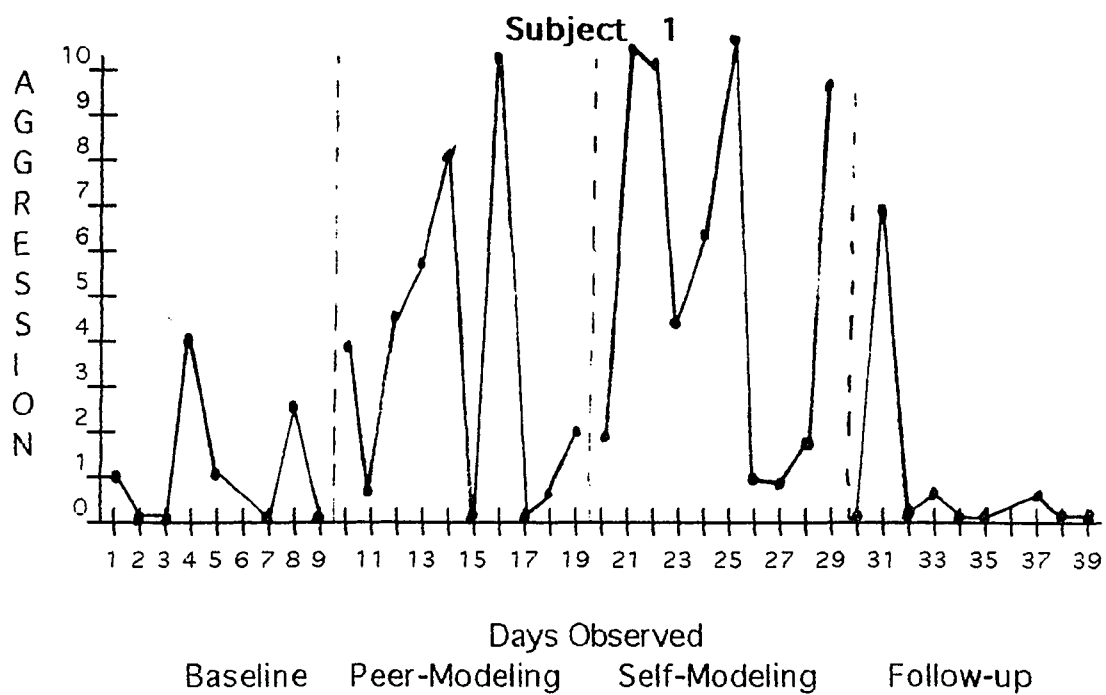


Figure 2

Subject's Two and Three Disruptive Behavior

