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Evaluating and Controlling for Reactivity Following Supervisor Training and Feedback

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Evaluating and Controlling Reactivity Following Supervisor Training and Feedback

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
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ABSTRACT

This study evaluated self-monitoring and feedback procedures with preschool teachers and reactivity that occurred in a preschool classroom due to a supervisors' presence. Preschool teachers' positive interactions following the implementation of a self-monitoring and feedback procedure only slightly increased without the presence of a supervisor. Reactivity was identified with the presence of the supervisor as accurate reporting increased most in the supervisor's presence. Following the identification of reactivity, positive interactions remained at high levels during the reactivity control and maintenance conditions.

CHAPTER ONE:

INTRODUCTION

Between the years of 1991-2005, only 30% of studies found in the Journal of Applied Behavior Analysis reported treatment integrity data (McIntyre, Gresham, DiGennaro, & Reed, 2007). Treatment integrity is defined as the implementation of an intervention as it was designed (Gresham, 1989). Higher levels of treatment integrity have been shown to be correlated with greater treatment effects (Arkoosh et al., 2007; DiGennaro, Martens, & Kleinmann, 2007). Experimental manipulation of treatment integrity also has demonstrated this correlation to be true (DiGennero-Reed, Reed, Baez, & Maguire, 2011; St. Peter Pipkin, Vollmer, & Sloman, 2010; Wilder, Atwell, & Wine, 2006). DiGennaro-Reed et al. (2011) evaluated treatment integrity failures at 100%, 50% and 0%. The authors found that when teaching three boys with autism to receptively identify shapes, there were no significant differences in accurate responding between errors at 50% and 100%, but when errors occurred 0% of the time, the participants scored a substantially higher percentage of accurate responding during discrete trials.

Research has focused on ways to improve treatment integrity (Digennaro-Reed, Codding, Catania, & MaGuire, 2010). Researchers showed video modeling to be an effective strategy for improving treatment integrity in a variety of treatments including implementing a problem-solving intervention (Collins, Higbee, & Salzberg, 2009), implementing functional analyses (Moore & Fisher, 2007) and implementing discrete trial trainings (Catania, Almeida, Liu-Constant, & DiGennaro-Reed, 2009). In addition to video modeling, researchers have used other procedures including behavioral skills training (Miles & Wilder, 2009; Nigro-Bruzzi, &

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Sturmey, 2010; Rosales, Stone, & Rehfeldt, 2009) and performance feedback (Codding, Feinberg, Dun, & Pace, 2005) to improve treatment integrity. Self-monitoring, another effective procedure for increasing treatment integrity, has been used in combination with other procedures such as tactile prompts (Petscher & Bailey, 2006), goal setting with intermittent observations (Burg, Reid, & Lattimore, 1979), and feedback (Richman, Riordan, Reiss, Pyles, & Bailey, 1988; Rose & Ludwig, 2012).

DiGennaro-Reed et al. (2010) showed performance feedback to be more effective than video modeling alone at increasing treatment integrity of behavioral interventions. In this study, video modeling was helpful, however when performance feedback was implemented, all three participants increased their treatment integrity to 100% during direct observations. These results and others (Codding et al., 2005; DiGennaro et al., 2007) suggest the benefits of performance feedback. The use of performance feedback has increased preschool teachers' use of praise statements, which resulted in increases in appropriate behavior (Fullerton, Conroy, & Correa, 2009). The use of praise also has resulted in decreases in challenging behaviors (Stormont, Smith, & Lewis, 2007). Feedback has been used frequently when changing staff and teacher behavior. When used alone, feedback was more effective than task clarification, and visual prompts at increasing implementation of greeting and up selling behaviors in restaurant employees (Squires et al., 2012). The effective use of feedback has varied in topography, from oral or written, to data or graphic display (Jones, Fremouw, & Carples, 1977; Payan, Boozer, & Morris, 1970; Squires et al., 2012). A review of what type of feedback combination has been the most effective was conducted by Alvero, Bucklin, and Austin (2001). Combinations consisting of feedback alone, feedback and goal setting, feedback and antecedents (such as supervisor prompting, tangible task analyses, and task assignments or objectives), feedback and

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consequences (such as monetary incentives, time off of work, or praise), and feedback and both antecedents and behavioral consequences were examined. The authors found that using feedback alone was the most popular procedure, however not necessarily the most effective. It was suggested that feedback plus antecedents produced the most consistent results. As a means of feedback delivery, written feedback and graphs or visual feedback were more effective when including additional verbal feedback. Feedback that was delivered daily, monthly, and both daily and weekly all resulted in highly consistent effects, which suggest that there is not an overriding best practice with regards to the frequency of feedback delivery at this point (Alvero et al., 2001). Feedback, when added to a self-monitoring program, also was effective at increasing the number of trainings conducted each day in a state institution (Payan et al., 1970). Although high interobserver agreement (96%) was reported between supervisors and staff self-monitoring forms, interobserver agreement (IOA) was only assessed during direct observation.

