The Effects of Training, Prompting, and Self-Monitoring on Staff Behavior in a Classroom for Students with Varied Exceptionalities

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ABSTRACT

Staff who aid teachers in classrooms for children with special needs are not always well prepared for their jobs. Oftentimes in-service training is offered and no follow up on their behavior or improvement is noted. This lack of training can interfere with the quality of education for children in the class and with the implementation of any behavioral programs in effect for the class.

The present study offered very brief in-service training to recently hired instructional assistants in a classroom for students with varied exceptionalities. Experimenters visually analyzed the results and noted that no improvement from baseline occurred. A treatment package of prompting the opportunity for a behavior to occur and self-monitoring with accuracy feedback was then introduced as a moving treatments design across behaviors. Results showed a marked improvement for two of three participants, and moderate improvement for the third. The improvements were visually significant during observation sessions although little assessment of generalized results occurred.
INTRODUCTION

Educational settings have perhaps been studied more often than any other setting in behavior analysis. Baer and Bushell (1981) reported that psychology and education have been paired for almost as long as psychology as a social science has existed. They went on to state that the advances in psychology are almost all applicable in some way to the practice of education. The authors also reminded readers that applied behavior analysis can transform even the most miserable and difficult children into happy, motivated and high achieving students.

Behavior analysis has advanced the science and study of the field of education. Gresham et al. (2004) reviewed 150 articles that involved school settings and were published in the *Journal of Applied Behavior Analysis*. The authors reported that applied behavior analysis has significantly added to the field of education. Kamps (1997) stated that a behavior-analytic approach to education emphasizes practices that are based on research, as well as practitioner’s accountability for the results of interventions.

Schools are an ultimate environment for behavior analysts to become involved. The classroom setting presents the opportunity to study the natural behavior of children under a somewhat controlled environment where the target behaviors have ultimate social validity. In addition, the classroom presents an opportunity to study the behavior of the teacher in a variety of circumstances, not only as a presenter of material, but perhaps more importantly as a behavior shaping influence of potentially great power. Teachers have more adult contact with children than anyone outside of the home, and schools require a student to perform a vast amount of difficult behavior, which school staff can observe (Fantuzzo & Atkins, 1992). Educators in fact deal with difficulties of redirecting
or disciplining their students on a daily basis (Warner & Lynch, 2002-2003). Some of the very earliest studies in behavior analysis were done in classrooms (for examples, see Azrin, Jones & Flye, 1968; Hart & Risley, 1968; Keller, 1968; Ward & Baker, 1968) and clearly demonstrated that children's behavior can be modified dramatically by changing teacher's reactions to it.

According to Fantuzzo and Atkins (1992), although behavior analysts have successfully documented the potential and achievements of their technology, it may be that educators question the relevance of rigorous research methods for classroom settings. They remind us that as the intensity of intervention increases, so do the corresponding influences on the individual, as well as the costs to the system of interest. This statement supports the need for behavior analysts to focus on creating and perfecting interventions with the best cost to benefit ratio for all involved.

The presence of applied behavior analysis in schools has been quickly rising (Cooper, 1982), and many behavior analytic techniques have been used to alter teacher or student behavior in schools. Greenwood and Carta (1987) report that within special education, student behavior has been the traditional measure of successful teaching. A wide variety of behaviors of both instructors and students have been targeted in schools. The following studies (Barber et al., 2002; Barresi, 1993; Deguchi, Fujita & Sato, 1988; McLaughlin, Big Left Hand, & Cady, 1979; McLaughlin et al., 1983; Selinske & Greer, 1991; Taylor, 1994) represent only a few of the many classroom based behavior analytic interventions.

Taylor (1994) used intense in-service training in schools to teach 20 behavior management technicians to work with students diagnosed as behaviorally emotionally handicapped. The author reminded readers that proper staff behavior is imperative when focusing on such clients. Some of the training and weekly feedback focus, which lasted a total of 32 weeks, increased appropriate staff implementation of a classroom token economy. The author noted that inconsistent implementations of token economies could make the point system non-motivating for students.

Barresi (1993) trained special education teachers and paraprofessionals to identify antecedents of maladaptive behaviors for students with developmental and behavior disorders. Ten hours of in-service training were supplied for participants, whose behavior
change transferred temporarily to the classroom. Within the passage of three weeks without consequences, participants’ behavior decreased to baseline levels. The author went on to recommend in-service training for new staff of public schools, but not for those with experience in such a setting.

Barber et al. (2002) intervened upon students enrolled in special education at a public school, who were identified as lacking motivation to read. The authors compared the use of a variety of interventions, including teacher modeling, peer reading, book chats, independent reading followed by journals, incentive programs, and weekly teacher to student interviews. They determined that the most successful intervention in increasing student book reading performance and positive reports of reading involved giving them a choice of reading material.

Two studies were found that focused on improving reading, arithmetic, and spelling via a treatment package in public schools. (McLaughlin, Big Left Hand, & Cady, 1979; McLaughlin et al., 1983). They implemented models with small group instruction, employed instructional assistants to improve the ratio of students to staff, used programmed reading materials, token economies or contingency contracting, observations of modeling by authority figures and bi-weekly progress monitoring of student academic placement. Staff were trained in testing and program implementation, and students’ academic achievement did improve over time. However, no control group was assessed to in either study confirm that the participant behavior improved more than non-participant behavior due to time or other factors.

Deguchi, Fujita, and Sato (1988) compared vicarious reinforcement to observational learning in an educational setting, and found that observational learning (video modeling), with vicarious reinforcement of watching the model receive a token, worked to increase imitative button-pressing behavior temporarily, but it necessitated the addition of direct reinforcement, token delivery, to increase participants’ imitations. The operandum for the behavior was an experimenter-created token dispenser, which delivered marbles to be exchanged for stickers or other treats during some phases. No marbles were delivered during phases that did not include reinforcement. The authors concluded that some direct reinforcement is likely necessary to maintain imitative behaviors previously controlled by vicarious reinforcement.
Selinske and Greer (1991) conducted a long-term study in which researchers used a treatment package (Comprehensive Application of Behavior Analysis to Schooling) to improve the number of trials taught during schooling, correct student trials, and objectives achieved over two years, and found their results had maintained over the third year. While a control group was not compared, a multiple baseline design across groups yielded a graphic depiction that indicated visually significant results across the replications.

Behavior analysts have well established the importance of appropriate staff behavior on their client’s behavior. Research has identified the necessity of staff to behave consistently to yield the best possible results (Phillips, 1998). Staff behavior has been targeted in a variety of settings beyond the classroom, ranging from restaurants (Ludwig, Biggs, Wagner & Geller, 2001), to roofing companies (Austin, Kessler, Riccobono, & Bailey, 1996), and residential settings (Parsons, Reid & Green, 1993; Richman, Riordan, Reiss, Pyles, & Bailey, 1988). The studies that occurred in residential settings (Parsons, Reid & Green, 1993; Richman et al., 1988) were reviewed because participants were similar to those of the current study.

Richman et al. (1988) employed the use of self-monitoring and supervisor feedback on staff performance at a residential facility for people who were mentally retarded. In this situation, in-service training was followed by staff self-monitoring of their work completion every thirty minutes, and later this was added to supervisors’ providing feedback on correct or incorrect activities. Results of in-service training revealed very little improvement in behavior for most groups, and a decrease in appropriate behavior for the others. The phase which incorporated supervisor feedback increased staff behavior for most groups. This feedback varies from the feedback delivered in the current study because it involves delivery by a supervisor rather than an experimenter.

Parsons, Reid and Green (1993) compared training packages of direct service staff who were recently employed to teach people with severe disabilities. The authors of the direct care intervention focused on training teaching skills to staff, noting this was necessary for several reasons. One basis was that limited time was available to train staff prior to their necessary work commencement. Next, participants began with such little
education that basic client teaching skills were needed. Another motive for training teaching skills in particular was that the skills that staff were teaching to clients resulted in considerable client behavior change. Finally, following acquisition of basic teaching skills, supervisors with supplementary education were free to focus on refining participant behavior. Four interventions were reported, although only two represented training methods, and the other two were expected to correspond with the attained staff behavior change. The first intervention utilized verbal feedback based on staff performance during practice sessions. Post-test scores revealed improvements compared to untargeted responses, and the tests focused on participants’ verbal report of appropriate behavior. The second intervention involved teaching different groups of staff. One baseline data point regarding staff behavior was collected for each group, and the number of sessions (always two or three) required for trainees to reach a criterion was reported. Post-training scores were recorded and were higher than baseline scores. With two data points representing the behavior change of staff in AB form, it is impossible to ascertain that the intervention was responsible for the increased posttest scores. The third study reported client progress that was apparently caused by the recently acquired improvement in staff behavior. Two slightly different lengths of baseline were collected for four clients’ behavior. Graphic depiction of results implied some increase in the behavior of two clients following training, although more replications with baselines of different lengths, and more post-training data points (maximum reported was three) are necessary. The final study reported by Parsons, Reid and Green depicted social validity measures, which were collected in the form of questionnaires. Results suggested that staff appreciated the training.

While the clients of staff targeted in the present study differ from those in Parsons, Reid, and Green (1993), there are several similarities. As with the current study, participants did not have particular experience working with their new clients, nor was extensive education required for employment. Minimum education for staff in both studies was a high school diploma. Basic teaching skills were selected as the dependent variables for Parsons, Reid and Green, and there were some parallels between those identified for the current study. The teaching skills included providing reinforcement to clients for appropriate behavior, and this was also the goal of the bonus point delivery for
the current study. Error correction was another behavior expected of direct care staff, and this is similar to the current study’s focus on removing behavior points for disruptive student behavior. Finally, a least-to-most-assistive prompting strategy was expected of staff at the residential setting, and this can be compared to prompting of appropriate student behavior that occurred in the present study.

The rationale for training direct care staff to teach behavior was similar to the rationale for the authors of the current study to increase staff behavior of correct implementation of token economies. In both situations, time for training was limited and improvement of intervened upon behavior yielded increased opportunities for supervisors to focus on more refined expectations. Both studies expected that trained behaviors would result in improved staff behavior, however Parsons, Reid and Green (1993) assessed this directly, while the authors of the current study utilized archival data, which were expected to demonstrate changes based on improvement of staff behavior. Follow-up and generalization data were not reported by Parsons, Reid and Green, so it was not possible to determine whether any acquisition or improvement of staff behavior during training maintained in the actual workplace or caused improvements in client behavior.

Public school employees, such as instructional assistants, are not necessarily trained to work with handicapped students. This is not always a problem because most students, whether typically developing or handicapped, obey rules and can be managed appropriately by standard approaches, such as praise and corrective feedback. However, as Gable et al. (1999) noted, standard approaches are not effective in controlling the behavior of some students, and such problem behaviors that result interfere with otherwise effective instruction. Barresi (1993) wrote that educators are aware that inappropriate discipline, such as the use of public humiliation, is not necessarily effective in improving student behavior and may in fact worsen it. However, such techniques still occur, and school staff must therefore be trained in more effective and appropriate methods of dealing with behavior problems.

Some have reported that to properly intervene upon children’s behavior, it is necessary that researchers adequately train those who interact with them (Fixsen and Blasé, 1993; Neef, 1995). Therefore, training teachers is not enough. Instructional assistants and other school staff who spend much time with students influence student
behavior. Furthermore, improving staff behavior allows classroom teachers to focus their energies on becoming more efficient in teaching academics to students (Anders and Richardson, 1991; Duffy, 1993).