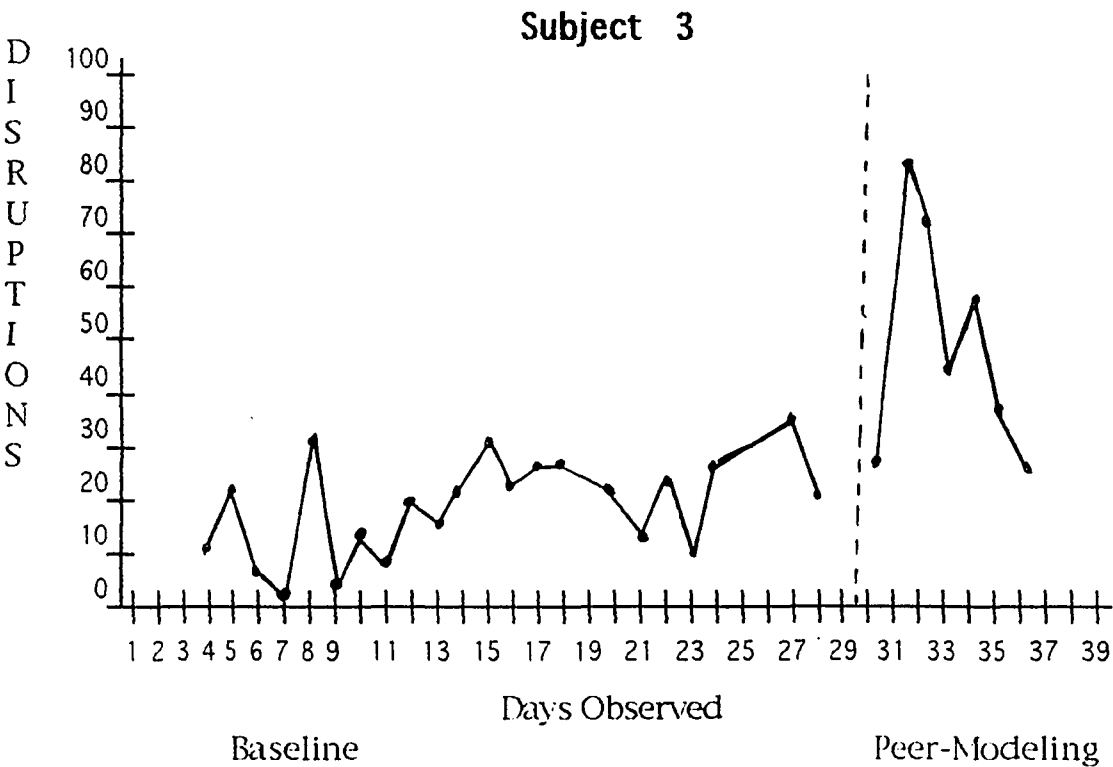
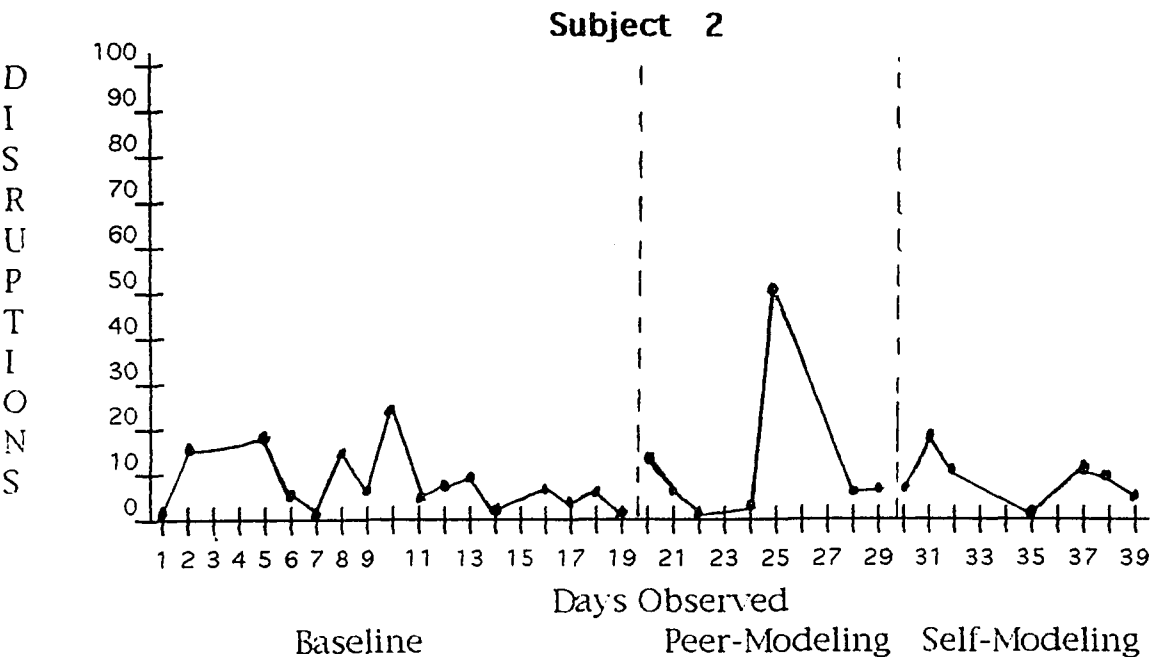