Treatment integrity is typically evaluated by direct observation of a supervisor or researcher. Due to the potential reactivity that occurs with obtrusive data collection, it is unclear if teachers and staff maintain the same level of treatment integrity when not being directly observed. Only a few studies have evaluated reactivity**.** Reactivity is the phenomena that can occur when an individual's behavior changes as a result of being observed (Kazdin, 1979). When a supervisor is present, treatment integrity is higher than when the supervisor is absent (Bracket, Reid, & Green, 2007; Mowery, Miltenberger, & Weil, 2010). Bracket et al. (2007) experimentally evaluated the effects of reactivity. They taught participating job coaches to allow supported workers to complete their break time tasks independently. The authors used a reversal design that showed when supervisors were present and collecting data on job coach behavior, the staff met expectations 100% of the time. When supervisors collected data inconspicuously and

job coaches were unaware they were being observed, the authors saw an immediate decrease in treatment integrity, and job coaches met expectations 0% of the time. When supervisors again recorded data conspicuously and delivered verbal feedback to the job coaches, the authors saw an immediate increase in treatment integrity. These findings demonstrate the occurrence of reactivity in job coaches' behavior when supervisors are present (Bracket et al., 2007).

Mowery et al. (2010) demonstrated the occurrence of reactivity to supervisors' presence in a group home setting. Four direct care staff were trained to engage in positive interactions with clients and utilize a self-monitoring and tactile prompt procedure. A vibrating pager was worn by staff to serve as a prompt to engage in interactions and to record on the self-monitoring form. Differences in staff behavior were observed in the presence of the supervisor and in the absence of the supervisor. None of the four participants increased their positive interactions following the initial training when supervisors were not present. Two out of four of the participants increased their interactions when supervisors were present. Two out of four of the participants increased the number of positive interactions they were having with the clients, with feedback but only when the supervisor was present. These findings demonstrate reactivity of supervisor presence and suggest limitations to using self-monitoring procedures in the absence of supervisors' presence (Mowery et al., 2010).

With few studies assessing reactivity to observation of treatment implementation, more research needs to be conducted. The purpose of this study was to evaluate and control for reactivity of teachers' positive interactions with their students. To increase accessibility of the intervention, a pyramidal training approach was used (Jones et al., 1977) for supervisors to train teachers on a self-monitoring procedure. Teachers received feedback from supervisors throughout the experiment. This study extends the research by evaluating reactivity in a different

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setting than has been shown in the past and identifies a potential way to increase treatment

integrity even in the absence of a direct supervisor.

CHAPTER TWO:

METHOD

Participants and Setting

The study was conducted at two local preschools. The preschools were chosen based on interest in the study. Both preschool teachers and supervisors expressed willingness to participate in all aspects of the study. Within each preschool, the program director and one or two teachers participated in the study. Teachers working within the same classroom as another teacher participating in the study were excluded from the study. Teacher A was a 25 year old woman with an associate's degree, who had been teaching preschool for eight years. Teacher B was a 48 year old woman with a bachelor's degree, who had been teaching preschool for 23 years. Teacher C was a 27 year old woman with a bachelor's degree, who had been teaching preschool for 10 years. The two program directors were 45 and 48 year old women with 10 and 12 years of experience as program directors and 20 and 28 years of experience in preschool settings.

Materials

The materials used for this study were video cameras accessible to the preschools and data collection forms. The cameras were placed in the classroom during the reactivity control and maintenance phase prior to each session. Handheld counters and self-monitoring forms were used by teachers and supervisors for self-monitoring and feedback. Motiv-Aider pagers (Mowery et al., 2010) also were used for data collection by research assistants. Handheld counters were clickers worn on the teachers' and supervisors' finger that allowed tracking of positive interactions as the behavior occurred.

Target Behaviors and Data Collection

The dependent variable was teachers' positive interactions with the children in the classroom. A positive interaction was defined as any positively stated verbal comment, gesture, or physical action made by the teacher towards a child. A positive interaction was a discrete event. A separate occurrence was counted if the teacher directed a comment towards a different child or at least 3 s elapsed from the previous comment. Examples are provided in appendix A. Praise was included in the target behavior and defined as any verbal comment, physical, or gestural identifier that was provided to the child as a consequence following the child's engagement in an appropriate behavior. Examples of appropriate behavior were sharing, complying with a demand, and cleaning up. The teacher may give a thumbs up, high-five, or praise statement such as "nice job cleaning" or "that's good sharing." Positive comments made by the teacher about a child or a child's engagement with an activity were included. Assisting a child with a need such as self-help, engaging in an ongoing activity such as reading a book or playing with toys, placing demands, setting expectations, scolding, reprimanding, and physically guiding a child were excluded from the definition and not counted as an occurrence of the target behavior.

Research assistants collected frequency within 1 min interval data on the occurrence of positive interactions within an observation period (see appendix B). Observation periods occurred at the beginning of center time, and lasted for 30 min. On average, preschool teachers have fewer interactions with the children in their classrooms during free play times, such as center time, than teacher structured routines (Booren, Downer, & Vitiello, 2012). Research assistants collected data inconspicuously within the classrooms during baseline and self-monitoring and through video feed placed in the classroom during reactivity control and

maintenance conditions. The number reported on the teacher's self-monitoring form was also recorded and assessed for level of error in reporting.

Data collectors were trained to identify the target behavior and record each occurrence of behavior within each interval of the observation period. Training consisted of first verbally instructing the research assistant on the definition of the target behavior and then providing a variety of different examples. Following the initial training, a generalization test was administered by the trainer. For the generalization test, the trainee was required to identify whether a behavior would be counted as an occurrence of a positive interaction as the trainer provided examples and non examples of preschool teachers' behavior. Some exemplars that were used in training are listed in appendix A. The trainee was required to meet the mastery criterion before recording data on site. The mastery criterion was identifying positive interactions 100% correctly for three consecutive generalization tests.