A variety of antecedent and consequent interventions have attempted to improve staff behavior in educational settings. Antecedent manipulations, such as in-service training, have yielded inconsistent results that do not maintain long-term effects (Ducharme & Feldman, 1992; Phillips, 1998). Adding some degree of a consequence seems necessary for the continuation of behavior change. In many situations, it appears that supervisor’s presence or feedback is sufficient. However, in schools their availability tends to be rare (Lawson, 1989). In a situation with minimal supervision, self-monitoring can be successful and appropriate (Richman et al., 1988; Sharpe, Spies, Newman, & Spickelmier-Vallin, 1996).

In the present study, as well as the vast majority of school procedures, classroom staff were not supervised by anyone responsible for hiring or paying them. This could have contributed to the poor baseline performance of participants. Self-monitoring was selected as a consequence for behavior that would involve no changes to the classroom management. If this consequence had proved to be ineffective, system wide changes may have been recommended. Such changes might have involved assigning teachers the responsibility of consistently reporting to the progress and behavior of instructional assistants to the principal or other school officials.

Self-monitoring is a widely utilized and well-established intervention. By definition it involves an individual’s determination of the presence of a target behavior and is usually followed by self-recording the behavior (Harris, 1986). It has been used to intervene upon many target behaviors, such as swimming (Critchfield & Vargas, 1991), dental flossing (Dahlquist & Gil, 1986), and social and vocational skills (Foxx, McMorrow, & Mennemeier, 1984; Foxx, McMorrow, & Schloss, 1983).

In the Critchfield and Vargas (1991) study, the authors performed a systematic replication of a similar previous study (McKenzie & Rushall, 1974). Both studies included young swimmers who self-recorded their rates of swimming while working out with their competitive swim teams. Critchfield and Vargas controlled the environment more systematically than the study they replicated (McKenzie & Rushall, 1974), to make
the effects of the intervention more distinct. In the Critchfield and Vargas study, seven swimmers completed the multiple baseline across subjects study. During baseline, participants were told to remain in the water for the ten-minute session. Instructions, self-recording, and self-graphing phases followed. During the instructions phase, participants were told to swim as much as they could, and self-recording included an interruption of swimming to draw hash marks representing the number of laps they had swum. Self-graphing included self-recording with the addition of participants graphing the number of laps they swam on a publicly accessible chart.

Results of the study (Critchfield & Vargas, 1991) included a slight increase in behavior from baseline to the instructions phase, a further slight increase from instructions to the self-recording phase, and generally no change from self-recording to self-graphing. The authors did find, however, that while rate of swimming did not increase between self-recording to self-graphing, participants graphed considerably higher rates than they swam during public self-graphing. This indicated that the public aspect of that phase controlled their report of behavior, but without a consequence for honest reporting, it did not affect the behavior (rate of swim) to which the report corresponded.

Dahlquist and Gil (1986) used prompts plus various consequences to increase dental flossing with four children. Follow-up examinations revealed a decrease in plaque for all participants. The treatment package included teaching participants to floss, prompting correct flossing, self-monitoring of flossing on a chart, prizes for flossing down to individual plaque criterion, and corrective feedback plus forced plaque examination for failure to meet plaque criterion. Results of the study showed considerable decreases in plaque, although the importance of each component of the package was not evaluated.

Foxx, McMorrow, and Mennemeier (1984) extended previous research (Foxx, McMorrow & Schloss, 1983) on teaching social skills to retarded adults. Both studies utilized a table game to teach social skills and included reinforcement, self-monitoring, and feedback delivery. Foxx, McMorrow and Mennemeier added social skills that were particularly relevant to vocational settings. In a multiple baseline design across groups study, the authors first trained groups to play the game and respond to cards they drew.
Next, the supervisor of the game switched from facilitator to workshop supervisor. Generalization data were collected in the form of a pre- and post- test and revealed group score changes from beginning to end of the intervention. As in all treatment packages, one could not isolate a primary component that was responsible for participant behavior changes.

Burgio, Engel, Hawkins, McCormick, et al. (1990) used self-monitoring with feedback to improve staff behavior in a residential setting. This research was comparable to the present study for a variety of reasons. First, the staff who participated were not specially trained to work with such clients, just as instructional assistants do not have special training to work in schools. Next, the behaviors expected of the participants in both the current study and Burgio et al. were behavioral techniques geared specifically for the well being of disabled persons. In Burgio et al. this involved performing a continence unit, and in the present study it was the implementation of a token economy. Finally, in both studies participant’s actual employers were not commonly present to supervise. Burgio et al. first assessed the results of a staff training and management package. Self-monitoring was a component of this package and involved participants’ records of implementation of part of the behavior plan (wet beds and toileting device used). Bi-weekly meetings were held in which the group was praised for meeting a criterion of 80% or above scheduled prompted voidings for each patient. When performance was below 80%, the group was given corrective feedback. The treatment package apparently maintained staff behavior for four or more months, but competence declined. At this time, individual feedback was delivered while the other components of the treatment package remained the same. To deliver individual feedback, experimenters delivered graphic data representing participants’ individual data to staff supervisors, and the supervisors gave feedback to participants. It appeared as though this change in feedback delivery was responsible for considerable changes in staff behavior. However, results were presented in a multiple baseline across only two groups, so more replications are needed.

The use of self-monitoring in one setting may yield improved behavior in others. As one example (Peterson, Young, West, & Peterson, 1999), the authors of one study intervened upon student behavior with self-monitoring and teacher matching to increase
social skills and improve class behavior. When participants met pre-established criteria in one classroom, they were permitted to select another class to continue just the self-monitoring component. The authors reported improved behavior for participants in the additional settings.

Another study that utilized self-management skills of students was conducted by Shapiro and Klein (1980). These authors used self-management strategies to improve classroom behavior with children diagnosed as retarded or disturbed. Students were monitored for on-task and disruptive behavior, and students verbally responded to questions regarding their behavior at the time that a bell rang. Participants received tokens for correct verbal responses, and corrective feedback for incorrect responses to experimenter questions. Eventually, self-reinforcement was introduced and participants were taught to select a token for appropriate behavior. Prompts of teacher intrusion, both physical and verbal, were then faded.

Rhode et al. (1983) pointed out that special education has focused on training in self-management because it aids generalization of treatment gains and students who manage their own behavior require less assistance from school staff. Additionally, they boasted that such an intervention makes behavior less likely to extinguish than extrinsic reinforcement alone. In their study they used matching, which meant the students and teachers recorded the students’ behavior, then the teachers’ record was faded out. They also used models and role-playing and implemented a token economy for appropriate rule following and other behavior. The tokens were gradually faded and the intervention was moved from a resource room to a regular classroom. The authors found that targeted behaviors increased to equal the behavior of their normal peers.

Little attention has focused on the role of accuracy in the self-monitoring technique. Some studies include tests for accuracy (Harris, 1986; Maag, Reid, & DiGangi, 1993) for certain behaviors but not others. For example, Maag, Reid and DiGangi intervened upon three behaviors, in which the authors had six elementary school students with learning disabilities self-monitor their behavior. Accuracy of student’s self-recording was collected for two behaviors, math problem productivity and the number of correct math problems completed, accuracy data were not collected for the third behavior, which was attention to tasks. Feedback on the accuracy of self-report was not delivered.
As another example, in 1986, Harris examined effects of self-monitoring on on-task behavior and paying attention for four learning disabled students. Accuracy of self-monitoring was recorded for on-task behavior but not paying attention. Both examples allowed for inaccurate self-monitoring that could have affected the results of the study and comparison of the intervention across behaviors.

The importance of accuracy of self-monitoring is not clear. O’Leary and Dubey (1979) reported that accuracy of self-monitoring may be unnecessary to yield positive results. Furthermore, Harris (1986) found that past studies which involved students’ attentiveness revealed little need for accuracy checks. However, the author of the current study chose to ensure the accuracy of participants while data collection was still rigorous. Feedback was selected as the consequence to control for accuracy for a variety of reasons. Phillips (1998) found that feedback is of key importance to improving staff behavior. It can be effective in providing valuable information regarding the quality or quantity of individual or group performance (Prue, Frederiksen & Bacon, 1978). It is also inexpensive (Prue & Fairbank, 1981), and does not require significant additional time for experimenters or participants.

Gresham et al. (2004) called for research to be proactive in manipulating antecedents rather than focus solely on reacting to behavior problems, and Taylor (1994) declared that specific training and techniques are sorely needed for those who work with behaviorally or developmentally disordered students. The current study attempted to answer these calls by introducing antecedent prompts to alert staff of opportunities to respond, as well as offering specific training and accuracy feedback following baseline.

To ensure that participants were aware of the opportunity to perform the desired responses, a tactile prompt was selected. The author of this study found that the use of such prompts as a vibrating pager have rarely been cited but have shown promise as tools to prompt desired behavior of participants diagnosed with autism (Shabani, Katz, Wilder, Beauchamp, Taylor & Fisher, 2002; Taylor & Levin, 1998). First, Taylor and Fisher found the use of such a prompt to be successful and unobtrusive for increasing social initiations toward adults during play for a male boy with autism. The experimenters used a multielement design and included follow-up generalization probes to find some increase in social initiations toward peers. Next, Shabani et al. employed a vibrating
pager in an ABAB design for three boys diagnosed with autism. Participants were prompted to initiate social interactions toward peers, and respond to peer initiations. This prompt was successful for all initiations of all participants, and two of the three participants’ responses to peer initiations also increased. The utility of tactile prompts, specifically a vibrating pager, was evaluated and further confirmed in the current study.

The present study took place in a public elementary school in the southeast United States, where instructional assistants were employed to support teachers in classes for children with special needs. Typically such staff members were expected to engage in small group instruction with students and to enforce any behavior plans in effect. Training for new employees previously consisted of a brief in-service training in which school rules and policies were discussed. No classroom training sessions or education classes were offered by the employers these staff members, so their quality of work varied considerably across their education and personal histories, as well as the classroom in which they were employed. Three instructional assistants with less than one year of experience participated in the present study to establish an appropriate training package for future staff.

The current study expanded the bodies of educational staff training and self-monitoring literature by incorporating training, self-monitoring and feedback on accuracy to improve reliably observed staff behaviors. This study also extended the amount of research incorporating tactile prompts by proposing a different population and setting where they may be valuable. Furthermore, in a manner similar to Sharpe et al. (1996), the author of the present study attempted to measure the influence of improved staff behavior on student behavior to confirm the success of the intervention.
METHOD

Participants and Setting

Three instructional assistants employed by a public school district in the southeastern United States were recruited for participation. Candidates were selected because they all had less than one year of experience working at their current position and were stationed in a classroom with behavioral support. None had previous experience implementing token economy point systems. All participants worked in the same class for third through fifth graders diagnosed with varied exceptionalities that were in need of behavioral support.

The classroom where the study was performed was self-contained with eleven students who were referred for severe behavior problems. The standard classroom procedures for the students involved a token economy point system created by the behavioral support team. In this system, points were removed for disruptive behaviors and bonus points were earned for positive social or academic behaviors. Once per week, students exchanged their points for a reward of their choice (see Appendix A).

