EFFECTS OF POSITIVE PRACTICE ON TEACHER-STUDENT
POSITIVE AND NEGATIVE INTERACTIONS FOR
PRESCHOOL TEACHERS

An abstract of a Thesis by
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August 1975
Drake University
Advisor: Mary Ann Powers

The problem. Thus far teacher training has not incorporated a procedure which reduces inappropriate teacher-student interactions while at the same time increases appropriate teacher-student interactions.

Procedure. The present study required three preschool teachers in separate classrooms to engage in a Positive Practice procedure of praising four other children contingent upon each negative teacher-student interaction recorded by a classroom observer in each classroom.

Findings. Rates and percentages of Positive teacher-student interactions were higher for the Post-Treatment conditions as compared to the Pre-Treatment condition for all teachers in all activities. Mean negative teacher-student interaction frequencies were lower for the Post-Treatment conditions as compared to the Pre-Treatment conditions for all teachers.

Conclusions. Positive Practice for teachers is an appropriate training technique for acquiring an acceptable positive-negative interaction ratio in preschool classrooms.

Recommendations. Further research using Positive Practice in addition to self recording and fading procedures should be investigated to provide the most efficacious and parsimonious teacher training package.
EFFECTS OF POSITIVE PRACTICE ON TEACHER-STUDENT
POSITIVE AND NEGATIVE INTERACTIONS FOR
PRESCHOOL TEACHERS

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In Partial Fulfillment
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Master of Arts

by
William R. Wright
August 1975
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Chapter 1

REVIEW OF LITERATURE

Teacher attention has been shown to be a powerful agent for producing change in students' behavior in many educational settings. Hall, Lund, and Jackson (1968) for example, increased the individual rates of study for one first grade and five third grade students using contingent teachers' attention in the form of verbal and physical contact. A 5 year, 4 months old pre-schooler significantly increased cooperative play when contingent attention in the form of smiling and conversing was emitted by her teacher (Hart, Reynolds, Baer, Brawley, & Harris, 1968). Schutte and Hopkins (1970) reported that during baseline conditions of giving instructions alone, a kindergarten class composed of five girls followed them 60 percent of the time. When the teacher provided her attention contingent upon following instructions, instruction following behavior increased to 78 percent. A reversal demonstrated that returning to baseline conditions resulted in the girls following instructions 68.7 percent and a reinstitution of treatment resulted in an increase of instruction following behavior to 83.7 percent. In an investigation of elements of elementary classroom control, Madsen, Becker, and Thomas (1968) systematically varied conditions of rules alone, ignoring inappropriate behavior and praise for appropriate behavior. The results indicated
that showing approval for appropriate behavior was the most effective ingredient of achieving classroom control. Other investigations (Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis, & Porcia, 1971; Sajwaj, Twardosz, & Burke, 1972; Pinston, Reese, LeBlanc, & Baer, 1973, among others) concur with the findings that teacher attention is a powerful reinforcer.

Since a systematic and high rate of teacher attention for appropriate classroom behavior is desirable, a number of investigators have focused their attention to methods of training teachers to be more positive to their students. Hall, Panyan, Rabon, and Broden (1968), for example, explained reinforcement principles and procedures to three beginning teachers of grades one, six and seven respectively, in addition to providing social reinforcement for carrying out the procedures. The effect of such training resulted in all three teachers improving classroom control by increasing teacher attention to behaviors to be promoted.

An additional strategy developed by Walker and Buckley (1972) to train teachers involved the components of mastering a semi-programmed text on behavior modification techniques, direct training in those techniques, having a consultant available on a weekly basis and the receipt of three hours of credit including free tuition for participating in the study. While desirable student behaviors were maintained, the actual change was not reported for the teachers' behavior who
received the training.

Noting that teachers usually involved in studies investigating the power of social reinforcement had some form of training in behavioral principles, Cooper, Thomson, and Baer (1970) attempted to increase teacher attention of two preschool teachers by simply providing feedback concerning their attending behaviors without any specific training in principles of reinforcement. While the researchers were able to report success in increasing the teachers' attending to appropriate student behaviors, they noted that the attending to inappropriate behaviors remained constant throughout the study for both teachers.

In a further analysis as to which ingredient is most effective for modifying teacher attending behavior, Cossairt, Hall, and Hopkins (1973) concluded that of the components of instructions, feedback and feedback plus social praise, the necessary ingredient for changing the praising behavior of the teacher was the amount of social praise the teacher received. As with Cooper et al. (1970) no significant change was observed for teachers' attention to inappropriate student behavior.

According to Parsonson, Baer, and Baer (1974) the failure of the feedback condition in the Cossairt et al. (1973) study was possibly due to the fact that feedback was delivered after 15 minute sessions as opposed to a shorter period of time. Parsonson et al. (1974) delivered feedback every
three to five minutes to two aides operating a program for institutionalized retardates and reported success in rapidly increasing the proportions of attention given to appropriate child behavior.

An alternative method for training teachers was reported by Ringer (1973). This strategy employed the use of a "token helper" who demonstrated the techniques of delivering tokens in a program which was designed by the investigator and teacher prior to the teacher's participation in the program. While the author concluded that the technique was effective in maintaining disruptive behavior at lower levels than that during the baseline conditions, he points out that the training had no effect on increasing the teacher's attending to students appropriate behaviors even though during treatment conditions, the teacher was encouraged to increase her praise for appropriate classroom behaviors emitted by the students.

Houten and Sullivan (1975) devised a method to increase commentary statements by three teachers contingent upon students academic behavior by requiring them to praise one student in the room whenever an auditory signal was presented at the mean rate of two per minute over the school public address system. The investigators concluded that this technique may be of value due to the efficiency of the delivery system yet questioned the outcome if observers were not present since the teachers observed were aware that the target
behavior was to increase praise rates.