Interobserver Agreement

Frequency within interval interobserver agreement (IOA) data were collected in 35% of sessions. The number of responses from each recorder was compared within each interval. In order to calculate the IOA percentage, first the lower number within each interval was divided by the higher number within each interval and multiplied by 100, which resulted in a percentage for each interval. Next, all of the percentages were summed and divided by the number of intervals within the observation period to obtain an IOA percentage for that session. At the end of the study, all of the IOA percentages were averaged to obtain an overall IOA percentage for the study. The percentage of interobserver agreement across all conditions was 96.67% including baseline (99.52%), self-monitoring and feedback (92.67%), reactivity control (96.11%), and maintenance (98.61%).The range of IOA for teacher A was 96.67%-100.00%, with a mean of

98.33%. The range of IOA for teacher B was 70.00%-100.00%, with a mean of 95.00%. The range of IOA for teacher C was 93.33%-100.00%, with a mean of 96.67%.

Social Validity

Social validity of the intervention was measured using a 9-item instrument with each item rated on a 4-point rating scale ranging from strongly disagree to strongly agree (see appendix C). Upon the end of the study, rating scales were administered to participating supervisors. The rating scale assessed the acceptability of the procedures, ease of implementation, improvements and benefits and future use of procedures.

Experimental Design

A multiple baseline across participants design, with baseline and three intervention phases was used. An alternating treatment design was embedded in the first treatment phase with separate data paths to display observations with supervisors present and observations with supervisors absent for each teacher participating in the study.

Procedures

Four conditions were conducted during the study: baseline, self-monitoring and feedback, reactivity control, and maintenance.

Baseline. During the baseline condition, data were collected by research assistants prior to conducting trainings and without the provision of any instructions or feedback to the teachers participating in the study. During this condition the supervisor was not present in the classroom.

Self-monitoring and feedback. In this condition, positive interactions were evaluated as the teachers engaged in self-monitoring and received feedback for their performance during supervisor present and supervisor absent conditions. Research assistants were present in the classrooms in order to collect data, however the research assistants were instructed to be as

inconspicuous as possible by bringing other items than a data sheet, not making eye contact with the teacher, and not providing any type of feedback to the teachers.

Supervisor training. Supervisors were trained on the target behavior definition and how to train the teachers to engage in positive interactions with the children. Supervisors were instructed using the same methods utilized in training the research assistants on the behavior definitions. The researcher used instructions and practice to teach the supervisor to use the handheld clicker to collect frequency of positive interactions. The researcher provided the supervisor with opportunities to practice training the definitions of behavior targeted in the study and training on the use of the handheld frequency counter via role-play situations where the supervisor practiced training the researcher. This procedure of instructions and practice was repeated for training on self-monitoring forms and delivering feedback. The steps of training are listed in a task analysis in appendix D.

Research assistants were trained on and collected data on the completion of steps within the training task analysis to obtain a percentage of training integrity (see appendix E, F, and G). Training integrity data were collected during researcher training of the supervisor and the supervisor training of each teacher of all components. The research assistant provided immediate feedback to the trainer to ensure that all the steps were completed during training.

Teacher training. Supervisors trained the teachers on the target behavior definition using the same methods utilized in training the research assistants on the behavior definition; however the teachers learned to use their handheld frequency counters to record their own behavior. The supervisor completed all training steps within the task analysis (see appendix D), including instructing, allowing practice time, delivering feedback during practice, and setting expectations.

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The teachers were given a goal of two positive interactions each min throughout the 30 min center time for a total of 60 interactions per session.

Self-monitoring. Teachers pushed the handheld counter button each time they engaged in a positive interaction with a child in the classroom throughout the session. At the end of each session the teacher wrote down the frequency of interactions recorded for that day on a single self-monitoring form. All teachers participating in the study turned in the self-monitoring form to the supervisor by the end of each day. The self-monitoring form is shown in appendix H.

Feedback. The supervisor delivered three different forms of feedback throughout the study (see appendix D). The first was written feedback on the self-monitoring form to each of the participating teachers in the study during the self-monitoring condition when the supervisor was not present. This feedback was based on the number reported on the self-monitoring form. When the supervisor was present, the supervisor delivered verbal feedback based on a script following the observation in relation to the teacher engaging in accurate reporting and meeting the interaction goal (see appendix D). During the reactivity control condition, written feedback was delivered in relation to the interaction goal, based on the actual behavior engaged in which was viewed by the research assistants through the video feed. The teachers received all written feedback prior to the next session for each monitoring sheet, which varied in immediacy for each session. The feedback guidelines and examples are listed in the training task analysis in appendix D.

Reactivity probe. During 30%-40% of sessions, on specified days, the supervisor directly observed the teacher during the observation period. During these probes, research assistants were still present in order to collect ongoing accurate data of the preschool teacher's interactions. The supervisor randomly alternated between days present and days absent from observing the

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teachers throughout the self-monitoring condition. The teachers were informed that the supervisors were observing the implementation of the target behavior skills they learned in training and of the days that the supervisor would be present to observe. Data collection continued in the same manner during this condition. While the supervisor was present, there was no discussion or verbal feedback provided regarding the teachers' implementation of the behaviors being targeted until the end of the session. Supervisors used a handheld counter to record each instance a teacher engaged in a positive interaction. This number was used to compare with the teachers' self-monitoring and to provide feedback to each teacher at the end of the observation session.