Figure 3

# Subject's Two and Three Aggression

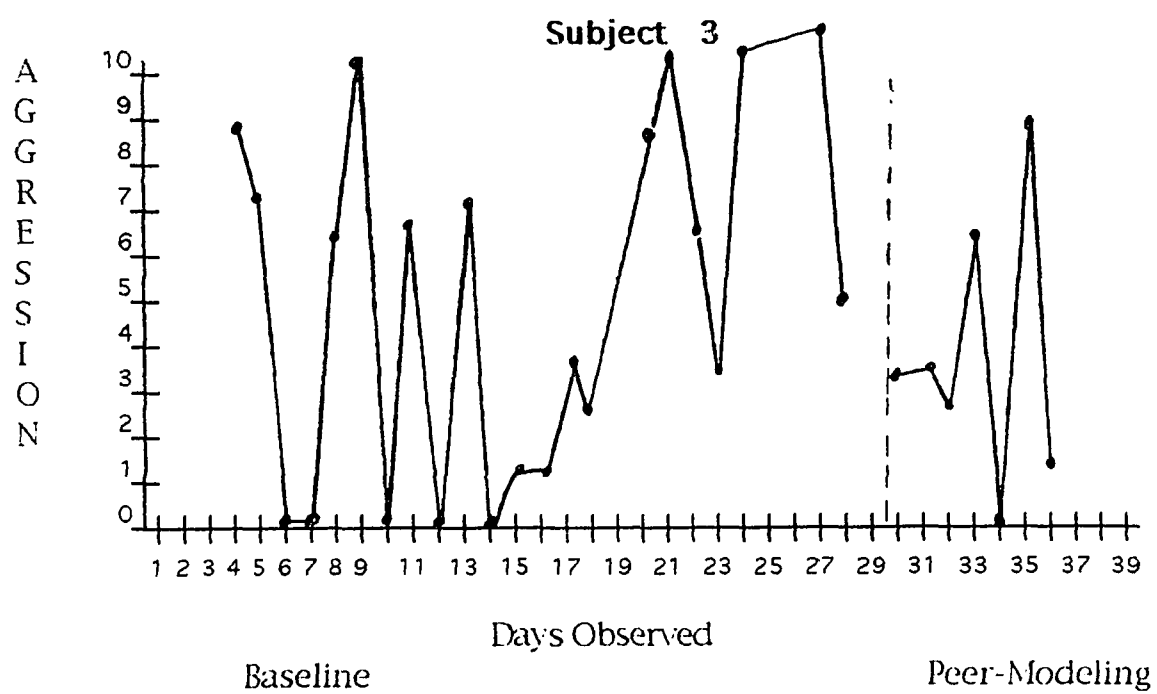
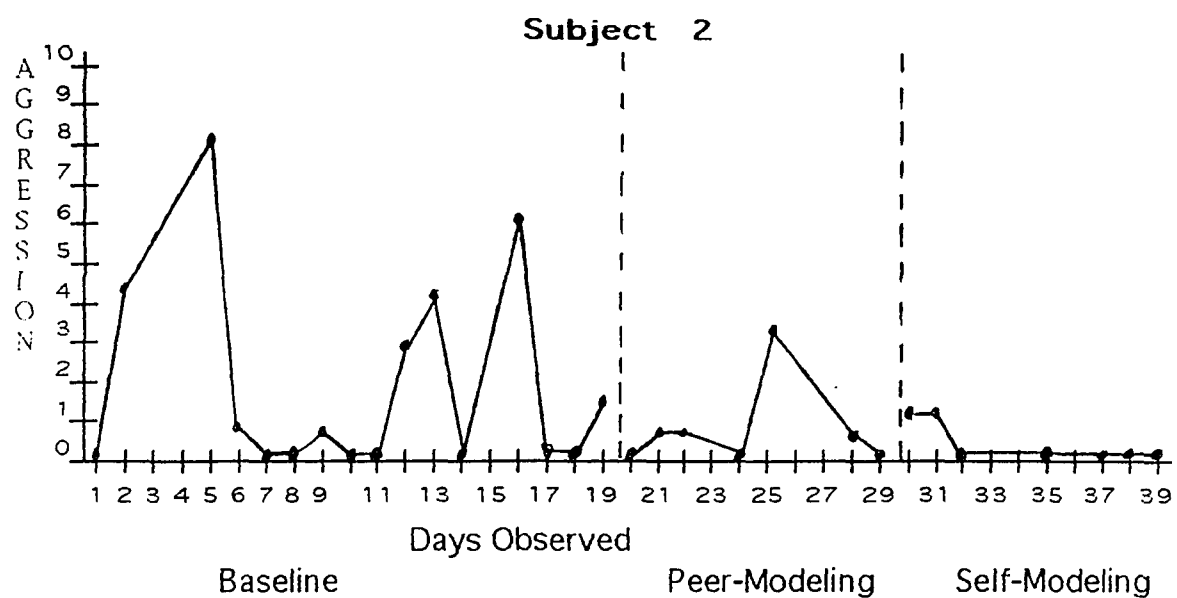


Figure 4