Thus far teacher training has not incorporated a procedure which reduces inappropriate teacher-student interactions while at the same time increases appropriate teacher-student interactions. Although Hall et al. (1968) approximated the above by asking teachers to try to increase the amount of attention for study behavior and decrease the amount of attention for non-study behaviors, no specific contingencies were placed upon the teachers inappropriate behavior. Similarly, contingencies were not placed on, and little success was reported in reducing, inappropriate student-teacher interactions in other investigations (Cooper et al., 1970; Cossairt et al., 1973; Houten & Sullivan, 1975; Parsonson et al., 1974; Ringer, 1973).

For decreasing inappropriate social behavior and increasing appropriate social behaviors Foxx and Azrin (1971) have used Restitution. Foxx and Azrin (1972) note that the form of restitution could typically involve cleansing the mouth with oral antiseptic contingent upon oral aggression, a 30-minute orderliness training period contingent upon turning chairs over, or an extended period of quiet contingent upon screaming episodes. The restitution procedure is designed to focus on the environmental conditions which are disturbed or influenced by an inappropriate behavior. The goal of this procedure is also to eliminate the inappropriate behavior, but in addition, to correct or make restitution for
the inconvenience or distraction which occurs as a result of the behavior.

Foxx and Azrin (1973) later expanded the procedure to include not only a restitutioinal component but also a Positive Practice component. The positive practice procedure is designed to focus on the appropriate behavior when the inappropriate behavior occurs. The goal of positive practice is to not only eliminate the inappropriate behavior, but also to give the child an opportunity to immediately practice the correct form of the behavior. Head weaving, for example, was shown to be markedly reduced when a five-minute training period required the subject to hold her head stationary for a period of 15 seconds following the command of "Tricia, head up" (Epstein, Doke, Sajwaj, Sorrel, & Rimmer, 1974).

Both Restitution and Positive Practice, then, contain the same conceptual elements in that the procedures terminate reinforcement of the ongoing response, provide negative reinforcement of the practice of the desired behavior, constitute a time-out from positive reinforcement in that the on-going inappropriate response was interrupted and provide a re-educative component of the appropriate response in the form of positive practice (Azrin & Wesolowski, 1974).

In applying Positive Practice procedures to classroom misbehaviors Azrin and Powers (in press) reduced disruptive incidents by 98 percent when the procedure was immediately applied and 95 percent when the procedure was delayed. While
this clearly demonstrates the effectiveness of Positive Practice in producing its desired result one must question the long term product of providing students with a teacher trained in additional punishment techniques. It is suggested then, that while Azrin and Powers were effective in using the Positive Practice procedure it may have been more appropriately used if applied to the teacher rather than student population.

A teacher training procedure specifically designed to increase praise and decrease reprimands would certainly be important since, as Drabman and Lahey (1974) point out, some children may attempt to model the overall praise-criticism ratio of their teachers when dealing with other students. When Madsen and Madsen (1970) point out that "It is much easier to act your way into a new way of thinking than to think your way into a new way of acting (p. 35)," one wonders if the same logic applies to the teachers. Since a four to one (praise-criticism ratio has been suggested as beneficial in maximizing student on-task behavior (Madsen & Madsen, 1974) it would seem that such a ratio would be a desirable target behavior for teachers being trained to increase their attending behaviors to students appropriate classroom behaviors.

The present study attempted to test the effects of requiring a teacher to engage in a period of Overcorrection by using a Positive Practice procedure of praising four other
children contingent upon each negative teacher-student interaction recorded by a classroom observer. It was hypothesized that as a result of Positive Practice (1) negative teacher-student interactions will decrease; (2) Positive teacher-student interactions will increase; (3) generalization of Positive teacher-student interactions will occur across other activities during the class day when treatment is applied; and (4) maintenance of a higher level of Positive teacher interactions will occur after treatment is withdrawn at a level higher than was observed prior to treatment.
Chapter 2

METHOD

Subjects and Setting

Three teachers served as subjects for the study. They had taught for 4, 6.5 and 12 years respectively and were all currently certified.

The setting was at a local pre-kindergarten open Monday, Tuesday and Wednesday mornings from approximately 9:00 a.m. to 11:30 a.m. and Monday and Tuesday afternoons from approximately 12:15 p.m. to 2:45 p.m. The study took place Monday and Tuesday afternoons for a period of 14 weeks.

Children were divided into three classrooms of 8 to 11 students with each classroom supervised by one teacher and one aide. At approximately 12:15, the students were admitted to the first of their activities. The activities were held in the same room each day with a different room for each activity. The activities were structured sequentially for the classes in the following manner each Monday:

Classroom A: (1) Learning Center; (2) Play; (3) Rest (4) Snack; (5) Art

Classroom B: (1) Play; (2) Rest; (3) Art; (4) Learning Center

Classroom C: (1) Art; (2) Learning Center; (3) Play (4) Rest

The same sequence followed on Tuesday with the exception that all activities were shortened a few minutes so the
classes could all meet at the end of the day for singing. Treatment was not administered during this activity.

A brief description of the activities and rooms follows:

Art. This activity was held in a room approximately 19 by 23 feet. A large table with chairs for constructing the day's art object; two additional smaller tables with various materials such as clay, paints and chalks; four art boards for brush painting; and chairs were about the room. In addition, a music listening center consisting of a piano, records, a record player and earphones were in a corner of the room.

During this activity, the students were seated at the table and given instructions for constructing that day's art object. If space was not available at the table for all of the students, they could wander about and do what they wished until space became available. All students were required to make or at least attempt to make the specified art object. Upon completion of the project, the students could wander about the room and engage in other activities of their choice. At the end of the session, the students were prompted to clean and/or help clean any mess they may have made and re-arrange the room for the next in-coming class. The activity terminated when the students lined up and left the room with the teacher. The length of the activity was approximately 30 to 40 minutes.
Learning Center. This activity was held in a room approximately 19 by 30 feet. Among the items in the room were a large table and chairs, a small children's kitchen, clothes for "dressing up", blocks, puzzles and various other toys. During the activity, the students could play with the items present or other games they made up themselves. Shortly before the end of the Learning Center period, the students were seated around the table, and the teacher would engage in a brief lesson such as the wind, the senses, etc. After the lesson, students in Classroom A and Classroom B would consume a small snack at the table. Following the snack, the session terminated when the children lined up at the door and were taken to the next activity. For Classroom A, the students left the room immediately after the lesson and were given their snack in a separate room. Learning Centers usually lasted approximately 40 to 50 minutes, including snack, for Classrooms B and C and approximately 30 to 40 minutes for Classroom A.