Reactivity control. During this condition, the teachers were informed that the supervisor was observing center time via the live-feed video cameras and data were collected on their implementation of positive interactions. The video cameras were placed in classrooms by the research assistants, and then the research assistant left the room during each session. The video camera had the ability to move in direction as the teacher moved around the classroom; this was controlled by a joystick on the monitor used by the research assistants in a separate room. Supervisor present reactivity probes were no longer conducted. Instead, the research assistant informed the supervisor of what each teacher's interaction frequency was that day. The supervisor then provided accurate written feedback in relation to the interaction goal for each of the teachers participating in the study on the self-monitoring forms that were returned to the teacher prior to the next session.

Maintenance. The maintenance condition was conducted in the same manner as the reactivity control with the exception that written feedback was delivered every second or third days. Teachers were informed that they would be observed by a supervisor occasionally and

feedback would be delivered for the sessions observed (but the teacher would not be informed of which days they would be observed). Research assistants continued to collect data each day as the teachers continued to engage in the self-monitoring condition.

CHAPTER THREE:

RESULTS

The frequencies of positive interactions are presented in Figure 1. During baseline, all participants engaged in low frequencies of positive interactions with the children in their classrooms. The averages of positive interactions per condition are presented in Figure 2. The average frequency for baseline was 6.2 (Participant A), 2.7 (Participant B), and 3.4 (Participant C) within a 30 min observation period. It was found that during baseline, as the children engaged in free play activities the teachers did not interact with the children unless redirection was required due to behaviors. Research assistants also reported that the teachers would engage in paperwork during this time. Following training and implementation of the self-monitoring and feedback condition, the frequencies of positive interactions increased but not to goal level when the supervisor was not present in the classrooms, with the averages being 32.9 (Participant A), 37.5 (Participant B), and 38.6 (Participant C). During the same condition, when the supervisor was present in the classroom, positive interactions increased substantially, participant A and C met their goal of 60 interactions for every session and participant B achieved the goal in all but one session. The averages of positive interactions with supervisor present were 64.7 (Participant A), 61.0 (Participant B) and 63.8 (Participant C). With the implementation of the reactivity control condition, the teachers' engagement in positive interactions without a supervisor present within a classroom increased to levels similar to the self-monitoring and feedback condition with a supervisor present. The averages of positive interactions during the reactivity control condition were 64.0 (Participant A), 61.4 (Participant B) and 62.3 (Participant C). During the maintenance

phase, although increased variability between sessions was observed, the overall level remained

high. The averages of positive interactions during the maintenance were 67.6 (Participant A),

57.8 (Participant B) and 65.5 (Participant C). As shown in Figure 3, all participants engaged in

substantially higher false reporting when a supervisor was not present in the classroom during

the self-monitoring and feedback condition. Reporting error was calculated by subtracting the

actual frequency from the reported frequency and dividing the difference by the actual frequency

(for example, if a participant self-recorded 60 but actually engaged in 50 positive interactions,

the calculation would be 60-50=10; 10/50 = 20% error). The averages of all teachers reported

error range included 42.3% (self-monitoring and feedback condition with supervisor absent),

12.4% (self-monitoring and feedback condition with supervisor present), 15.9% (reactivity

control condition), and 18.0% (maintenance condition).

Following the study, each supervisor was given a 9-item social validity questionnaire.

Both supervisors reported "strongly agree", for eight of the social validity question items

(including: "Training was easy for me to conduct", "It was easy to deliver written feedback", "It

was easy to deliver verbal feedback", "Classrooms benefited from positive interactions",

"Teachers increased the number of positive interactions they have with the children", "I would

use these procedures in the future with other teachers", "Participating in the study was beneficial

to the preschool', and "Providing training and feedback is not too time consuming"). For the

social validity item "Collecting data during observations was not difficult", one supervisor

reported "strongly agree" while the other supervisor reported "agree". The supervisor reporting

only "agree" reported that it was challenging to take the time out of the office to spend the full