In addition to the eleven students, the classroom was staffed by one classroom teacher, one behavioral specialist, and three instructional assistants. Each of the three instructional assistants volunteered to participate in the study. The teacher was a female with a master’s degree in special education. She had six years of teaching experience, two of which employed similar token economies in a different school and grade level. The behavioral specialist had two years of experience and left the room during observation
sessions. The primary diagnosis for seven of the students was Emotionally Handicapped, two students were diagnosed primarily with Language Impairments, one with Asperger’s Syndrome, and one as Educable Mentally Handicapped. Nine students were African American and the other two were Caucasian, nine were also male with two females. The ages ranged from ten to fourteen years.

Of the many people usually present in the class, only the instructional assistants’ behaviors were recorded and targeted. Students were observed as their behavior caused the opportunity for participants to perform the dependent variables. However, no indication of any particular student’s behaviors was recorded. The classroom teacher was asked to proceed as she normally did, although she occasionally had to be reminded to allow the instructional assistants to perform their desired behaviors. On the occasions in which she did not allow them the opportunity to respond to an occasion for a response the experimenters did not count a missed opportunity for the participants.

The three participants were female volunteers with varying amounts of education and experience. Fran was twenty-three years old with a bachelor’s degree in English and no experience working in the public schools. Nicole was twenty-two years old and had earned a bachelor’s degree in education. She had no experience using token economies or working with students with special needs. Kelly was a forty-two year old mother of two with no experience working in schools. She had an associate’s degree and was taking classes toward earning her bachelor’s in education.

The study occurred in the classroom where participants worked, during an academic hour. Archival data were graphed by start time of time out procedures to determine the most difficult time of day for students. Figure 1 shows a slightly higher percent of time outs began during the 10:00 am than the other hours of the school day, so it was chosen for the study. At 8:00 am and 1:00pm, the number of time outs that began was nearly as high, however academics were not taught as consistently at these times so they were not selected. The common subjects being taught at this time were science and math, although occasionally social studies or social skills were substituted. Sessions were held during normal school days.
Figure 1: Data from the start of the school year to the start of the study display that a slightly higher percent of time outs began at 10:00 am than other hours of the school day. N= 177.

Data Collection

At least one observer was present during the time of day in which data suggested several inappropriate student behaviors were likely to occur. Sessions were ten minutes long per participant, and occurred at a maximum of three times per day. For each minute, observers recorded the presence or absence of an opportunity for the participant to respond. An opportunity was defined as the presence of the antecedent, which was student behavior for prompting appropriate behavior or managing disruptive behavior, or the passage of time for bonus point delivery, and at least five seconds of no response by other staff. The staff member closest to the antecedent was considered responsible for the opportunity.

During training, observers used a vibrating pager to prompt the participant of an
opportunity to perform the desired behavior. This was noted on the observer’s data sheet as the delivery of a prompt.

Data were normally recorded on a paper data sheet (see Appendix B), or occasionally on a laptop computer. Observers sat as unobtrusively as possible while collecting data. To decrease the effects of reactivity caused by the observers, they were present in the class for several weeks before collecting data that were actually used in the study.

Dependent Variables

Dependent variables were identified by the behavioral support team based on observations from an exemplar class and from specific requests by the classroom teacher. Pilot observations revealed that all instructional assistants exhibited the behaviors of interest on occasion, but the frequency and consistency needed to be addressed. The behaviors all related to participants’ implementation of the standard classroom procedures, which involved the token economy point system.

**Prompting appropriate behavior.** When a student was not engaged in the expected activity for at least five seconds, instructional assistants were expected to redirect him to behave appropriately. It was recorded as correctly performed when the participant stood within three feet of the student and told the student specifically what behavior he should perform.

**Managing disruptive behavior.** When a student disrupted other people in the class either verbally or physically, staff told him to remove a point from the appropriate area of his point recording sheet. This was performed correctly when the participant directed the student to remove the appropriate point, and did not respond to any safe response by the student. A safe response by a student would have been a verbalization about the call. An unsafe student response would have presented danger to oneself or others and would have
required immediate attention by the participant. It happened that no such unsafe behaviors occurred during the study.

*Delivering bonus points and praise.* Instructional assistants were expected to enrich the environment by delivering bonus points and praise to at least one student on an average of ten minutes. This was recorded as correct when the participant praised the student and marked, or told the student to mark, at least one bonus point per ten-minute session. Praise was defined as telling a student what he or she did to earn the bonus point.

*Student behavior.* Archival data were examined before and after the study to compare the number of points lost and earned on the different phases of the intervention. One would have expected the improved consistency of implementing the token economy point system to first increase the presence of all such permanent products. Ideally this would have been accompanied by a decrease in behavior point loss as students behaved more appropriate due to the improved implementation of the token economy.

*Design and Procedures*

The current study involved a moving treatments multiple baseline across behaviors (Bailey & Burch, 2002). Sessions were ten minutes in length and occurred three times per participant per day maximum. Phases were introduced when data paths were relatively stable for the majority of participants. The success of the intervention was determined by visual inspection of the graphic data.

*Baseline.* Data were collected under normal classroom conditions, except that the behavioral supervisor was not present. Participants were aware of the study but not of the specific behaviors of interest. Observers did not interact with participants, students, or the classroom teacher. Preliminary data revealed a low frequency of opportunities for participants to respond, so the classroom teacher was asked to delay the consequences she
usually enforced by at least five seconds.

Training. When visual analysis of the baseline data revealed low baseline paths, one training session was held to discuss the expectations of participants. This was held at a time agreed upon by all participants and the classroom teacher. It was held in an empty office that consisted of chairs and one table. The primary investigator introduced the goals of the study and explained all the dependent variables as well as data collection forms. Scenarios depicting the dependent variables were role-played by the investigator and all participants. At this time the independent variables were not discussed or demonstrated. Several examples of opportunities to perform the expected behaviors as well as the right and wrong way to perform them were discussed. Participants independently completed a questionnaire (see Appendix B) prior to the cessation of the training session. This was meant to ensure they could identify descriptions of right and wrong behaviors. The correct answers were announced and discussed. Participants all answered each question correctly. The entire training session lasted approximately thirty minutes.

Prompting, self-monitoring and accuracy feedback (prompt plus self-monitor). Prior to the first intervention session, the experimenter spoke briefly with participants individually, at which time she demonstrated the use of the pager and the self-monitoring form. The pager was marketed as a Wireless Personal Pager and made by Weisound. At this time participants were reminded that all behaviors of interest were still being recorded, but that the behavior of interest would be prompted and reported on self-monitoring forms.

The first behavior targeted was managing disruptive behavior. Participants were reminded of the procedures and given the vibrating pager to clip to their pants or keep in their pockets. When observers noted the opportunity for the response of interest to occur (the first behavior was managing disruptive behavior, next was bonus point delivery, and finally prompting appropriate behavior), they waited three to five seconds to allow for the participant to notice the opportunity and respond appropriately. When a participant did not respond to the opportunity, an investigator paged the participant via remote control to
alert her of the opportunity to react. If she did not respond to the pager or performed the behavior incorrectly, it was marked as a missed opportunity. If she responded correctly to the prompt, it was recorded as a positive. The presence or absence of opportunities were recorded by observers and later assessed for treatment integrity. A more detailed description of this is discussed below.

Participants were asked to monitor their own behavior within thirty minutes of the cessation of the session. The form questioned how often the participant believed she performed the behaviors of interest correctly. This would include the behavior currently, and when applicable previously, intervened upon. The experimenter assessed the accuracy of the self-monitoring form by noting correct or incorrect responses compared to experimenter observations. These notes were made on the back of the self-monitor forms and returned to the participant for review. If participants had questions or comments at that time the experimenter would explain in more detail. This feedback on the accuracy of the participant’s self-monitor responses was delivered immediately following completion of the self-monitor form. Typical feedback would indicate, “We would have marked 75% for managing disruptive behavior, because you missed one opportunity when a child slammed his books on the desk”. See Appendix C for self-monitor forms for each phase.

**Self-monitoring alone.** When participants responded appropriately to prompts 100% of the time and recorded this correctly 100% of the time for three consecutive sessions, the tactile prompt was moved to the next dependent variable. The self-monitor cards then included the previously intervened upon behaviors as well as the new one being targeted. Accuracy feedback was still delivered following completion of self-monitor forms.

**Maintenance.** During maintenance the length of session was gradually increased from ten minutes to sixty minutes. For the increased session length, different data collection sheets were used, and the self-monitor forms were slightly altered. Please see Appendix B for the different data collection sheet and Appendix C for the different self-monitor form.
Interobserver Reliability and Treatment Integrity

Two independent observers recorded the presence or absence of all relevant variables for agreement of the occurrence and nonoccurrence of the dependent and independent variables. This ensured the reliability of the data collection methods and integrity of the independent variables when applicable.

To assess interobserver reliability of dependent variables, exact agreement plus or minus one interval was examined for the presence or absence of correct responses

\[
\text{Number of agreed upon intervals ( +/- one interval) / total number of intervals } \times 100
\]

When agreement scores between the primary investigator and an assistant observer yielded below 80% of accuracy, additional training sessions were held for that observer. This occurred for two observers on one occasion each. Two independent observers scored a total of 45.3% of sessions (Range = 25.6% to 55.1%) and their records yielded an overall average of all dependent variables for all participants of 96.3% (Range = 93.6% to 100%).

Table 1 shows the interobserver reliability scores obtained for the dependent variables. The highest percent of sessions was scored for Nicole (55.1%), followed closely by Fran (54.90%). The least percent of sessions were scored for interobserver reliability for Kelly (25.6) because of her schedule and the schedule of available investigators at that time. Overall, Nicole’s behavior yielded the highest reliability scores, which averaged 98.1% (Range = 95.8% to 100%). Independent observers rated Fran’s sessions for an average of 95.6% agreement, Kelly’s sessions for an average of 93.6% agreement.

Graphs of interobserver reliability scores were created to demonstrate the variability across sessions. Figure 2 depicts the reliability scores for Fran, Figure 3 shows them for Kelly, and Figure 4 displays the scores obtained for Nicole. The x-axis represents successive sessions in which reliability checks were conducted. These occurred on any day per school week, about every other day. Each reliability check lasted for an entire ten-minute session, and the sessions that were not tested for reliability are not shown in the figures. The blue line represents the reliability scores obtained for
prompting behavior, the red line with open boxes shows reliability of managing appropriate behavior for each participant, the red line with filled red boxes represents bonus point delivery reliability, and the black line with diamonds indicates the overall session interobserver agreement for each participant.