Play. The play activity was held in a large room approximately 35 by 50 feet whenever the weather was bad. The floor was concrete and the room was well-lighted and comfortable. Tricycles, a teetertotter and other small items such as plastic bats and balls were present. The students could play with the items of their choice and run and scream. Occasionally, the teacher and aide would play a structured game with the students which would include the entire group.
Whenever the weather was appropriate, the play activity was moved outside, usually in an enclosed area approximately 45 by 82 feet on a grassy hill next to the preschool exit. Additional materials included swings and a climbing gym.

The play activity terminated when the students were prompted to put away their toys and line up at the door. The activity lasted for approximately 35 to 45 minutes.

Rest. The rest activity followed the play activity for each class and was held in a room approximately 19 by 20 feet. Upon entering the room, the students were instructed to pick up their mats or rugs which they used to rest on and place them on the floor. The students were then asked to rest and listen to music. After a brief period of music, the teacher usually read a story which was appropriate to the lesson taught that day in the learning center. Following the story, the students were instructed to put their mats away and then line up at the door. The activity usually lasted approximately 15 minutes.

Snack. This activity occurred in the learning centers for Classrooms B and C. For Classroom A, however, the session was held in another room approximately 19 by 23 feet. The room contained a large table and chairs, which the students sat at when the snack was presented. Upon completion of the snack, the students were instructed to clean their mess and throw their cups and napkins away as a waste paper basket.
was brought past each child. The activity usually lasted approximately 10 minutes.

Observation Procedures

Three female adults; two unemployed teachers and a pianist who has had an introductory psychology course at college were hired as observers for the study. Prior to data collection, they received four hours of training on the intended response measures. Additionally, techniques in unobtrusive observation were discussed to prevent classroom disruption by the observers' presence. Upon completion of each afternoon of observation during data collection short meetings were held with the experimenter to redefine response measures in question, if any. Additionally, the observers and experimenter met four additional hours at various times during the study to further redefine the response measures. Some role playing was included.

During the study, the observer recorded baseline, treatment and post treatment in the classroom which she was assigned. Observations were made by following the teacher. The observers were instructed to ignore the students when approached and to avoid all interactions with the students as possible.

To record an observation, a simple tally mark was made under the appropriate column denoting the type of teacher interaction for each child. Categories were coded to insure
teacher naivety as to the specific response measure recorded. In addition, the observers randomly delayed the recording after an interaction occurred for the purpose of inhibiting the temporal pairing of the recorded response and the emitted behaviors by the teacher. Recording began when the teacher passed through the doorway and entered the activity area or room and terminated when the teacher left the activity area or room, once again passing through the doorway. No interactions were recorded which occurred in the hallways during the transference of students from one activity to the next.

Response Measures

A rate of teacher behavior was measured on two broad categories consisting of positive and negative interactions with individual children and the group of children.

Positive Teacher Interactions. Positive interactions were defined as all vocal emissions from the teacher, directed to a single subject or the group for the purpose of showing approval for a response which was just emitted or was currently being engaged in by the subject or group. Positive interaction examples are:

"that's good"
"My we're all so nice and quiet"

"Oh, those are pretty colors you painted."
"I like the way you are standing so tall."

The words "yes", "thank you", "now" and "right" were not included in this category. In addition, phrases which
were merely objective descriptions of observed responses such as "you are drawing, aren't you?" were not scored. All other teacher behaviors not falling under the definitions of positive or negative interactions were not recorded.

**Negative Teacher Interactions.** Negative interactions were defined as all vocal emissions from the teacher directed to a subject or the group for the purpose of showing disapproval or for the purpose of providing a cessation of a response which was being emitted, and not merely to provide an alternative. Negative interaction examples are:

"No!"
"That's for me, please; not you!"
"Honey, we don't hit our friends."

Included in this category were verbal reprimands for not following the teachers' commands. Examples are:

"You didn't line up, did you?"
"When you're all quiet, we'll continue our story."

**Interaction Frequencies.** An interaction, positive or negative, was recorded as having occurred when the vocal emission of approval or disapproval was heard by the observer. The occurrence was defined as having terminated when the teacher being observed left the subject or subjects and attended to another person in the room.

**Reliability**

Reliability measures were taken by an additional observer in each class at various times during the study. Reliability was computed by dividing the lowest number of
interactions by the highest number of Interaction X 100 for each category of observed positive and negative interaction for each activity. Reliability measures ranged from 25 to 100 percent with an average of 88.44 for 55 positive interaction observations and 86.98 for 59 negative interaction observations.

A multiple baseline design across activities was used to evaluate the efficiency of using an overcorrection procedure of teacher's positive practice contingent upon emitted negative interactions.

**Baseline.** During a brief meeting with the teachers, it was explained that a study was commencing which would investigate teacher-student interactions. No specific mention was made as to the actual response measures in question. Data were collected for five days on the frequencies of emitted positive and negative interactions for each teacher during each activity for the three classes.

**Treatment**

Following baseline, the teachers attended a brief meeting where they were told that in order to obtain further data, teachers would, at various times during the day, be cued by the observer. At this time, they were to "catch four children being good" and individually praise each child for the response being engaged in. Examples were given as to how this may be done, however, the teachers were instructed
to use their own words. After praising the fourth child, the teacher was to return to the task she was engaging in or start an activity of her choice. If it was impossible to immediately find four children, due to the nature of the disruption which was responsible for the interaction which initiated the cue, or due to the lack of availability of four children "being good", the teacher was to find four children after the disruption was taken care of or wait until four children became available. No mention was made concerning the reason the cue was to be given, and no further information was given as to the response measures recorded by the observers.

The treatment condition was applied across activities in a multiple baseline design with the exception that (1) no treatment was applied during the last activity for all classes and (2) a one-day absence of cueing occurred during one activity due to an observer error. Due to teacher absences, the treatment conditions varied in length for each classroom.