30 min in the classroom with one teacher.
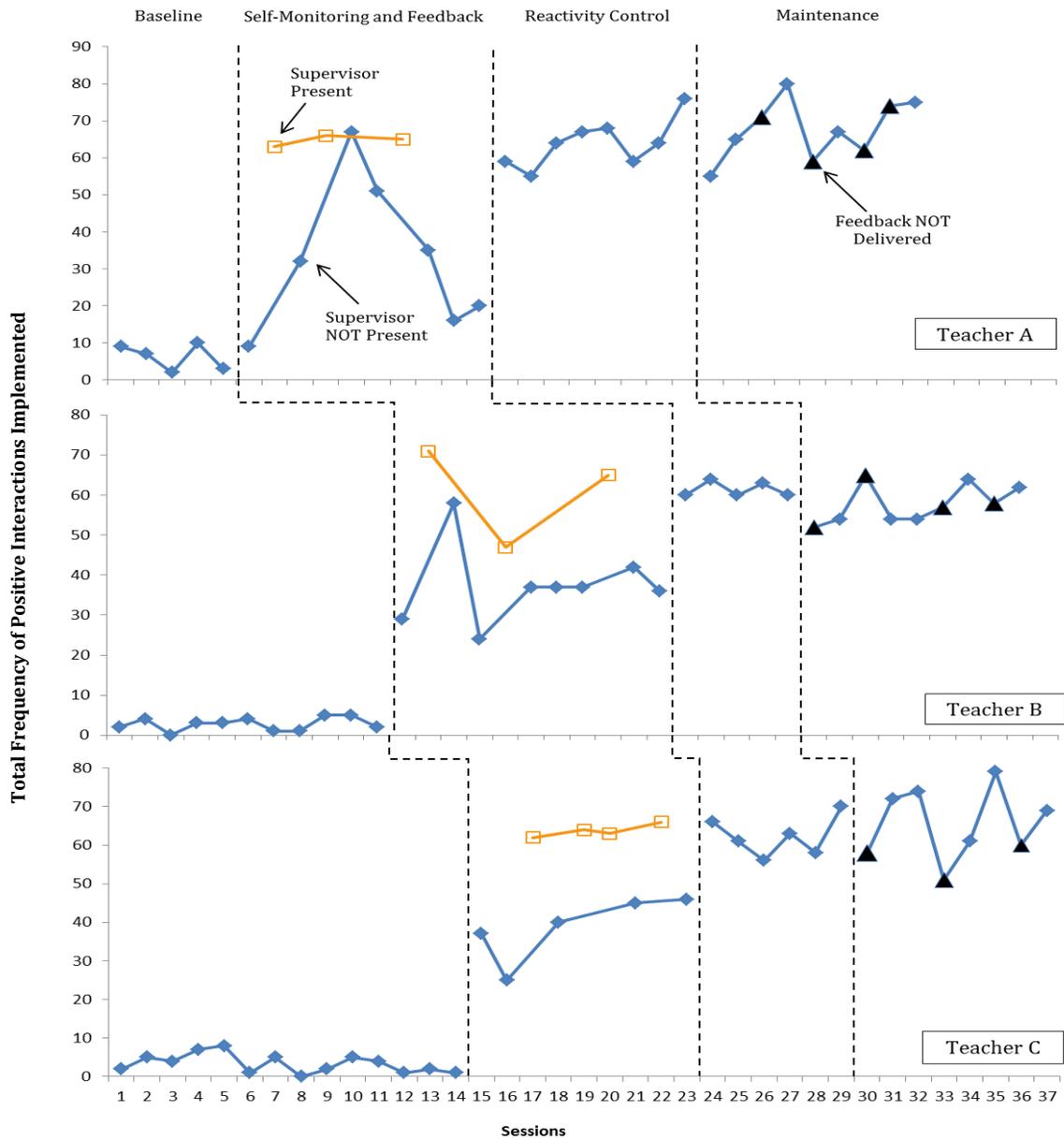
Figure 1. Positive Interactions Implemented in the Classroom

The frequency of positive interactions during baseline, self-monitoring with and without a supervisor present, reactivity control, and maintenance conditions for three teachers. The open markers indicate sessions that a supervisor was present and the closed markers indicate the sessions that a supervisor was not present. The black triangles indicate a session in which feedback was not delivered.
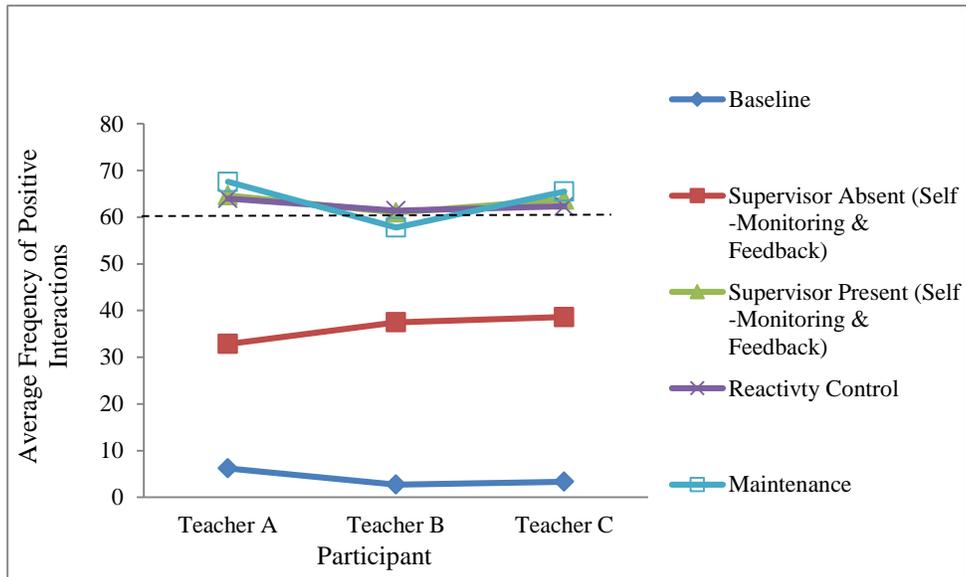
Figure 2. Average Frequency of Positive Interactions per Condition

The average frequency of positive interactions for each session across teachers. Baseline, self-monitoring with and without a supervisor present, reactivity control, and maintenance conditions are presented. The dotted line indicates the teacher's goal per session.
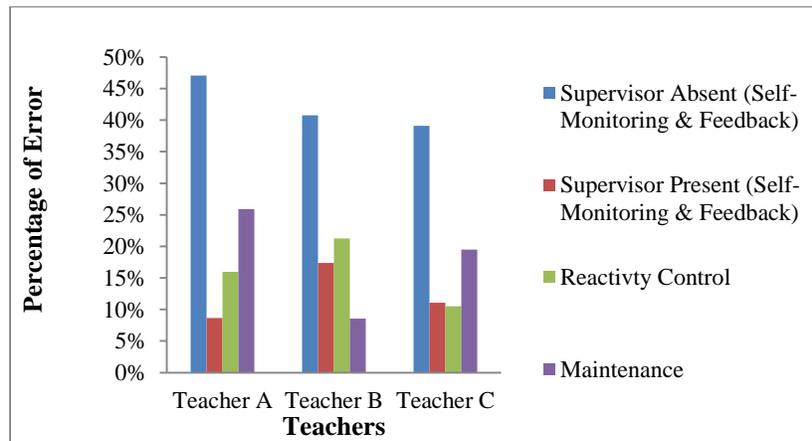
Figure 3. Average Percentage of Error in Self-Reporting vs Actual Behavior

The bar graph displays the average percentage of error range in self-reporting as compared to actual behavior of positive interactions for each session across teachers.