Table 1: Interobserver Reliability Scores for Dependent Variables.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Variable</th>
<th>Average</th>
<th>Range</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fran</td>
<td>Prompting</td>
<td>92.5</td>
<td>70.0-100</td>
<td>54.90% (28 of 51)</td>
</tr>
<tr>
<td></td>
<td>Managing</td>
<td>96.8</td>
<td>80.0-100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bonus Points</td>
<td>98.2</td>
<td>80.0-100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall</td>
<td>95.6</td>
<td>83.3-100</td>
<td></td>
</tr>
<tr>
<td>Kelly</td>
<td>Prompting</td>
<td>85.8</td>
<td>70.0-100</td>
<td>25.6% (12 of 48)</td>
</tr>
<tr>
<td></td>
<td>Managing</td>
<td>98.3</td>
<td>90.0-100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bonus Points</td>
<td>96.7</td>
<td>80.0-100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall</td>
<td>93.6</td>
<td>83.3-100</td>
<td></td>
</tr>
<tr>
<td>Nicole</td>
<td>Prompting</td>
<td>95.8</td>
<td>80.0-100</td>
<td>55.1% (27 of 49)</td>
</tr>
<tr>
<td></td>
<td>Managing</td>
<td>98.5</td>
<td>90.0-100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bonus Points</td>
<td>100</td>
<td>100-100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall</td>
<td>98.1</td>
<td>93.3-100</td>
<td></td>
</tr>
</tbody>
</table>

In Figure 2, we see that the blue data path, which represents reliability scores for her prompting appropriate behavior, was usually the lowest score. While both bonus point delivery and managing were consistently higher, it is bonus point delivery, depicted by the solid red boxes, that is highest through the majority of the twenty-eight successive reliability checks.

Figure 3 represents the reliability scores obtained for Kelly’s behavior. Twelve sessions were assessed by two independent observers for agreement on the presence or absence of all behaviors. The results show that prompting is consistently lower, and the average, or session, agreement is often just above prompting. For Kelly, managing and
prompting reliability scores were consistently highest.

Figure 2: Interobserver reliability scores of Fran’s behavior, obtained by the primary investigator and one independent observer.

Figure 3: Interobserver reliability scores of Kelly’s behavior, obtained by the primary investigator and one independent observer.
Figure 4: Interobserver reliability scores for Nicole’s behavior, obtained by the primary investigator and one independent observer.

Figure 4 shows the reliability scores obtained for Nicole’s behavior. Twenty-six sessions were assessed for interobserver reliability. In this figure, we see a decrease in variability as time passes, and an upward trend that maintains at nearly 100% after the tenth successive reliability check. This indicates that perhaps observers were not equally skilled at the start of the study, and improved across with experience. Consistent with scores obtained for Fran and Kelly, Nicole’s prompting behavior yielded the lowest agreement scores.

Reliability of the independent variables was also measured throughout the study. The presence or absence of paging and self-monitor form completion was recorded by all observers during intervention sessions, and assessed for whether the presence or absence followed the expected protocol. Overall, 50.5% of intervention sessions (Range = 28.6% to 87.0%) were evaluated for treatment integrity. The average of 97.9% (Range = 85.7 to 100%) was found as the experimenter’s correct implementation of paging and ensuring that self-monitor forms were completed. Total agreement for independent variables was calculated by dividing the number of correct implementations of the independent variable by the total number of opportunities to implement the independent variable. This was
multiplied by 100 to reveal the percent correct. If an observer noted that the experimenter failed to page or deliver a self-monitor form to a participant, the observer was expected to prompt the experimenter immediately. If the experimenter required a prompt from another observer to perform an intervention, this was counted as incorrect. This occurred once, when the experimenter failed to independently page a participant of the opportunity for a response.

Table 2 shows the treatment integrity scores for all participants. For Fran, 52.9% (18 of 34) of sessions were assessed by two independent observers for the appropriate presence or absence of paging and self-monitoring. For Kelly, 28.6% (8 of 28) of such sessions were assessed, and 69% (20 of 29) of Nicole’s sessions were checked for reliability of the independent variables. The scores column demonstrates that the majority of independent variables were 100% reliable. The variable that was not implemented correctly 100% of the time was paging Kelly. For Kelly, the paging variable was correctly implemented 85.7% of the time. The row with overall average recorded shows the average of correct paging and self-monitor completion for the participant of interest over all the treatment integrity checks.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Variable</th>
<th>Score</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fran</td>
<td>Paging</td>
<td>100</td>
<td>52.9% (18 of 34)</td>
</tr>
<tr>
<td></td>
<td>Self-Monitor Form</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Average</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Kelly</td>
<td>Paging</td>
<td>85.7</td>
<td>28.6% (8 of 28)</td>
</tr>
<tr>
<td></td>
<td>Self-Monitor Form</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Average</td>
<td>93.3</td>
<td></td>
</tr>
<tr>
<td>Nicole</td>
<td>Paging</td>
<td>100</td>
<td>69.0% (20 of 29)</td>
</tr>
<tr>
<td></td>
<td>Self-Monitor Form</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Average</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
Social Validity

Prior to the completion of the study, experts, students, and confederates were asked to complete a brief survey based on the goals, interventions, and outcomes of the study. Those who completed the forms did not see the intervention in action and were not given any further explanation of the intervention than was supplied in written format on the survey.

Participants of the study completed a similar form following the completion of the study. Please see Appendix C for both surveys.
RESULTS

For all participants, baseline levels of responding were very low, but with the addition of the interventions their behavior increased in rate and became more consistent. Table 3 shows that across all participants the clearest improvement is with managing disruptive behavior. The percent of correct behavior for each phase and all sessions was averaged for each participant. The rows labeled average represent the average of prompting appropriate behavior, managing disruptive behavior, and bonus point delivery for each participant. On the occasion without an opportunity to respond, NA was recorded.

Table 3: Average percent of correct behavior in each phase for each participant.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Variable</th>
<th>Baseline</th>
<th>Training</th>
<th>Prompt plus Self-Monitor</th>
<th>Self-Monitor</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fran</td>
<td>Prompting</td>
<td>6.3</td>
<td>30.1</td>
<td>100</td>
<td>100</td>
<td>55.33</td>
</tr>
<tr>
<td></td>
<td>Managing</td>
<td>0</td>
<td>27.8</td>
<td>100</td>
<td>100</td>
<td>75.0</td>
</tr>
<tr>
<td></td>
<td>Bonus Points</td>
<td>0</td>
<td>9.1</td>
<td>100</td>
<td>100</td>
<td>77.7</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>2.1</td>
<td>22.3</td>
<td>100</td>
<td>100</td>
<td>69.3</td>
</tr>
<tr>
<td>Kelly</td>
<td>Prompting</td>
<td>22.2</td>
<td>20.3</td>
<td>100</td>
<td>100</td>
<td>53.3</td>
</tr>
<tr>
<td></td>
<td>Managing</td>
<td>0</td>
<td>15.6</td>
<td>100</td>
<td>100</td>
<td>57.5</td>
</tr>
<tr>
<td></td>
<td>Bonus Points</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>87.5</td>
<td>75.0</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>7.4</td>
<td>12.0</td>
<td>100</td>
<td>95.8</td>
<td>61.9</td>
</tr>
<tr>
<td>Nicole</td>
<td>Prompting</td>
<td>0</td>
<td>21.5</td>
<td>100</td>
<td>83.0</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Managing</td>
<td>0</td>
<td>0</td>
<td>85.7</td>
<td>100</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Bonus Points</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>55.6</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>0</td>
<td>7.2</td>
<td>95.2</td>
<td>79.5</td>
<td>66.7</td>
</tr>
</tbody>
</table>
Moving Treatments Multiple Baseline

The data paths in the panels for managing disruptive behavior and prompting appropriate behavior represent the percent of correct responses to opportunities for a response. The bonus points panels show the number of bonus points each participant delivered in ten minutes. The goal specified was one delivery every ten minutes. The maintenance phase for bonus points represents an average number of bonus points delivered per ten minutes, as sessions increased to sixty minutes in length.

The data collected from Fran’s behavior are shown in Figure 5. Visual inspection indicates that hers were the most consistent improvements when compared to the other participants. Both managing disruptive behavior and bonus point delivery occurred very infrequently prior to the treatment package introduction. At that time the behaviors both became more consistent and occurred at higher rates. The goal line in the bonus points panel demonstrates that throughout prompting plus self-monitoring and self-monitoring alone, delivery of bonus points was always at or above the goal. During training, prompting appropriate behavior became considerably more variable than it had been during baseline. This could have been caused by the training session or poor stimulus control across the dependent variables. From the start of the prompting plus self-monitoring phase there was a great improvement in the consistency of prompting appropriate behavior, as well as managing disruptive behavior and bonus point delivery.

Figure 6 displays Kelly’s behavior, whose results also consistently improved for managing disruptive behavior and prompting appropriate behavior. While she reached well above the goal for delivering bonus points during prompting plus self-monitoring, one sees a downtrend in her responding through the following phases. It may be that this is cyclical and will increase again without intervention. However, from the immediate increase following the commencement of the prompting plus self-monitoring phase, it appears more likely that the intervention caused the change but added programming for generalization may be necessary to maintain a higher rate of bonus point delivery.
Figure 5: Multiple baseline for Fran, across dependent variables.
Figure 6: Multiple baseline for Kelly, across dependent variables.
Figure 7: Multiple baseline for Nicole, across dependent variables.
Figure 7 displays the observer’s record of Nicole’s behavior. Due to her other responsibilities during the normal observation time, it was necessary that she be observed consistently at a time when students were exhibiting few problem behaviors. This accounts for the lack in data points for some sessions. For the opportunities that were available, she responded consistently to the opportunity to perform the desired behaviors from the start of prompt plus self-monitoring. Unfortunately, with the start of the self-monitor phase, a downtrend in her delivery of bonus points is clear. She performed well below the goal for bonus point delivery during maintenance as well. Apparently it is necessary to add a stronger consequence or continue to include an antecedent and remove it more gradually for such a high effort response.

**Bonus points**

The variability of bonus points increased for all participants when the treatment package was added. Throughout the study the goal remained that each instructional assistant deliver bonus points to at least one student every ten minutes. A closer analysis of the panels that signify bonus points is necessary.

**Prompting bonus point delivery.** Because the goal of bonus point delivery was that participants deliver them within the passage of one session, or ten minutes, experimenters waited until the end of the session to prompt participants to deliver bonus points. It was hoped that this would give participants ample opportunity to deliver them without being paged. The following figures show bonus point delivery with prompting plus self-monitoring, divided into prompted and unprompted bonus point delivery. In the figures, the blue line depicts unprompted bonus point delivery, and the red line represents prompted delivery.

Figure 8 displays the bonus point delivery for Fran. Baseline was conducted for five sessions, and the training phase lasted for the next twenty-two sessions. During
prompting plus self-monitor, the pager was given to Fran and she was paged when an opportunity for the response occurred, which was the passage of ten minutes. On the many occasions in which she delivered bonus points prior to the end of the session, she was not prompted to deliver points. The unprompted data path, shown in blue, represents those bonus points that were delivered when Fran was not paged. In thirteen of the fourteen prompt plus self-monitor sessions, bonus points were delivered at least once without requiring a prompt. The prompted data path, shown in red, represents those occasions in which she delivered them following a prompt. Out of the fourteen sessions of interest, only two required a prompt.

Figure 9 shows Kelly’s bonus point delivery, with the blue data path again representing unprompted bonus point delivery. Of the eight sessions of prompt plus self-monitor, she was only prompted to respond on one occasion. For all other sessions she delivered bonus points while wearing the pager but in the absence of the prompted opportunity. It is clear that for all such sessions she delivered bonus points at least twice, which was above the stated goal. With the removal of the paging contingency, her responding gradually decreased.

Figure 8: Bonus point delivery for Fran, divided into prompted and unprompted behaviors.
Figure 9: Bonus point delivery for Kelly, divided into prompted and unprompted behaviors.