Cueing. The observers cue simply involved hand raising with four fingers extended and/or calling the teacher's name loudly in a manner which was most appropriate at the time, either during or immediately following a negative interaction.
Reversal

Immediately following the Treatment condition, a brief meeting was held. The teachers were told that no further cues were to be given, however data would still be collected during each activity. After three days of this condition, pre-kindergarten discontinued and the study terminated.
Chapter 3

RESULTS

Figure 1 displays the rate of positive teacher interactions per minute and the rate of negative teacher interactions per minute for Classroom A during conditions of baseline, cueing and reversal across activities for 20 days. The five day baseline for activity 1 reveals a maximum rate of 0.30 positive teacher interactions per minute occurring on the second day and a maximum rate of 0.43 negative teacher interactions per minute occurring on the third day. A comparison of positive interaction rates across activities for the first five days reveals that no rate was higher than 0.45 per minute which occurred on the second day of baseline for activity 2. After cueing was administered to the first activity on the sixth day a noticeable increase in positive interactions occurred resulting in a rate of 1.02 responses per minute being observed during the last day of cueing on day 17. The mean positive interaction response rate for activity 1 was 0.49 responses per minute. While cueing was being administered to the first activity a noticeable increase in responding was observed on the eighth day during activities 2, 3 and 4. On the tenth day an additional increase in responding was observed during activity 5 with additional increases on the eleventh day in activities 3 and 4. Cueing was applied to activity 2 on the thirteenth day and a positive
The daily rate of positive and negative interactions per minute for Classroom A during baseline, cueing and reversal.
teacher interaction rate was observed at 1.3 per minute. Thereafter responding decreased and then began to stabilize with a final observed response rate of 0.44 per minute and a mean rate of responding during cueing of 0.72 per minute. During cueing of activities 1 and 2, the rate of positive teacher interactions increased to 1.33 responses per minute during activity 3 on day sixteen and 1.33 responses per minute during activity 4 on day fourteen. The highest response rate observed during activity 5 occurred on day sixteen at a rate of 0.85 per minute. On day eighteen cueing was discontinued for all activities and the rate of responding began to decrease. Cueing was applied to activity 3 however since a termination time could not be recorded for that activity the rate could not be calculated. Similarly, no rate could be calculated for activity 4 for day seventeen due to the failure to record a starting time.

Negative interactions in activity 1 suppressed during cueing to a mean of 0.01 responses per minute as compared to the response rate of 0.20 per minute during baseline. Similarly a reduction was noted during cueing of activity 2 to that of 0.04 negative interactions per minute. Interactions appeared relatively stable for activity 4 however a noticeable decrease was observed during activity 5 after day eight to a level which never exceeded 0.10 negative interactions per minute after day ten.

Table 1 shows the mean rate of responding of positive
Table 1

Mean Positive and Negative Teacher Interactions Per Minute for Classrooms A, B and C for Activities During Baseline, Cueing and Reversal

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Activity</th>
<th>Baseline</th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
<td>Negative</td>
<td>Positive</td>
<td>Negative</td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>0.167</td>
<td>0.209</td>
<td>0.494</td>
<td>0.017</td>
<td>0.372</td>
<td>0.030</td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>0.188</td>
<td>0.280</td>
<td>0.725</td>
<td>0.040</td>
<td>0.339</td>
<td>0.076</td>
</tr>
<tr>
<td>A</td>
<td>3</td>
<td>0.055</td>
<td>0.387</td>
<td>Not Obtainable</td>
<td></td>
<td>0.250</td>
<td>0.050</td>
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<tr>
<td>A</td>
<td>4</td>
<td>0.048</td>
<td>0.397</td>
<td>No Treatment</td>
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<td>0.250</td>
<td>0.150</td>
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<tr>
<td>A</td>
<td>5</td>
<td>0.274</td>
<td>0.325</td>
<td>No Treatment</td>
<td></td>
<td>0.429</td>
<td>0.032</td>
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<tr>
<td>A</td>
<td>X</td>
<td>0.146</td>
<td>0.319</td>
<td>0.609</td>
<td>0.028</td>
<td>0.328</td>
<td>0.067</td>
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<tr>
<td>B</td>
<td>1</td>
<td>0.109</td>
<td>0.132</td>
<td>0.806</td>
<td>0.124</td>
<td>0.432</td>
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<tr>
<td>B</td>
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<td>0.032</td>
<td>0.067</td>
<td>0.472</td>
<td>0.116</td>
<td>0.305</td>
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<tr>
<td>B</td>
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<td>0.102</td>
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<td>0.621</td>
<td>0.099</td>
<td>0.378</td>
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<tr>
<td>C</td>
<td>1</td>
<td>0.146</td>
<td>0.104</td>
<td>0.816</td>
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<td>0.614</td>
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<tr>
<td>C</td>
<td>2</td>
<td>0.107</td>
<td>0.145</td>
<td>0.728</td>
<td>0.063</td>
<td>0.403</td>
<td>0.089</td>
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<tr>
<td>C</td>
<td>3</td>
<td>0.069</td>
<td>0.180</td>
<td>0.364</td>
<td>0.051</td>
<td>0.140</td>
<td>0.145</td>
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<tr>
<td>C</td>
<td>4</td>
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<td>0.159</td>
<td>No Treatment</td>
<td></td>
<td>0.050</td>
<td>0.150</td>
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<tr>
<td>C</td>
<td>X</td>
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<td>0.147</td>
<td>0.639</td>
<td>0.058</td>
<td>0.301</td>
<td>0.121</td>
</tr>
</tbody>
</table>

Note: Baseline is defined as the first five days of the study in order to avoid contamination of possible cueing generalization across baselines of other activities. In addition the mean may represent a period of less than five days if activities were combined as was in the case of Classroom A for activities 2 and 3.
and negative teacher interactions for baseline (the first five days), cueing and reversal (the last three days) for all activities for Classrooms A, B and C. During baseline the mean rate of negative interactions is higher than the mean rate of positive interactions for all activities of Classroom A. Reversal observations reveal that each mean negative interaction rate of Classroom A is lower than the mean positive interaction rate for the same activity. In addition, each reversal mean negative interaction rate for Classroom A is lower than the baseline mean negative interaction rate for the same activity. The lowest mean baseline negative interaction rate observed for Classroom A was 0.20 responses per minute during activity 1 while the highest mean reversal negative interaction rate was 0.15 responses per minute during activity 4.