CHAPTER FOUR:

DISCUSSION

This study investigated the effects of reactivity to a supervisor's presence on positive interactions during the implementation of self-monitoring and feedback procedures. Very clear reactivity effects were shown for all three participants as the engagement in positive interactions increased to the goal of 60 interactions per session (30 min) only when the supervisor was present in the classrooms. These reactivity effects are consistent with previous research which has identified higher fidelity of implementation of procedures when in the presence of a supervisor (Bracket et al., 2007; Mowery et al., 2010). Although the training and implementation of the self-monitoring and feedback resulted in increased interactions, these interactions did not reach the goal and did not maintain for all participants in the absence of the supervisor. Also, when a supervisor was absent during the self-monitoring and feedback condition, participants engaged in the highest percentages of false reporting where they reported to have met their goal but did not actually engage in the criterion number of positive interactions with their children. With the implementation of the reactivity control condition, substantial and stable increases in positive interactions, similar to when the supervisor was present in the classroom, were observed as the goals were met during this condition. As Mowery et al. (2010) showed that tactile prompts were not viable procedures for increasing positive interactions of group home staff when a supervisor was not present, this study adds data to suggest that training, self-monitoring and feedback were not viable steps to gain high treatment integrity of increasing positive interactions in preschool teachers as well. With the implementation of the maintenance condition and the

decrease in frequency of feedback provided, increased variability was observed, while high levels of engagement in positive interactions maintained for all teachers.

Anecdotally, the stability of interactions by participant B showed more consistent implementation of the self-monitoring than the other two participants. It was reported that generalization was observed for participant A and C when their positive interactions increased at times in which the self-monitoring was not being used and data were not being collected. Also reported, was that Participant B engaged in timing her own sessions (by looking at the clock and counter frequently) and no positive interactions were observed outside of the 30 min sessions specifically designated for the study.

Although previous research indicates that self-monitoring may be an effective tool for behavior change (Petscher & Bailey, 2006), the data from this study in a preschool setting show that self-monitoring was most effective when the teacher was under the impression that a supervisor was observing her. Although the data show clear reactivity effects to the supervisor's presence, it is also possible that the increase in positive interactions with the implementation of the intervention in the supervisor absent condition was in part due to reactivity to the research assistant's presence. However, we did not record positive interactions in the absence of the research assistant to measure this type of reactivity. Considering the teachers did not seem to pay attention to the research assistant's presence, we do not believe the increase in the supervisor absent condition was due to reactivity to the researcher's presence. The data suggests that in this type of setting, self-monitoring and feedback in the absence of the supervisor was an effective way to increase positive interactions but not to the desired level. However, continued engagement in high levels of positive interactions in the absence of a supervisor during the maintenance phase suggest that continuous supervision may not be required to maintain high

levels of behavior, as the frequency of positive interactions and goals met maintained during the intermittent schedule of supervision for all teachers.

One potential limitation in the study is that the type of feedback and the timing of feedback differed between supervisor present and supervisor absent conditions in the self-monitoring and feedback phase. When the supervisor was present, feedback was based on the number of positive interactions the supervisor recorded (accurate data), whereas, when the supervisor was absent, feedback was based on the number of positive interactions the teacher recorded (inaccurate data). Unfortunately, there was no other way to provide feedback with the supervisor absent. However, it does not appear that the feedback based on inaccurate teacher reporting was responsible for the lower level of positive interactions in the supervisor absent conditions. Because supervisor present conditions followed supervisor absent conditions the effects of the inaccurate feedback should have been reflected in the supervisor present conditions. However, the data were consistently higher in the supervisor present conditions. In addition, in the supervisor present conditions feedback was delivered verbally and in writing immediately after the session, whereas in the supervisor absent condition, feedback was delivered in writing before the next session rather than immediately after the observation. This difference in timing of feedback did not seem to play a role in the higher level of positive interactions in the supervisor present conditions, because delayed written feedback was also used in the reactivity control condition and the target behavior was consistently high in this condition. Therefore, the most plausible explanation for higher levels of positive interaction during the supervisor present condition is reactivity rather than differences in timing or type of feedback. An additional note during two of the sessions when the supervisor was present in the classroom, there was one instance where the supervisor left the classroom for a few minutes, and one

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instance the supervisor was busy talking with a parent for some time during the session. These variables did not show any substantial effects in the teacher's engagement in positive interactions or accuracy of self-monitoring reporting. A supervisor's presence for the entire session may not have been required to see the effects of reactivity.

A limitation of the current study was the teacher's awareness of the research assistants' relation to the study. However, even with this knowledge, substantial reactivity effects to the supervisor's presence were observed. Another limitation is that the maintenance condition only lasted eight or nine sessions. It may be beneficial for future research to examine an extended maintenance condition to identify the stability of interactions over time. Future studies could evaluate the occurrence of generalization in increased positive interactions without the use of the self-monitoring clicker and form, and assess the interactions in different environments other than center time such as other activities including teacher instruction, circle time, during academic activities or outside play time.