Figure 10: Bonus point delivery for Nicole, divided into prompted and unprompted behaviors.
Figure 10 shows Nicole’s bonus point delivery, with colors differentiated prompted from unprompted bonus point delivery during the prompt plus self-monitor phase. On three occasions, Nicole was prompted to perform the desired response. However, on the majority of sessions, she performed then unprompted, at a rate well above the stated goal. As with the other Kelly, there is a steady decline of responding during self-monitor.

It is clear from Figures 8, 9, and 10 that the delivery of an antecedent prompt was not responsible for bonus point delivery. Participants were paged on an average of two occasions each, and they each delivered many more bonus points that were not prompted. One might presume that the self-monitoring component maintained bonus point delivery but clearly it was ineffective in controlling Kelly and Nicole’s behavior in self-monitor and all participants’ bonus point delivery in maintenance.

*Bonus points per interval.* Another way to visually analyze bonus point delivery is to examine it per interval. In this case intervals were one minute in length, so the image may better represent participant’s behaviors over time. The following figures show first a non-cumulative, then a cumulative analysis of bonus point delivery for each participant.

From the interval analysis of bonus point delivery, we see that all participants surpassed the criterion of delivering one bonus point per ten minutes. It is also apparent from such graphs that the rate of bonus point delivery each interval peaked near the end of prompt plus self-monitor and decreased toward training levels during maintenance.

Figures 11 and 12 show Fran’s bonus point delivery on a noncontinuous scale across minutes. Figure 11 demonstrates the large number of bonus points she delivered on some minutes. It is clear that during prompt plus self-monitor as well as self-monitor alone, the rate per minute was more consistent than it was during baseline. Figure 12 shows the same data, presented in a cumulative graph to show the different slopes across time. During maintenance the data path was most similar to the path during training.

An analysis of Figures 13 and 14 show that Kelly also increased the rate of bonus point delivery during prompt plus self-monitor and self-monitor. However, we see that the transition from training to prompt plus self-monitor was more gradual than with Fran. While the rate of responding decreased after self-monitor, it did remain more constant.
Figure 11: Noncontinuous interval analysis of delivery of bonus points for Fran.

Figure 12: Noncontinuous cumulative interval analysis of delivery of bonus points for Fran.
than it had been with the other two participants.

Nicole’s data are represented in Figures 15 and 16. Figure 15 shows that several of the minutes that passed involved a higher number of bonus points delivered than the goal would demand. The minutes with more than one bonus point delivery became less frequent during self-monitor and nonexistent during maintenance. Figure 16 shows that during prompt plus self-monitor, the slope of the data path was highest in the middle, then delivery slowed down through the end of self-monitor and self-monitor. The path is virtually horizontal during maintenance. It is clear that after the end of regular intervention sessions she virtually ceased to deliver bonus points. She did not report any reason she failed to do so, although she clearly recognized her failure, as following one sixty-minute session she remarked, “I didn’t do anything”.

![Bar chart]

**Figure 13:** Noncontinuous interval analysis of delivery of bonus points for Kelly.
Figure 14: Noncontinuous cumulative interval analysis of delivery of bonus points for Kelly.

Figure 15: Noncontinuous interval analysis of delivery of bonus points for Nicole.
Figure 16: Noncontinuous cumulative interval analysis of delivery of bonus points for Nicole.

Accuracy Feedback

The participants were relatively accurate at recording their own behavior during the intervention phases. During maintenance, the session length increased, and the accuracy of participant responses decreased. Perhaps if time had allowed for more sessions during maintenance this would have increased. Figure 17 shows the percent correct all participants recorded compared to the observer’s records. The blue data path represents Fran’s accuracy, the red line is Kelly’s accuracy, and the green path is Nicole’s accuracy. Scores were graphed in percentages, so a completely accurate self-monitor form would have been graphed as 100%. Clearly, Fran and Nicole became more accurate over time, presumably as they contacted the feedback on their accuracy. It appears as though Kelly became slightly less accurate over time.
Archival data taken to track student progress were evaluated to determine what, if any, affects the intervention had on student behavior. The number of bonus points delivered to students during the hour the study was normally collected, and for the entire day was examined. Additionally, the number of points lost by students for inappropriate behavior was recorded for the entire day as well as the hour the study was normally conducted. Table 4 shows the average number of points per person as well as the range of these data. The averages show that the number of occasions bonus points were delivered per student during the typical intervention hour remained the same (1.52 during baseline and 1.50 during maintenance). Throughout the entire school day, the average fell considerably (from 9.22 during baseline to 5.20 during maintenance). Because observations were not conducted throughout the entire school day, only speculations can be made as to the causes of this drop. It could be this is a cyclical change that occurs in all classes throughout each school year. In that case, the fact that the average during the intervention hour remained consistent was positive.
Table 4 also shows that during the intervention hour, the average number of behavior points removed was consistent (1 during both baseline and maintenance) through the study. The average number for the entire day decreased (from 7.54 during baseline to 4.9 during maintenance) from the start to end of the study. It could be that due to the intervention, student behavior improved and thus the need for point removal decreased. However, due to the fact that we see a similar decrease in bonus point delivery, it is also possible that the overall implementation of the token economy throughout the day decreased from the start to end of the study. Another factor that could have confounded these measures is that in general, during the typical intervention hour only instructional assistants were responsible for implementing the token economy. During the rest of the day, they were joined by the classroom teacher and behavioral specialist. It is therefore possible that instructional assistant behavior improved through the study but there was still a reduction in behavior of the other classroom staff.

Table 4: Archival data representing the average number of times bonus points were earned and number of points removed for bad behavior.

<table>
<thead>
<tr>
<th>Archival Data</th>
<th>Average During Baseline</th>
<th>Average During Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonus points earned during usual intervention hour</td>
<td>1.52 (Range = 0 to 7)</td>
<td>1.50 (Range = 0 to 5)</td>
</tr>
<tr>
<td>Bonus points earned throughout entire school day</td>
<td>9.22 (Range = 0 to 22)</td>
<td>5.20 (Range = 0 to 16)</td>
</tr>
<tr>
<td>Behavior points removed during usual intervention hour</td>
<td>1 (Range = 0 to 30)</td>
<td>1 (Range = 0 to 15)</td>
</tr>
<tr>
<td>Behavior points removed throughout entire school day</td>
<td>7.54 (Range 0 to 159)</td>
<td>4.9 (Range = 0 to 35)</td>
</tr>
</tbody>
</table>
Social Validity

Twenty-three surveys were disbursed regarding the goals and potential outcomes for the study. Not all questions were understood clearly or completed by all volunteers. The obtained responses are depicted in figures found in Appendix C. Overall, the participants found that the instructional assistant behaviors of removing behavior points, delivering bonus points, and prompting appropriate behavior were important or somewhat important. This indicates that the consumers of the study find the goals and targeted behaviors relatively important.

The vast majority of responders, who were teachers, instructional assistants, and psychology students, declared that both training and self-monitoring would be helpful to improve staff behavior. Unfortunately, the wording of the question did not allow them to compare other answer choices, in which case we might have seen a different result.

Results of the request for responders to rate potential outcomes of the study were inconsistent. This was likely due to the wording of the question or the lack of a graphic depiction. Overall, they remarked that a successful intervention would reveal a 0 to 20% improvement from baseline, although they thought a moderately successful intervention would yield results of 21 to 40% improvement. A helpful intervention would also have likely shown improvements of 21 to 40%, and an intervention that was not helpful would overwhelmingly have demonstrated a 0 to 20% increase.

The average improvement for all behaviors combined for all participants from baseline to maintenance was 60.4% (Range = 54.5 to 67.2), which would have been considered a success by all but three responders. This would have been considered moderately successful by all but one responder.

Results of the anonymous participant surveys were positive. Unfortunately, one of the three participants failed to select answers to the questions in the format requested. Therefore, it was not possible to accurately graph the majority of her responses. Figure 18 displays the results of all participants’ overall opinion of the study. The other
responses and comments can be found in Appendix C.

From your level of interaction/participation with the study, how helpful do you think it was overall?

Figure 18: Participants opinions of how helpful the study was on their behavior.
DISCUSSION

Overall, the data suggest the treatment package was a success for all participants and dependent variables during the study. Unfortunately, there was some reduction in performance for all participants when session length was increased from ten to sixty minutes. A variety of issues may have affected the outcome of this phase.

When session length was increased during maintenance, participants were no longer required to wear the vibrating pager. This was the first time since baseline, which was approximately five months earlier, that they were observed without the presence of the pager. It is clear from Figures 8, 9 and 10 that behaviors occurred frequently in the absence of being paged, so wearing the pager itself would have served as either a prompt to behave appropriately, or as a perceived discriminative stimulus for responding appropriately.

Another possible confound for the maintenance phase could be that the session length was increased too rapidly. The experimenters originally planned to increase from ten minutes to one hour, then full days and full weeks. The lack of responding with the initial increase rendered that impossible. Additionally, time did not permit for the investigators to increase session length more slowly. It is clear from the archival data that the intervention did not improve the delivery of bonus points. Additionally, since both bonus point delivery and behavior point removal remained consistent throughout the hour of the study, it is most likely that the treatment package was not responsible for any change in the overall daily totals for either variable.

It is probable that the archival measures analyzed were not ideal for the study. Perhaps more direct observations such as a record of specific student behavior would have been a better choice. Furthermore, several confounds occurred with the indirect data
that were collected. First, no reliability was taken to ensure that points were added or removed appropriately throughout the day. As students matured and began to follow directions better, they were trusted to mark their own point sheets when told to do so, but there was no guarantee that it was done correctly. Next, the behavioral supervisor and classroom teacher were more active with the point sheets throughout the part of the day when observers were not present, so one could not be sure if participants or other staff were responsible to remove or deliver points. Third, the maintenance phase occurred began following the majority of statewide testing and profound teaching. This may have resulted in staff demanding less of students, and allowing more time to relax throughout the day. This could have decreased the number of opportunities to add or remove points. Finally, it may be that despite the changes caused by the interventions (the average change from baseline to maintenance was 60.4% improvement with a range of 54.5% to 67.2%), the behaviors selected for the intervention were not important to the overall quality of the environment.

The results suggest that a component analysis is necessary for future studies. While it appears that self-monitoring alone was not sufficient to maintain the behavior change of bonus point delivery, it may be that it was an important part in the initial increase of behavior. This is especially likely for Kelly, because her bonus point delivery most dramatically increased following a few sessions that ended with self-monitoring. It might be that this form of feedback improved her behavior.

The intervention was an overall success at improving instructional assistant behavior, but more research must be done to determine the long-term utility. Future research should include a longer maintenance phase with a slower increase in session length, as well as comparing each component to an intervention with a more immediate or otherwise stronger form of consequence.
APPENDIX A

TOKEN ECONOMY INSTRUCTIONS AND FORMS
Primary EH Classroom  
Daily Motivation System

**Overview:**
The EH classroom at Roberts Elementary School provides intensive educational and therapeutic services to children who have been identified as having emotional and behavioral difficulties in school. In general, the students in our EH classroom manifest difficulties associated with behavioral excesses and behavioral deficits. Behavioral excesses refer to the display of a wide variety of inappropriate, disruptive and maladaptive behaviors that tend to interfere with the students’ ability to function in academic and social settings. Such behavioral excesses may include physical aggression, swearing, teasing, destruction of property, running away, and noncompliance to requests made by adults. Behavioral deficits refer to a lack of functional behaviors. Our EH students commonly have behavioral deficits that interfere with their ability to function in such areas as making and keeping friends, organizing work and remaining on-task, listening to, and following through with instructions, ignoring provocations of others, and effectively identifying and working through problems to reach satisfactory solutions.