Classroom B rates of positive and negative teacher interactions across activities for 16 days during baseline, cueing and reversal conditions are displayed in Figure 2. Activity 1 reached a maximum response rate of 0.26 responses per minute for positive teacher interactions during baseline and a maximum negative interaction rate of 0.19 per minute.

A comparison of positive teacher interaction rates across activities for the first five days reveals that no rate was higher than 0.31 responses per minute which occurred during the fourth day of activity 3. Application of cueing to activity 1 on day six resulted in an observed maximum rate
Figure 2. The daily rate of positive and negative teacher interactions per minute for Classroom B during cond.

Days

Learning Center

Responses per Minute

AFT

Play

Baseline

Reversal

Cuing

Classroom B
of responding at 1.23 positive interactions per minute which occurred on day seven. The mean positive interaction rate during cueing for activity 1 was 0.80 responses per minute. On day seven cueing was applied to activity 2 which resulted in a maximum positive interaction rate of 1.11 responses per minute on day eleven with a positive interaction mean rate of 0.47 responses per minute. Applying cueing to activity 3 resulted in 0.81 positive teacher interactions per minute being observed on day eleven with a mean positive interaction rate for the four days of cueing of 0.58 responses per minute.

On day thirteen cueing was discontinued for all activities. The highest rate of positive interactions during activity 4 occurred on day 14 with an observed rate of 0.82 responses per minute. On day sixteen activity 2 was not held.

Negative teacher interactions remained relatively constant throughout all activities with the exception of day eleven for activity 2 when the rate increased to 0.27 responses per minute. As with Classroom A, the baseline mean rate of negative interactions for Classroom B is higher than the positive interaction rates with the exception of activity 3. Reversal observations reveal that for all activities the mean negative interaction rate is lower than the corresponding negative interaction rate during baseline. The lowest baseline negative interaction mean observed was 0.06 responses per minute during activity 2 and the highest mean negative interaction rate during reversal was 0.16 responses per
minute during activity 4.

Figure 3 displays the positive and negative interaction rates of Classroom C for conditions of baseline, cueing and reversal for a period of 20 days. The five day baseline for activity 1 reveals a maximum positive interaction rate of 0.21 responses per minute occurring on day one and a maximum negative interaction rate of 0.22 responses per minute occurring on day five. The highest positive interaction rate observed across activities during the first five days was 0.27 responses per minute during activity 2 of the third day. When cueing was administered to the first activity on day six an immediate increase in positive interactions was observed with the maximum rate being 1.38 responses per minute on day seventeen. During days two and seven of cueing (Days 7 and 12), noticeable increases in positive interactions occurred during activity 2 at rates of 0.48 and 0.42 responses per minute respectively. Cueing was applied to activity 2 on day eight and inadvertently withdrawn on day nine followed by reapplication on day ten. Additionally, cueing was inadvertently applied to the third activity on day nine. Positive interactions occurred during cueing of activity 2 at a maximum rate of 1.2 responses per minute on day seventeen. Similarly activity 3 reached the highest response rate on day seventeen with an observed positive interaction rate of 0.50 responses per minute. On day eighteen cueing was withdrawn which resulted in an immediate decrease in responding
Figure 3. The daily rate of positive and negative teacher interactions per minute for Classroom C during conditions of baseline, cueing and reversal.
and then a noticeable increase on the last observation day at a positive interaction rate of 0.78, 0.70 and 0.26 responses per minute for activity 1, 2 and 3 respectively. Activity 4 revealed an increase in positive interactions to a rate of 0.86 and 0.85 for days fourteen and seventeen when cueing was applied to the first three activities.

Negative interaction rates were suppressed during cueing to 0.06, 0.06 and 0.05 for activities 1, 2 and 3 respectively. Table 1 reveals that as with Classroom B, the baseline mean rate of negative interactions for Classroom C is higher than the positive interaction rates with the exception of activity 1. Reversal observations reveal that as with Classrooms A and B, the mean negative interaction rates during reversal are lower than the corresponding baseline rates. The lowest mean negative interaction rate recorded during baseline for Classroom C occurred during activity 1 with a rate of 0.10 responses per minute while the highest mean negative interaction rate obtained during reversal occurred at a rate of 0.15 responses per minute during activity 4.

Figure 4 displays the total positive and negative interaction rates per day for Classrooms A, B and C during the conditions of baseline, cueing and reversal. During baseline the maximum rate of positive interactions was 0.26 responses per minute on day two for Classroom A, 0.15 responses per minute on day four for Classroom B and 0.13
Figure 4. The total daily rate of positive and negative teacher interactions per minute for Classrooms A, B and C during conditions of baseline, cueing and reversal.
responses per minute for Classroom C on day three. The maximum rate of negative interactions recorded during baseline was 0.40 responses per minute for Classroom A on day two, 0.23 responses per minute on day two for Classroom B and 0.20 responses per minute on day five for Classroom C. With the exception of day fifteen when activities 1, 2, and 3 were cued in Classroom C, the effect of cueing was an increase in the rates of positive interactions for each Classroom at each point of application. The data points of each baseline and reversal condition in Figure 4 are displayed for further analysis as the total mean baseline and reversal positive and negative interaction rates in Table 1. In each classroom the total baseline mean positive interaction rate is lower than the reversal interaction rate. Additionally, the mean total baseline negative interaction rate is higher than the mean total reversal negative interaction rate for all classrooms.