Although, reactivity was only evaluated in two preschool settings, similar results were observed for all three participants in the occurrence of reactivity to a supervisor's presence. This study presents one possible way to harness the effects of reactivity while increasing positive interactions when a supervisor is not able to directly observe the teacher. This study also illustrates the need to evaluate the integrity of self-monitoring and other staff management procedures via surreptitious observation to identify whether the effects are robust in the absence of a supervisor's presence.

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APPENDICES

Appendix A: Target Behavior Training Exemplars

	Positive Interactions	
Training Examples	Generalization Examples	Non Examples
▪ "You're making the truck go fast" ▪ "Good answer, high five" ▪ "Thanks for cleaning up your area"	▪ "Awesome work, that is a circle" ▪ "You're center looks so clean" ▪ "You made a tower" ▪ "Thanks for using walking feet inside"	▪ "Clean up" ▪ "Don't run" ▪ "You need to be nice to Johnny"

Note. Teacher behavior that was be used for training purposes as exemplars are listed.

Appendix B: Positive Interactions Data Sheet

Teacher observed: _____   Date: _____

Begin time: _____   End time: _____

Supervisor: Present   Absent

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30

Frequency of Positive Interactions: _____   Data Collector: _____

Appendix C: Social Validity Questionnaire

Please put a checkmark next to the corresponding statement.

	Strongly Disagree	Disagree	Agree	Strongly Agree
Training was easy for me to conduct.				
Collecting data during observations was not difficult.				
It was easy to deliver written feedback.				
It was easy to deliver verbal feedback.				
Classrooms benefited from positive interactions.				
Teachers increased the number of positive interactions they have with the children.				
I would use these procedures in the future with other teachers.				
Participating in the study was beneficial to the preschool.				
Providing training and feedback is not too time consuming.				

Other comments: _____

_____

_____

_____

_____

_____

Appendix D: Training Steps Task Analysis

<div align="center">Target Behavior Training</div>

---

1. Provide instructions and examples of the target behavior and definition.
2. Give generalization test scenarios where trainee chooses whether the example is an occurrence of target behavior.
3. Provide praise for correct answers and feedback for incorrect answers.
4. Continue the generalization test until the trainee obtains three correct identifications consecutively.
5. For supervisors, allow the opportunity to practice training the researcher on the behavior definition and deliver feedback.
6. For teachers, allow the opportunity to practice engaging in the behaviors and deliver feedback.
7. Answer any questions posed by the trainee.

<div align="center">Self-Monitoring Training</div>

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1. Provide instructions on the use of the handheld counter and the self-monitoring form.
2. Allow the trainee to practice using the counter and filling out the form.
3. Set expectations:
    - Positive interactions should occur throughout center time with a variety of different children.
    - The goal is to have a minimum of two positive interactions a min for the 30 min of center time (60 interactions total).
    - Self-monitoring forms should be filled out following each session and turned into the research assistant on a daily basis. The research assistant will collect the forms and return them to the supervisor.
4. Allow the supervisor the opportunity to practice training the researcher on the use of the handheld counter, self-monitoring form, and setting expectations. Deliver feedback.
5. Answer any questions posed by the trainee.

<div align="center">Feedback Training</div>

---

1. Provide instructions defining what delivering feedback will consist of on days the supervisor does not directly observe the teacher within the self-monitoring condition:
    - Write either a praise statement such as "Great work interacting with the children in your classroom, you met your goal of two positive interactions per min for today." on self-monitoring forms that have 60 or more interactions recorded or "Thanks for recording your interactions, please try to meet your goal of two interactions per min tomorrow" on self-monitoring forms that have less than 60 interactions recorded.
    - Return the self-monitoring form with feedback to the teacher the next work day.
2. Provide instructions defining what delivering feedback will consist of on days the supervisor directly observes the teacher within both the self-monitoring and reactivity control condition:
    - Comparing the frequency of interactions the supervisor recorded with the amount of interactions the teacher recorded immediately following the 30 min observation period.

Appendix D Continued: Training Steps Task Analysis
- Provide verbal praise ("Great work interacting with the children in your classroom, you met your goal of two positive interactions per min for today") if the teacher recorded the same number of interactions (allow a 10% error range) as the supervisor or if the teacher engaged in 60 or more interactions.
- If the teacher reported more interactions than the supervisor (exceeded the supervisor by 10% or more interactions) or less than 60 interactions, verbally tell the teacher how many interactions were recorded by the supervisor, and restate expectations for meeting the goal of two interactions per min ("Thanks for recording your interactions, please try to meet your goal of two interactions per min tomorrow").
- There will be no written feedback for days the supervisor is present. Feedback and verbal praise should remain consistent each day (similar comments, similar voice tone, ect.). No additional conversation about the teachers' behavior should occur.
3. Provide instructions defining what delivering feedback will consist of on days the supervisor is not present to directly observe the teacher within the reactivity control condition. (This training will be conducted directly prior to implementing the reactivity control condition)
    - Compare the frequency of interactions the research assistant recorded via video observation with the amount of interactions the teacher recorded.
    - Provide written praise on the self-monitoring form if the teacher recorded the same number of interactions (allow a 10% error range) as the research assistant or if the teacher engaged in 60 or more interactions such as "Nice job, you met your goal and recorded all the interactions accurately".
    - If the teacher reported more interactions than the research assistant (exceeded the 10% error range) or less than 60 interactions, provide a written statement on the monitoring form letting the teacher know how many interactions the teacher actually engaged in and the expectations for meeting the goal of two interactions per minute ("You recorded more interactions then you engaged in. For tomorrow please record your interactions accurately and try to meet your goal of two interactions per min").
    - Return the self-monitoring form with feedback to the teacher the next work day prior to each session.
4. Allow the supervisor to practice all of these forms of feedback verbally and on prefilled out self-monitoring forms. Deliver feedback.
5. Set expectations for the supervisors to deliver each teacher's self-monitoring forms with supervisor feedback to the teacher the following work day and verbal feedback immediately after center time.
6. Answer any questions posed by the supervisor.