The treatment program here at Roberts is designed to both reduce the behavioral excesses displayed by the students and to teach them new behaviors that are functional and will enable them to more effectively interact with their environment. The treatment program is based upon the principles of behavior analysis and education. The treatment program focuses on identifying barriers to the students’ placement in less restricted learning environments, the use of behavioral diagnostics and multimodal assessment techniques to identify variables that are controlling targeted behaviors, implementation and systematic evaluation of treatment interventions, and generalization and transition programming.

The typical student in our special program has a longstanding history of engaging in seriously maladaptive behavior that interferes with learning and which requires a consistent and predictable environment to effectively treat. Consequently, a structured motivational system plays a central role in the treatment environment. The point system allows our students to earn points for appropriate and adaptive behaviors, and for points to be taken away for inappropriate and disruptive behaviors. In the program, points function in much the same way that money does in an economic system. Points are occurrence of specific behaviors such as making positive comments to peers, actively participating in academic activities and completing homework are followed by the contingent awarding of prosocial/proacademic points. Likewise, when a student chooses not to engage in these targeted behaviors he/she will fail to earn points. The display of maladaptive behaviors will result in the loss of points, and may also result in other consequences such as time-out, or loss of privileges. In conjunction with awarding pints, the students are always awarded with positive staff attention and praise. The points have value because they are paired with social praise and because they can be traded in to purchase “back-up” reinforcers such as items for the point store and special privileges (such as a special Friday activity).

**Points Earned**
Students will be issued a Daily Point Sheet at the beginning of each school day.
The point sheet will remain on the student’s desk throughout the day. The Point Sheet has provided for students to earn five points every thirty minutes for each of the following categories of behavior: (1) Polite Words and Gestures; (2) Follows Directions (Compliance); and (3) Respecting the Classroom Order. The point system is based on a response cost paradigm in which the points for appropriate behavior are automatically awarded at the beginning of the day, but the student can lose some of those points by displaying inappropriate behaviors.

Students can earn additional points for engaging in prosocial/proacademic behaviors. These behaviors include: helping others, saying something nice; sharing; ignoring provocations; offering to help others; appropriately greeting others; using good manners; volunteering to read aloud; answering academic questions; contributing to a group discussion; etc. The student can earn additional points every thirty minutes if no points are lost during that interval (the no points lost category). Bonus points are also awarded for appropriate bus rides (returns with his/her bus pass), returning the home note signed by a parent or guardian, appropriate behavior in Special Area, appropriate behavior during lunch, and for completing all assigned school work that day.

**Points Lost**

Students will lose points for engaging in inappropriate and disruptive behavior. Whenever a student engages in an inappropriate behavior, a staff member will tell him/her to take a point for a particular category on the point sheet. For example, if a student yells out in the class, the staff member will tell him to take a point in the “Respecting classroom Order” category. The student must mark off a point in this category for the current time interval on the point sheet. In general, inappropriate interactions with others result in point loss in the Polite Words and Gestures category, noncompliance to direct requests by staff members results in loss of points in the Follows Directions category, and any other disruption that is not directed toward an individual results in loss of points for Respecting the Classroom Order.

The following behaviors will result in point loss in the specified behavior category:

**Polite Words and Gestures** (points would be lost in this category for the following behaviors)
- Teasing
- Horseplay
- Cursing/Swearing
- Passing Wind/Sucking Teeth
- Threats
- Rude behavior towards adults or peers
- Challenging a call or direction by an adult
- Butting into other’s conversations

**Follows Directions (Compliance)** (points would be lost in this category for the following behavior)
- Failure to comply with a direct and reasonable request made by a staff member of adult.
Respects Classroom Order (points would be lost in this category for the following behaviors)

- Slamming the door/beating on the portables
- Throwing materials
- Calling out in class
- Inappropriate laughter
- Getting out of seat without permission
- Talking to another student that disrupts the class
- Singing, rapping, humming
- Noise making
- Marking on desks, books, walls, etc.

Additional Point Fines

Students will be costed 50 points for engaging in the following major maladaptive behaviors: Aggression; Property Destruction; Verbal Aggression to Staff; AWOL; Forging Points (or not taking points when requested to do so); and Stealing.

Students who repeatedly borrow or use classroom items (homework notebooks, pencils, etc.) and do not return them will be required to use their Daily Points to replace the item. Students will be prompted to return the items prior to a deduction in their point balance. Any student who has consistently demonstrated a lack of responsibility in returning classroom items will have points deducted from their weekly balance prior to being given the item. If the item is returned, the points will be deposited back into the student’s point store balance.

Chair Time-Out

Students will be required to serve a chair time-out whenever they lose 2 points in one behavior category in any thirty-minute interval. Students will also be required to serve a chair time-out for engaging in any of the following behaviors: Cursing/Swearing; Threats to Others; and Teasing/Name calling.

If the student goes immediately to chair time-out when directed to do so and remains there completely quiet, he/she will be required to serve a 3-minute chair time-out. If the student continues to refuse to go to time-out, or becomes disruptive once given a time-out, he/she will be required to complete an Open Door Room Time-Out.

Room Time-Out

The behavioral program at Roberts School is designed to provide the teachers, behavior specialists and instructional assistants with an effective means of establishing and maintaining instructional control in the classroom. The underlying assumption of the program is that students learn best when expectations are made explicit and when the consequences for following or not following rules are applied consistently.

There are however, times when a student becomes so disruptive that he/she cannot be brought under control in the classroom setting. During these times the student will be required to serve an Open Door Room Time-Out. This is an exclusionary time-out procedure which is used when a student either:

1. Displays a major maladaptive behavior of Aggression; Property Destruction;
AWOL; Verbal Aggression to Staff; or Stealing

(2) Fails to comply with 3-minute chair time-out once a staff member has assigned it.

**Implementing the Room Time-Out Procedure**

(1) Staff should call for assistance from at least one other staff member if it appears likely that physical guidance will be needed.

(2) Staff will say, “(Name), that is _______ (describe the behavior). You will need to serve your time in the time-out room”. Staff will escort the student to one of the time-out rooms using as little physical assistance as possible. (Do not talk to the student, neither criticize nor attempt to discuss the problem behavior. Do not make eye contact or frown. Be calm and matter of fact).

(3) If a student refuses to go to the time-out room when instructed to do so, but does not pose an imminent threat of danger to self or others at that time, he/she will be told that his/her time will not begin until he/she reports to the time-out room.

(4) If a student is suspected of possessing contraband, then he/she will be informed that his/her time will not start until the item is surrendered to staff. If the student is suspected of possessing a dangerous object, but refuses to surrender the item, then the administrator will be notified.

(5) The student is informed that he/she must remain in open door room time-out until he sits or stands calmly against the back wall of the room for 3 consecutive minutes. Once the student has met these calm criteria, he will be instructed to rejoin the group or ongoing activity.

**ALL ROOM TIME-OUTS WILL BE OPEN DOOR UNLESS ONE OF THE FOLLOWING OCCURS:**

(1) The student requires physical guidance to go to room time-out
(2) The student becomes aggressive towards peers or staff once a time-out is awarded
(3) The student becomes disruptive while in open door room time-out
(4) The student attempts to leave the time-out room without permission

**Closed Door Room Time-Out Procedure**

(1) Staff remains outside the time-out room, holding the door shut. The staff member will monitor the student through the peephole in the door. This observation is a mandatory requirement and is necessary to prevent the occurrence of any serious injury to the student. The staff member will record the student’s behavior at the end of every minute on the Room Time-Out Record Form. Staff will interrupt time-out if the student becomes seriously self-abusive (running into walls or hitting head/hands against walls with sufficient force to cause tissue damage, or biting/scratching body parts resulting in tissue damage) and the school administrator will be notified.
(2) Staff will record the incident and will document the student’s behavior throughout the
time-out period, as per instructions on the Seclusion Time-Out Data Record.

(3) Staff will open the time-out room door after the student has remained sitting or
standing calmly at the back wall of the time-out room for 3 minutes. At that time the
student will be required to serve a 3-minute open door room time-out.

(4) If the student attempts to leave the room or becomes extremely disruptive after the
time-out room door is opened, then the entire room time-out procedure will be
repeated (i.e., the door will be closed and the student will be required to serve an
additional 3 minute being calm followed by 3 minute of calm behavior with the door
open).

**Monitoring the Daily Point Sheet**

Students will not have an opportunity to earn the points for the 30-minute time
period, if they are in Room Time Out for the entire block. In this situation, a straight line
should be marked across the point sheet. If the student is in Room Time Out for the
majority of the time period, but returns to their desk and is engaged when the point sheet
is being marked, the student should have the opportunity to earn the remainder of their
points. If the student is problem solving or not engaged, the straight line should be
marked on their point sheet.

**Room Restriction**

Students who engage in AWOL behavior from the classroom will not be
permitted to leave the classroom, except to attend Special Area, for the remainder of the
school day. In the case where the behavior occurs at the end of the school day (i.e. at bus
loading), then the student will be placed on Room Restriction for the following school
day. The student’s lunch will be brought back from the cafeteria for the student to eat in
the classroom. Classroom staff will supervise the student during the Room Restriction
time period. The student will have the opportunity to earn all possible points during
Room Restriction.

Students who are physically aggressive while on the playground will not have
access to the playground during the remainder of the school day. The student will
continue to have access to the cafeteria.

**Creating an Enriched Classroom Environment**

**Earned Time**

Several times throughout the school day students special leisure activities will be
scheduled. These activities, known as Earned Time, were established to reinforce
students for completing schoolwork without major disruption. Students that have
finished all classwork and have not had a room time-out since the last scheduled Earned
Time that day will be eligible to participate. Earned Times generally last about 10 to 15
minutes. Students that have met criteria will be allowed to play games, puzzles,
Nintendo, talk with staff member’s etc. Those students not meeting Earned Time criteria
are required to remain at their desks and work on assigned academics.

**Daily Goal**

A pie chart will be constructed and posted in the classroom for each student. The chart will be divided into 6 pieces. A piece of the pie will be earned every day a student meets his daily goal of earning at least 80% of the available classroom conduct points (156 points after fines are subtracted from the classroom conduct points earned). Students that earn 90% of the available classroom conduct points (175 points after fines have been subtracted) will earn 100 Bonus Points to be spent at the Point Store. Students that met their daily goal each day will have earned five pieces of the pie chart. A sixth piece is awarded to any student that did not have a room time-out on Friday.

A green wedge will be placed on the pie chart indicating a student’s absence for the day or a school holiday. This will reduce confusion regarding whether or not the student was not present on the day or did not meet the established criteria.

**Special Friday Activity**

There will be a special activity every Friday. This activity will last 90 minutes. Each piece of the pie chart that a student has earned throughout the week is worth access to 15 minutes of the activity. A student that only met his daily goal once in the week (1 piece of the pie) will be allowed access to the activity for the last 15 minutes. A student that earned 2 pieces of the pie would get access to the last 30 minutes of the activity, etc.