In order to further analyze differences in positive and negative teacher interaction rates, data were converted into percentages. Figure 5 displays the percentage of positive teacher interactions emitted per day, during conditions of baseline, cueing and reversal, across activities for Classroom A for 20 days. During the first five days of activity 1 the percentage of teacher positive interactions ranged from 16.6 to 62.5 percent. During cueing positive teacher interactions occurred at 100 percent for eight out
Figure 5. The daily percentage of positive teacher interactions for Classroom A during conditions of baseline, reversal, cueing, learning center, play, rest, snack, and art.

Days: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Percentage of Positive Teacher Interactions

Classroom A
of twelve treatment days. Positive interactions for activity 2 ranged from zero to 66 percent for the first five days, with an increase to 100 percent just prior to application of cueing. Activity 3 ranged from zero to 50 percent for teacher positive interactions and as with activity 2, 100 percent was recorded just prior to cueing. Similar ascending percentages were observed in the other non treated activities until cueing was discontinued. Thereafter a decrease was noted in three out of four activities.

Figure 6 displays the percentage of positive teacher interactions emitted per day during conditions of baseline, cueing and reversal for Classroom B for sixteen days. The first five days ranged from zero to 66, zero to 40, 12.5 to 90.9 and 10.5 to 43.7 percent for activities 1 through 4 respectively. As with Classroom A, each activity noticeably increases the percentage of positive teacher interactions as cueing is applied across activities. After cueing was discontinued a decrease was observed during days fourteen and fifteen with the percentage returning to levels observed during cueing on the sixteenth day for three out of four activities.

The percentage of positive teacher interactions observed per day during baseline, cueing and reversal conditions across activities for Classroom C for 20 days is shown in Figure 7. The baseline percentage for the first five days ranged from 42.8 to 70, 18.1 to 44, zero to 37.5 and zero to 28.5 for activities 1 through 4 respectively. Immediately
Figure 6. The daily percentage of positive teacher interactions.

Classroom B
Figure 7. The daily percentage of positive teacher interactions for Classroom C during conditions of baseline, cueing and reversal.
following the application of cueing to the first activity on day six a noticeable increase in the percentage of positive interactions was observed during activity 2. Just prior to cueing, activity 2 reached 100 percent and decreased to 78.1 percent upon the inadvertent withdrawal of cueing on day fourteen. A reapplication of cueing increased the positive interaction percentage to a level above 92 percent until the reversal condition occurred on day seventeen. On day thirteen activity 3 reached a positive interaction level of 81.8 percent and remained above that level until the reversal condition. Reversal resulted in maintenance for two out of four activities.

Figure 8 displays the total percentage of positive teacher interactions per day for Classrooms A, B and C during the conditions of baseline, cueing and reversal. As cueing conditions were applied across activities the percentage of positive interactions increased to a level higher than the previous condition for all classrooms with the exception of day thirteen and fourteen for Classroom C. Reversal for Classroom A resulted in a slightly linear decrease from 94.5 to 79.4 percent. Classrooms B and C showed maintenance at 72.4 and 77.7 percent respectively. A comparison of baseline and reversal mean percentages of positive teacher interactions is shown in Table 2 for Classrooms A, B and C.

In order to evaluate the degree to which the positive teacher interactions were distributed throughout the classrooms
Figure 8. The total daily percentage of positive teacher interactions for classrooms A, B, and C during conditions of baseline, cueing, and reversal.
Table 2
A Comparison of Baseline and Reversal Mean Percentages of Positive Teacher Interactions for Classrooms A, B and C

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Baseline</th>
<th>Reversal</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>33.8</td>
<td>86.5</td>
</tr>
<tr>
<td>B</td>
<td>41.4</td>
<td>72.4</td>
</tr>
<tr>
<td>C</td>
<td>33.7</td>
<td>77.7</td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>36.3</td>
<td>78.8</td>
</tr>
</tbody>
</table>
each day, a percentage of students receiving positive teacher interactions initiated by the teacher was recorded. These percentages did not include any positive interactions which was the result of a cue received by the teacher and did not include any positive interactions initiated by the teacher to the group of students as a whole. Figure 9 displays the percentage of students receiving teacher initiated positive interactions per day across activities for a period of 20 days for Classroom A during conditions of baseline, cueing and reversal. During the first five days the ranges of the percentages of students receiving teacher initiated praise varied from 28.5 to 57.1, zero to 100, zero to 28.5, zero to 14.2 and 50 to 71.4 for activities 1 through 5 respectively. During activity 1 substantial variations in percentages were observed until the eleventh day when the level reached 100 percent. For five of the next six cueing days the percentage of children receiving teacher initiated positive interactions was 100 percent. Noticeable variations in percentages were also observed during activity 2 until cueing was applied. During cueing 100 percent of the children received teacher initiated positive interactions for three out of the five days. Upon the application of cueing to activity 1 greater variations appeared in activity 3 as compared to the first five days in that activity. Similarly, during activity 4 a larger variation in percentages was noticed in addition to an ascending trend. On the fourteenth
PERCENTAGE OF STUDENTS RECEIVING TEACHER INITIATED POSITIVE INTERACTIONS

Figure 9. The daily percentage of students receiving teacher initiated positive interactions for Classroom A during conditions of baseline, cueing, and reversal.
day 100 percent of the students received teacher initiated positive interactions for four consecutive days during the last activity.

Figure 10 displays the percentages of students receiving teacher initiated positive interactions per day across activities during the conditions of baseline, cueing and reversal for Classroom B for a period of 16 days. The ranges of percentages of students receiving teacher initiated positive interactions for the first five days varied from zero to 33.3, zero to 10, 20 to 60 and 18.1 to 40 percent for activities 1 through 4 respectively. Considerable variation in percentages were noted across all activities and the percentages generally increased as the study progressed. While the eighth and ninth day during the third activity revealed a decrease in students receiving teacher initiated positive interactions there was an increase to 94.4 percent when cueing was applied on the tenth day. During the thirteenth day when cueing was applied in all three activities, activity 4 reached 100 percent for the first time.

Figure 11 displays the percentage of students receiving teacher initiated positive interaction per day across activities for a period of 20 days for Classroom C during conditions of baseline, cueing and reversal. Ranges varied from 25 to 50, zero to 75, zero to 57.1 and zero to 25 for percentages of students receiving teacher initiated positive interactions during the first five days for activities 1
The daily percentage of students receiving teacher initiated positive interactions for classroom B during conditions of baseline, cueing, and reversal.