Note. Task analysis components are listed that were conducted during trainings.

Appendix E: Task Analysis of Training Components

Trainer observed: _____   Date: _____

Target Behavior Training	
Provide instructions and examples of the target behavior and definition.	
Give generalization test scenarios while trainee chooses whether the example is an occurrence of target behavior.	
Provide praise for correct answers and feedback for incorrect answers.	
Continue the generalization test until the trainee obtains three correct identifications consecutively.	
-For supervisors, allow the opportunity to practice training the researcher on the behavior definition and deliver feedback. -For teachers, allow the opportunity to practice engaging in the behaviors and deliver feedback.	
Answer any questions posed by the trainee.	

Training Integrity ____ / __6_ x _100_ = ____ %   Data Collector: _____

Appendix F: Task Analysis of Training Components

Trainer observed: _____   Date: _____

Self-Monitoring Training	
Provide instructions on the use of the handheld counter and the self-monitoring form.	
Allow the trainee to practice using the counter and filling out the form.	
Set expectations:	
- Positive interactions should occur throughout center time with a variety of different children.	
- The goal is to have a minimum of two positive interactions a minute for the 30 minutes of circle time.	
- Self-monitoring forms should be filled out daily and turned into the supervisor on a daily basis. There should be a designated place near the clock out table.	
Allow the supervisor the opportunity to practice training the researcher on the use of the handheld counter, self-monitoring form, and setting expectations. Deliver feedback.	
Answer any questions posed by the trainee.	

Training Integrity ____ / __7_ x _100_ = ____ %   Data Collector: _____

Appendix G: Task Analysis of Training Components

Trainer observed: _____   Date: _____

Feedback Training	
Provide instructions defining what delivering feedback will consist of on days the supervisor does not directly observe the teacher within the self-monitoring condition:	
- Write either a praise statement such as "Great work interacting with the children in your classroom, you met your goal of two positive interactions per minute for today." on self-monitoring forms that have 60 or more interactions recorded or "Thanks for recording your interactions, please try to meet your goal of two interactions per minute tomorrow" on self-monitoring forms that have less than 60 interactions recorded.	
- Return the self-monitoring form with feedback to the teacher the next work day.	
Provide instructions defining what delivering feedback will consist of on days the supervisor directly observes the teacher within both the self-monitoring and reactivity control condition:	
- Comparing the frequency of interactions the supervisor recorded with the amount of interactions the teacher recorded immediately following the 30 minute observation period.	
- Provide verbal praise ("Great work interacting with the children in your classroom, you met your goal of two positive interactions per min for today") if the teacher recorded the same number of interactions (allow a 10% error range) as the supervisor or if the teacher engaged in 60 or more interactions.	
- If the teacher reported more interactions than the supervisor (exceeded the supervisor by 10% or more interactions) or less than 60 interactions, verbally tell the teacher how many interactions were recorded by the supervisor, and restate expectations for meeting the goal of two interactions per minute ("Thanks for recording your interactions, please try to meet your goal of two interactions per min tomorrow").	
- There will be no written feedback for days the supervisor is present. Feedback and verbal praise should remain consistent each day (similar comments, similar voice tone, ect.). No additional conversation about the teachers' behavior should occur.	
Provide instructions defining what delivering feedback will consist of on days the supervisor is not present to directly observe the teacher within the reactivity control condition. (This training will be conducted directly prior to implementing the reactivity control condition)	
- Compare the frequency of interactions the research assistant recorded via video observation with the amount of interactions the teacher recorded.	
- Provide written praise on the self-monitoring form if the teacher recorded the same number of interactions (allow a 3 count error range) as the research assistant or if the teacher engaged in 60 or more interactions such as "Nice job, you met your goal and recorded all the interactions accurately".	

Appendix G Continued: Task Analysis of Training Components

- If the teacher reported more interactions than the research assistant (exceeded the research assistant by 4 or more interactions) or less than 60 interactions, provide a written statement on the monitoring form letting the teacher know how many interactions the teacher actually engaged in and the expectations for meeting the goal of two interactions per minute. ("You recorded more interactions then you engaged in. For tomorrow please record your interactions accurately and try to meet your goal of two interactions per min").	
- Return the self-monitoring form with feedback to the teacher the next work day.	
Allow the supervisor to practice all of these forms of feedback verbally and on prefilled out self-monitoring forms. Deliver feedback.	
Set expectations for the supervisors to deliver each teacher's self-monitoring forms with supervisor feedback to the teacher the following work day and verbal feedback immediately after center time.	
Answer any questions posed by the supervisor.	

Training Integrity ____ / _13_ x _100_ = ____ %   Data Collector: _____

Appendix H: Self-Monitoring Form

Self-Monitoring Form

Teacher: _____   Date: _____

How many positive interactions with the children in your classroom did you record during center time today? _____

Supervisor feedback:

_____

_____

_____

_____