Students must meet the following criteria to use their acquired minutes at the Friday Activity:

1. Morning class work must be completed before starting the activity
2. Must not have required any physical management at any time that Friday
3. Must not have caused any physical injury to anyone on that Friday
4. Must have no more than 1 closed door time-out for no more than 10 minutes on that Friday
5. No room time-outs prior to the start of the special activity

**Weekly Point Store Shopping**

The classroom will have a store in which students can exchange earned points for preferred tangible items. These items may include pencils, paper, toys, puzzles, food items and beverages. Only students that met daily goals for 4 out of the 5 school days) or 3 out of 4 on a four-day school week) will be allowed to shop at the store. The store will be opened during the last 30 minutes of the Friday Activity (thus, only students participating in the Friday Activity will be able to shop at the point store). Any points not spent at the store will **not** be carried over to the next week. Those students that do not earn store shopping will lose any accumulated points. In short, all students begin each new school week with a zero balance in their point banks.

**Morning Meeting**

Each morning the students will have an opportunity to receive individualized feedback regarding their behavior on the previous school day. This will allow the students to monitor the points he has earned to be spent at weekly point store, track their progress
towards earning Friday Activity and provide them with an opportunity to receive social praise and encouragement from classroom staff regarding their behavior.

**Special Area Reinforcer**
Students who do not lose any behavior points during Special Area will be permitted to select a tangible reinforcer from the Special Area Basket. This opportunity was developed to increase the likelihood of the students engaging in appropriate behavior while in Special Area. Classroom staff will track the student’s behavior by using the special Area Point Sheet that was created for them. Student will also have the opportunity to earn Prosocial/Proacademic Points while in Special Area.

**Mainstream Procedure**
Assisting children to move from a self-contained EH classroom to less restrictive classroom arrangements is a very serious and important task in the treatment and education of these special children. It is an effort that must be carefully considered, planned and implemented to ensure a successful move. It always requires the cooperation between the sending classroom teacher and the receiving classroom teacher, some accommodations in academic instruction, and systematic behavioral programming and monitoring. While it is absolutely necessary for children to demonstrate that they are no longer a significant risk to safety for themselves or others, they may not have gotten to the point of having reduced all of their disruptive behavior to normative levels. It is necessary to give them some time in the transition with thoughtful, planned help to determine what additional intervention they will need to be successful. This is a delicate balance and not always easy to determine the exact best time to move forward. Therefore, the following plan was developed to provide some objective guidelines to help focus attention on our student’s progress towards mainstream criteria.

1. Once a student has been in the EH classroom for a 9-week period with a minimum of 80% of the days attended, a transition chart will be initiated for the student.
2. Students must earn 20 “Days toward Mainstream” by meeting the following specified criteria:
   a. No more than 2 CTO’s during the day
   b. No incident of Major Acting Out Behavior (Aggression, AWOL, Serious Property Destruction)
   c. Completed the daily class work assignments
   d. Earn the daily “Pie Piece” criteria
3. If a student does not meet the above criteria, s/he will not progress up the 20-day chart to the next step. They will remain on the step earned the previous day. However, if the student does engage in a Major Acting Out Behavior, or is required to completed a closed-door room timeout, they will be required to complete 5 Improvement Days before being returned to the mainstream chart. An Improvement day is earned with the same criteria as a mainstream day.
4. After day 15 on the mainstream chart, if the student engages in behavior that requires them to be moved to “Improvement Day” status, they will be required to complete 10 versus 5 Improvement Days prior to being returned to the mainstream chart.
5. At Day 12 on the chart, the EH teacher will work with administration and grade level teachers to identify an appropriate amount of time and classroom for the student to
mainstream into once the 20 days are achieved. It is essential that the students’ parents also be involved in this process.

6. Additional mainstream time will be added only after the student is demonstrating adequate behavioral control in the EH classroom and mainstream classroom and performing academically at least a C grade level (or equivalent academic level depending upon the student’s grade). It is presumed that this will be a slow process and the team will develop the exact criteria for each student after the student has been in the mainstream classroom for at least 10 days.

7. Before any decision is made to bring a child back into the EH classroom (i.e., lose their mainstream opportunity), the treatment team (sending/receiving teachers, behavioral staff and administration) will meet to problem-solve the situation. A strong effort (without putting the learning environment or others safety in jeopardy) should be made to preserve the mainstream placement.

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Daily Point Sheet

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Date:</th>
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**Classroom Conduct Points**

<table>
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<tr>
<th>Time</th>
<th>Polite Words &amp; Gestures</th>
<th>Follows Directions (Compliance)</th>
<th>Respects Classroom Order</th>
<th>No Points Lost (NPL) 5 Points</th>
<th>Prosocial/Proacademic</th>
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<tbody>
<tr>
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### Number of Mainstream Points Earned

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<td>Lunch</td>
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<table>
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<tr>
<th>Behavior Fines</th>
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<td>AWOL</td>
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<td>Stealing</td>
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<table>
<thead>
<tr>
<th>Total Class Conduct Points</th>
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<tr>
<td>No Points Lost Total</td>
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<tr>
<td>Total Point Fines</td>
</tr>
<tr>
<td>Sub-Total for Daily Goal</td>
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<tr>
<td>Bonus Points</td>
</tr>
<tr>
<td>Prosocial/Academic Points</td>
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<tr>
<td>Total Points to Bank</td>
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APPENDIX B

DATA COLLECTION FORMS
Training Questionnaire

Code Number: ______________________ Date: ________________ Time: __________________

Please circle the response you think best applies. Your answers will be used to guide training of future staff and will not be held against you in any way. No one but the experimenter will see your score.

1. The students are supposed to be reading silently. You notice Billy is staring off into space and no book is on his desk. What should you do first?
   A. Mark a following directions point because he should be working.
   B. Nothing, he is not disturbing anyone and it is not worth a battle.
   C. Walk to his desk and tell him calmly to take a book out and start reading.
   D. Sit in the corner and say loudly, “Billy you’re not reading!”.

2. You are standing in the doorway, chatting with an Instructional Assistant about the fight you broke up at lunch. You realize you have to speak loudly over Billy’s irritating hum. That kid gets on your last nerve. What is your first move?
   A. Poke your head in the room and say sharply, “Who’s singing? There should be no singing in here!”.
   B. Walk to his desk and say, “Billy, you need to work quietly. That’s a respecting class order point”.
   C. Nothing, no one else seems bothered so you let it go.
   D. Walk to his desk and say, “Stop. You know better than that. Since when is it appropriate to hum in class? If you can tell me one time I won’t take a point off.”

3. You just told Billy to remove a point for polite words and gestures. He says, “Miss! What time frame?” What is your response?
   A. Say, “That’s another point. Now you have a three minute chair time out”.
   B. Point out the time frame on the point sheet and tell him the time.
   C. Motion to the clock but do not say anything. The students can all tell time.
   D. Say, “12:30-1:00. If you call out again you’ll lose another point”.

4. It is 12:28 (the end of the time frame). You are working at the computer and call Billy’s second point in that time frame. He is supposed to have a chair time out but the first point was right at 12:00 (the start of the time frame) and his behavior has really improved in that time. What do you do?
   A. Say, “That’s a three minute chair time out,” and stand a few feet from his chair while he serves the time out.
   B. Say, “Sit in the time out chair”, complete the time out log and get back to work at the computer (while listening for problems).
   C. Nothing. Other staff members are around the time out chair so they can take care of it.
   D. Say, “Go ahead and mark that point from 12:30 to 1:00.” There’s no point in ruining the rest of the day by making him sit in chair time out now.
### Data Collection Form

Observer: Date: Session: Definition Reminders:
IA: Time: Phase:

<table>
<thead>
<tr>
<th>Min</th>
<th>Prompting</th>
<th>Managing</th>
<th>Time Out</th>
<th>Prosocials</th>
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<td>1</td>
<td></td>
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<td>2</td>
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<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Prompting:**
- Moves to student
- Doesn't call across rm

**Managing:**
- Makes call within 10 sec.
- Does not respond to minor disruptions (call out in response)

**Prosocials:**
- Gives one student a point every 10 min.
- Tell him what he did right

Data collection form used for all ten-minute sessions.
Data collection form for maintenance.
APPENDIX C

SELF-MONITOR FORMS AND SOCIAL VALIDITY SURVEY AND RESULTS
Self-Monitoring Form 1

Initials: ________________________ Date: ______________ Time: ______________

Please complete this following an observation session. Mark an X in the box you think corresponds to your behavior. Write “NA” in comments if you do not think it applies.

**Managing difficult verbal/ disruptive behaviors:**

<table>
<thead>
<tr>
<th>How much of the time?</th>
<th>0-25%</th>
<th>26-50%</th>
<th>51-75%</th>
<th>76-100%</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made a specific, correct point call within 5s of violation, did not respond to arguments or comments that occurred without hand raising.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Self-monitoring form used for the first dependent variable.

---

Self-Monitoring Form 2

Initials: ________________________ Date: ______________ Time: ______________

Please complete this following an observation session. Mark an X in the box you think corresponds to your behavior. Write “NA” in comments if you do not think it applies.

**Managing difficult verbal/ disruptive behaviors:**

<table>
<thead>
<tr>
<th>How much of the time?</th>
<th>0-25%</th>
<th>26-50%</th>
<th>51-75%</th>
<th>76-100%</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made a specific, correct point call within 5s of violation, did not respond to arguments or comments that occurred without hand raising.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Marked or told at least one student to add points, and told the student what he or she did right.

**Delivery of prosocial/ proacademic points:**

<table>
<thead>
<tr>
<th>How many times?</th>
<th>3 or &gt;</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>Comments</th>
</tr>
</thead>
</table>

Self-monitoring form used when treatment moved to bonus point delivery.
**Self-Monitoring Form 3**

Initials: ________________________ Date: _____________ Time: _______________

Please complete this following an observation session. Mark an X in the box you think corresponds to your behavior. Write “NA” in comments if you do not think it applies.

**Managing difficult verbal/ disruptive behaviors:**

<table>
<thead>
<tr>
<th>How much of the time?</th>
<th>0-25%</th>
<th>26-50%</th>
<th>51-75%</th>
<th>76-100%</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made a specific, correct point call within 5s of violation, did not respond to arguments or comments that occurred without hand raising.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Delivery of prosocial/ proacademic points:**

<table>
<thead>
<tr>
<th>How many times?</th>
<th>3 or &gt;</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marked or told at least one student to add points, and told the student what he or she did right.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Prompting to engage in a task or assigned activity:**

<table>
<thead>
<tr>
<th>How much of the time?</th>
<th>0-25%</th>
<th>26-50%</th>
<th>51-75%</th>
<th>76-100%</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moved to student to give instruction, and said what should be done rather than what had been done.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Self-monitoring form used for all dependent variables.

---

**Self-Monitoring Form 4**

Initials: ________________________ Date: _____________ Time: _______________

Please complete this following an observation session. Mark an X in the box you think corresponds to your behavior. Write “NA” in comments if you do not think it applies.