**Figure 10.** The daily percentage of students receiving teacher initiated positive interactions for classroom B during conditions of baseline, cueing, and reversal.
PERCENTAGE OF STUDENTS RECEIVING TEACHER INITIATED POSITIVE INTERACTIONS FOR CLASSROOM C
through 4 respectively. Cueing resulted in an immediate increase from 44.4 percent to 88.8 percent during activity 1 and remained averaging above that level until cueing was discontinued. Activity 2 reached 100 percent on days eight and nine during baseline after cueing was applied to activity 1 on the sixth day. Applying cueing to activity 2 resulted in the lowest percentage observed being 66.6 as compared to the baseline low of 12.5 percent. Activity 3 was observed to stabilize ranging from 33.1 to 66.6 during cueing.

Figure 12 displays the mean percentage of students receiving teacher initiated positive interactions during baseline (the first five days of pre-treatment) and reversal (the last three days of post-treatment) for Classroom A. Similar displays appear in Figure 13 and 14 for Classrooms B and C respectively. Of the thirteen activities shown, only activity 4 (rest) of Classroom C shows a decrease in the percentage of students receiving teacher initiated positive interactions.
Figure 12. The mean percentage of students receiving teacher-initiated positive interactions across daily activities (pre-treatment, post-treatment, reversals).
Figure 13. The mean percentage of students receiving teacher initiated positive interactions across daily activities (pre-treatment) and post-treatment (reversal) for Classroom B.

MEAN PERCENTAGE OF STUDENTS RECEIVING TEACHER INITIATED POSITIVE INTERACTIONS
Figure 14. The mean percentage of students receiving teacher initiated positive interactions during Pre-treatment (baseline) and Post-treatment (reversal) for Classroom C across daily activities.
Chapter 4

DISCUSSION

The effect of applying a Positive Practice procedure to classroom teachers resulted in changes being observed in both positive and negative interaction rates. While differences in the amount of reduction occurring in the emitted negative interactions were observed for all classrooms varying from 79 to 18 percent it should be pointed out that this may have been due to the differences of the operant levels of each classroom teacher. Thus teacher B and teacher C were approximately less than one-half as negative as teacher A during baseline which may explain why teacher A showed the greatest suppression in responding during reversal conditions as compared to baseline.

Data were not gathered on students appropriate and inappropriate classroom behaviors therefore only hypothetical remarks can be made as to what was the variable responsible for maintaining the negative interaction operant levels of each teacher. Since the definition of a negative interaction was a broad one, responses that were both appropriate and inappropriate on the part of the teacher were observed. Although these responses were not recorded as to their appropriateness one might conclude that the baseline level of negative interactions consisted of interactions which were necessary to maintain a safe and non-destructive environment.
for the students. Thus it is possible that remarks such as "Please get off the table this minute" were in the category which suppressed the most as compared to remarks such as "We don't fight in school." Following Drabman and Lahey (1974) it may be desirable for a student to receive both positive and negative comments from teachers. To maintain the four to one praise criterion ratio suggested by Madsen and Madsen (1974) then, it would be inappropriate for a suppression of negative interactions to reach near zero levels. The suppression that did result may have occurred as a result of the punishing effects of Positive Practice or as a result of changing students behavior. Drabman and Lahey (1974) for example, decreased negative comments by a teacher to a target child by giving feedback to the child concerning her behavior. As her behavior became more appropriate, the teacher's negative comments decreased. Similarly, teachers in classrooms A, B and C may have decreased responding not only due to Positive Practice but also as a result of student behavior.

A stronger argument however supports the conceptualization of Positive Practice as a punishment technique. Punishment according to Azrin and Holz "... is a reduction of the future probability of a specific response as a result of the immediate delivery of a stimulus for that response" (Honig, 1966, p. 381). If negative teacher interactions decreased as a result of student behavior, one might suspect that the behavior change may be observed at other activities than
those where cueing was applied. The multiple baseline design however supports the argument that cueing was responsible for the observed behavior change and not student behavior.

As with Ringer (1973) it does not necessarily follow that achieving classroom control brings about an increase in teacher praise. Thus the re-educational aspect of Positive Practice stressed by Azrin and Powers (in press) is supported by observing the increases in positive teacher interactions during cueing and reversal. Reversal positive interactions increased an additional 124, 270 and 242 percent for Classrooms A, B and C respectively over the baseline levels. In addition to an increase in the rate of positive interactions, the percentage of students receiving those interactions approximately doubled. Thus the effect of cueing was not only to focus teacher’s attention to how much praise to emit, but possibly in re-evaluation, to what students were receiving that praise. During the study at one time or another each teacher remarked that the procedure made her more aware that she may have had "favorites" and was consciously trying to insure that all of the students received some praise during the day. Curiously enough at no time during the study were teachers told that one of the target behaviors was increasing teachers praise to students.

Generalization of the effect of cueing across activities was observed to occur in all classrooms. Classroom A showed the most desirable data display with a suppression of
negative interactions and an increase in positive interactions occurring as the study progressed. While this noticeable effect was not as strong in Classrooms B and C, substantial increases in responding were observed during the last few weeks of the study. Three possible explanations for the failure of a large generalization to occur for Classrooms B and C exist. First, students which may have been responsible for maintaining the teachers behavior in Classroom A may have changed their rate of responding more than the students in Classrooms B and C. Thus, as the study progressed the students behavior became more appropriate and the teachers found more opportunities to engage in positive interactions. Secondly, the number of days treatment was applied may be of importance. Classroom B had cueing applied eight days as compared to 12 cueing days for Classrooms A and C. However, if each activity in which cueing occurred were added together the total number of activities cued would be 17, 19 and 18 for Classrooms A, B and C respectively. Therefore Classroom B actually received more cueing across activities than Classroom A or C. The important variable then would be how many days cueing was applied rather than how many activities were cued. While this may explain conditions for Classroom B, it does little to explain generalization effects of Classroom C. Thirdly, an explanation may be found in the nature of the activity during which generalization effects were tested. The last activity for Classroom A was art. During this activity
more opportunities were available for the teacher to engage in positive interactions since they could constantly go from student to student praising their art work. Similarly the students during this activity are less likely to be disruptive since they are involved in constructing the art objects which they seem to enjoy. Classroom B had learning center during the last activity. Thus while increases in positive interactions were noticed, negative interactions may have been maintained as a result of the students having more opportunities to be disruptive. Similarly, the last activity for Classroom C was rest which of all activities provided the students with the most opportunities to be disruptive since they are required to sit, be quiet and listen to a story. While all three explanations are not mutually exclusive, the latter is preferred.

Since the school closed for the summer it was impossible to test for maintenance of the effect of positive practice for more than three days. Upon the withdrawal of cueing Classroom A and C displayed an immediate decrease in the rate of responding for positive interactions. This would seem logical since the teachers were no longer required to "catch four children being good." Classroom B however was observed to increase the rate of teacher positive interactions to a level higher than any observed during cueing conditions. While this may have occurred because cueing was applied to more total activities for Classroom B, it seems unlikely. On
the second day of the reversal condition Classroom B was observed to greatly decrease in the rate of teacher positive interactions and then sharply increase the rate on the third day. Presently there seems to be no adequate explanation for this occurrence. It is possible though that this was a "testing" of existing contingencies since the teacher was thought to have "figured out" the intent of the study by other teachers even though no specific mention was made concerning target behaviors at any time during the study. In all classrooms reversal percentages of positive interactions remained at a higher level than baseline. Classroom A however displays a somewhat linear trend toward the original baseline level. The explanation may be found in the baseline high operant level of Classroom teacher A as compared to the operant levels of teachers in Classrooms B and C. Baseline observations noted that Classroom A had over twice the amount of negative teacher interactions than was found in Classroom B and C. Thus in order to maintain a stable level of responding during reversal a longer cueing condition may have been necessary.

Madsen and Madsen (1974) note that it is commonly observed by others that "... if a teacher increases approval, then disapprovals will decrease" (p. 212). While the above did occur when cueing was applied due to the idiosyncratic characteristics of Positive Practice, negative teacher interactions did increase after cueing was withdrawn. While it
was observed that no reversal negative interaction rate was higher than baseline rates, it is premature to speculate if the reversal data represents new operant levels of negative teacher interactions.

This study is not without limitations. While teacher behavior such as smiles, physical control and proximity among others (Hall et al., 1968; Kazdin & Klock, 1973) may serve as reinforcers to students and be appropriate under the definition of a positive teacher interaction, it was decided that these behaviors would not be appropriate to accelerate in a classroom where a follow-up on teacher behavior may not be possible. Thus a decision was made to accelerate only response contingent verbalizations with the hope that after cueing withdrawal the teachers would be more skilled at specifically describing what they liked about students' behaviors as they were being emitted. The hypothesized outcome was that student behavior would be more appropriate if the students clearly understood exactly what behaviors they emitted which were responsible for receiving teacher positive interactions. A limitation of this study was the failure to record the change in student behavior. This would be important for further research since, anecdotally, students were observed to increase praise to other students. For example, during art in Classroom A on one of the last days of the study one student said "That's good" eleven times within ten minutes to another student making clay objects.
In addition to the failure to record the students behavior, much was lost in the teachers behavior due to the definition of what was a negative interaction. In order to suppress the "When you cry you look sad, come here and I'll give you a hug" type of interaction it was decided that all interventions by the teacher to cease an ongoing behavior should be conseuated. Thus, many interactions which were appropriate in the classroom were cued and the topographical differences in the class of behaviors comprising all negative interactions which could be termed legitimate and illegitimate were not recorded.

Similarly data were lost on the topographical change in positive teacher interactions. During baseline many responses such as "that's good" or "good" were recorded. However, cueing and reversal observations included a high rate of statements beginning with the phrase "I like the way your ..." which was an excellent response-contingent form of praise describing exactly what the teacher liked about the student's behavior.

As a treatment package much is to be investigated. Fading procedures may reveal what schedule of cueing is most effective in maintaining the four to one praise criticism ratio after cueing. For example, one may withdraw cueing by cueing every other negative interaction for one week followed by cueing every third negative interaction the following week, etc. The effect of Positive Practice used in
combination with other procedures such as feedback and praise may also be investigated. It is possible that the feedback procedure used by Parsonson et al. (1974), the praise condition of Cossairt et al. (1973) and the Positive Practice procedure of "catching four children being good" might be an effective treatment "package" to be used by those involved in teacher training.

If further research validates the finding that "catching four children being good" does indeed act as a punishment procedure and suppresses the response which preceded the delivery of the cue, then serious consideration must be given to the timing of the cue delivery. Delivering cues at the mean rate of two per minute as in the Houten and Sullivan (1975) study may actually serve to suppress appropriate teacher behavior due to the idiosyncratic components of Positive Practice. It is suggested then that delivering cues contingent upon specific teacher behaviors may be more efficacious than a random delivery system.

Finally, the Positive Practice approach may be investigated by teachers themselves. A self-recording device may be used whenever teacher negative interactions occur along with a tally of positive teacher interactions. Following baseline the teacher may prompt herself to "catch four children being good" whenever she self-records an emitted negative interaction. As Goetz, Holmberg and LeBlanc (1975) point out "In an applied setting, neatly constructed examples
of experimental conditions are extremely unlikely to occur" (p. 81). Any investigation which would lead a teacher to rely on herself rather than on an outside observer delivering cues would be desirable. For example, to maintain an adequate rate of positive interactions and a low rate of negative interactions the teachers might set up a program where they are cued on intermittent days by the principal or other teachers and use self recording on other days.

This study demonstrated that applying a procedure of requiring a teacher to "catch four children being good" contingent upon recorded negative interactions by an observer resulted in both rates of positive interactions and percentages of positive interactions more than doubling for all teachers receiving Positive Practice. Further research is needed to validate this finding.
REFERENCES