**Managing difficult verbal/ disruptive behaviors:**

<table>
<thead>
<tr>
<th>How much of the time?</th>
<th>0-25%</th>
<th>26-50%</th>
<th>51-75%</th>
<th>76-100%</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made a specific, correct point call within 5s of violation, did not respond to arguments or comments that occurred without hand raising.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Delivery of prosocial/ proacademic points:**

<table>
<thead>
<tr>
<th></th>
<th>I did it more than every 10 min.</th>
<th>I did it every 10 min.</th>
<th>I did it less than every 10 min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marked or told at least one student to add points, and told the student what he or she did right.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Prompting to engage in a task or assigned activity:**

<table>
<thead>
<tr>
<th>How much of the time?</th>
<th>0-25%</th>
<th>26-50%</th>
<th>51-75%</th>
<th>76-100%</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moved to student to give instruction, and said what should be done rather than what had been done.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Self-monitoring form used for maintenance, when session length was increased to sixty minutes.
Staff Behavior Survey

Date: _______________ Time: _______________

The results of several anonymous experts will be tallied and compared to assess social validity of an intervention used in an EH class. The results may be used to target behaviors for training.

Background Information.

Circle your level of experience with Instructional Assistants (Teacher’s Aides):
1. “I have…
   A) heard about or met one”
   B) seen them in action at least once”
   C) worked at a school that had them”
   D) worked or participated in a class that had them”

2. What is your current work title?
   A) Student (circle undergraduate or graduate)
   B) Teacher
   C) Professor
   D) Instructional Assistant
   E) Other ______________

Goals, Procedures, and Outcomes of Intervention.

1. List three expectations you have of Instructional Assistants.

2. Are training and self-monitoring (completing a card based on how participants think they did) appropriate interventions for Instructional Assistants? Why or why not?

3. If our target behaviors occur about 20% of the time right now, what percent improvement would be necessary for you to rate the intervention as…
   A) Successful? __________________________
   B) Moderately successful? _________________
   C) Helpful? ______________________________
   D) Not helpful? ___________________________
4. For the following behaviors, record the level of importance from the following list.

<table>
<thead>
<tr>
<th>Not important</th>
<th>Somewhat important</th>
<th>Neutral</th>
<th>Important</th>
<th>Extremely important</th>
</tr>
</thead>
</table>

A) Removing behavior points for student’s disruptive behaviors
B) Overseeing students’ chair time outs
C) Delivering bonus points for good behavior
D) Prompting students to attend to the instructor
Importance of Removing Behavior Points

Answer Selected

Number of responses selected for each category regarding the importance of removing behavior points.

Importance of Delivering Bonus Points

Answer Selected

Number of responses selected for each category regarding the importance of delivering bonus points for good behavior.
Importance of Prompting On-Task Behavior

Number of responses selected for each category regarding the importance of prompting appropriate behavior.

Are Training and Self-Monitoring Good Interventions for Instructional Assistants?

Responses regarding the utility of self-monitoring and training as interventions.
Percent Improvement Necessary for the Results of the Intervention.

Potential outcomes for the study. Colors represent the rating volunteers would have given the intervention given the corresponding amount of improvement from baseline.
Participant Survey

*Please answer the following questions in light of your personal experience...*

For questions 1 and 2, select your answers from: Not important, Somewhat important, Neutral, Important, Extremely important.

1. How important do you think it is to increase Instructional Assistants’ behavior of:
   
   A) Behavior point removal? ______________________________

   B) Bonus point delivery? ________________________________

   C) Prompting appropriate behavior? ______________________

   D) Time out monitoring? ________________________________

2. How appropriate is the following component for improving staff behavior:
   
   A) Training? _________________________________________

   B) Prompting (paging)? _________________________________

   C) Self-monitoring? ________________________________

3. If current behaviors are about 20% correct, how much increase would be needed for you to determine the procedure was a:
   
   A) Success? __________________________

   B) Moderate success? ________________

   C) Helpful? __________________________

For question 4, select your answer from: Very Hurtful, Hurtful, Neutral, Helpful, Extremely Helpful.
4. From your level of interaction/participation with the study, how helpful do you think it was overall?

______________________________________________________________

5. Can you think of any other behaviors that may have been more helpful to be targeted?

6. Please list any other potential ways to have improved the study.
<table>
<thead>
<tr>
<th>Question</th>
<th>Item</th>
<th>Participant 1</th>
<th>Participant 2</th>
<th>Participant 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>How important do you think it is to increase Instructional Assistants’ behavior of:</td>
<td>Behavior point removal?</td>
<td>Extremely important</td>
<td>Important</td>
<td>If the program is implemented for all of us to call both bonus points and point removal, we should all be on the same page.</td>
</tr>
<tr>
<td>Bonus point delivery?</td>
<td>Extremely important</td>
<td>Important</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Prompting appropriate behavior?</td>
<td>Extremely important</td>
<td>Extremely important</td>
<td>Just how many “reminders” should we give before point removal?</td>
<td></td>
</tr>
<tr>
<td>Time out monitoring?</td>
<td>Extremely important</td>
<td>Important</td>
<td>Not very important, although problem solving should be with the person that called the points</td>
<td></td>
</tr>
<tr>
<td>How appropriate is the following component for</td>
<td>Training</td>
<td>Extremely important</td>
<td>Extremely important</td>
<td>Extremely important with periodic refreshers</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Prompting (paging)</th>
<th>Extremely important</th>
<th>Important</th>
<th>I found it to be an excellent tool to learn the program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-monitoring</td>
<td>Extremely important</td>
<td>Extremely important</td>
<td>Neutral</td>
</tr>
</tbody>
</table>

Additional comments from participant surveys:

“I don’t think this program is suited for all students (At first, I was very skeptical but for the most part it works). We had some students that knew how to play the system or beat it. For those students, an alternative plan should be implemented.”

“If time (availability) wasn’t an issue, I would say find some way to be monitored all day—most of the times we were monitored, the kids were doing something pretty low-key and we almost had to “create” reasons to give or take points.”

“Maybe video a whole day, then watch segments and point out what we should have done/ shouldn’t have done. Watch/ observe a classroom with experienced aides so we can see the plan in action.”

“I believe it is a helpful and useful tool for training/ learning the system, any increase would make it useful!”

“It would have been even more beneficial at the beginning of the year. I had a solid understanding of the system when we began the study, but it still made me more conscious of picking up things/ making calls.”

“My only suggestion for the future would be that aides receive this training, along with observations. Modeling of ‘appropriate’ behaviors for taking points, redirecting, etc. earlier in the school year. The study did help me and make me more aware of the calls I was making/ bonus points I was awarding, but it would have been a lifesaver at the beginning of the year when I was brand new, with no knowledge of the system. I feel I have a firm grasp on how it works now, but am always ready to improve.”

“Our class consisted of a variety of behaviors (VE) therefore in learning each student’s obstacles was very difficult. We were given inadequate training in the beginning of the school year... Once the study began, I felt more confident implementing it. It would have been great to have this program at the beginning of the year!”
APPENDIX D

REVIEW BOARD APPROVAL DOCUMENTS
Dear Mr. Seligson:

The Leon County Research Review Board has approved your request for research. Based on your proposal, the research will be approved for the period of December 2003 through December 2004. Should you desire to continue your research efforts after this period of time, you must submit a progress report on the status of your research and request renewed approval for continuation of the project. Any significant changes or amendments to the procedures or design of this study must be approved by resubmitting the request for research to the Research Review Board.

You need to contact the principal of the school in which you wish to conduct your study as soon as possible. The principal is responsible for making the decision relative to his or her school. It is your responsibility to return the enclosed "Principal's Consent for Research Participation," signed by the principal(s) of the school(s) to be involved, prior to the start of any research. Receipt of this consent form by this office will complete the approval process.

In the interest of continued research benefits and the coordination of research interests, please send this office one copy of your results and discussion. This information, and any other relevant information you may have, will be filed in our research library and added to the annotated listing of research projects. We look forward to your results and any suggestions they may offer toward improving the educational process in Leon County Schools.

Please feel free to call me if I can be of further assistance. I can be reached at 488-7007.

Sincerely,

Margaretta Southard, Ph.D.
Program Monitoring and Evaluation
Chair, Research Review Board

cc: Peggy Youngblood/Roberts Elementary
Office of the Vice President
For Research
Tallahassee, Florida 32306-2763
(850) 644-8673 - FAX (850) 644-4392

APPROVAL MEMORANDUM
Human Subjects Committee

Date: 12/12/2003

Erin Seligson
643-100 Fulton Rd.
Tallahassee, FL 32312

Dept.: Psychology

From: David Quadagno, Chair

Re: Use of Human Subjects in Research
    An evaluation of the use of training, self monitoring, and feedback for improving staff
    behavior in a Varied Exceptionalities classroom

The forms that you submitted to this office in regard to the use of human subjects in the proposal
referenced above have been reviewed by the Secretary, the Chair, and two members of the Human
Subjects Committee. Your project is determined to be exempt per 45 CFR § 46.101(b) 2 and has been
approved by an accelerated review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to
weigh the risk to the human participants and the aspects of the proposal related to potential risk
and benefit. This approval does not replace any departmental or other approvals, which may be
required.

If the project has not been completed by 12/11/2004 you must request renewed approval for continuation
of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project
to the Committee for approval. Also, the principal investigator must promptly report, in writing, any
unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded
that he/she is responsible for being informed concerning research projects involving human subjects in
the department, and should review protocols of such investigations as often as needed to insure that the project
is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance
Number is IRB00000446.

Cc: Dr. Bailey
HSC No. 2003.691
INFORMED CONSENT FORM

I freely and voluntarily and without element of force or coercion, consent to be a participant in the research project entitled “An evaluation of the use of training, self-monitoring, and feedback for improving staff behavior in a Varied Exceptionalities classroom”.

This research is being conducted by Erin Seligson, M.A., who is a student of Applied Behavior Analysis in the Psychology department at Florida State University. I understand that the research project is supervised by Jon Bailey, Ph.D who is a Professor of Applied Behavior Analysis in the department of Psychology at Florida State University. I understand the purpose of the research project is to better understand how to improve staff behavior in classrooms for students with disabilities. I understand that if I participate in the project I will be asked questions about my thoughts on the success of the research project and general information about myself and education.

I understand I will be asked to participate in a training session and fill out paper and pencil questionnaires on my behavior. I will also be asked to participate in feedback sessions with a researcher or research assistant. The total time commitment will be about 16 minutes per week. This time commitment will be made while I am working with the approval of the classroom teacher. If I participate in the study my questions will be answered by the researcher or research assistant either at the time or immediately following the completion of the research study.

I understand my participation is totally voluntary and I may stop participation at anytime. If I decide to stop participating it will not be held against me by the researcher or classroom teacher. All my answers to the questions and data on my behavior will be kept confidential and identified by a subject code number. My name will not appear on any of the results. My personal information and data will be kept as confidential as the extent allowed by law.

I understand there is a possibility of a minimal level of risk involved if I agree to participate in this study. I might experience frustration when recording my classroom behavior or receiving feedback on my performance. The researcher will be available to talk with me about any emotional discomfort I may experience while participating. I am also able to stop my participation at any time I wish.

I understand there are benefits for participating in this research project. First, my own awareness about my classroom behavior may be increased. Also, I will be providing behavior analysts with helpful ideas on how to improve the classroom behavior of other instructional assistants at public elementary schools. This knowledge can assist them in providing valuable training and services to public schools.

I understand that this consent may be withdrawn at any time without prejudice, penalty or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any question concerning the study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Erin Seligson or Dr. Jon Bailey at (850) 644-6443, or the Institutional Review Board at (850) 644-8838 for answers to questions about this research or my rights. Graphic results will be sent to me upon my request.

I have read and understand this consent form.

(Subject) (Date)
REFERENCES


BIOGRAPHICAL SKETCH

Education

M.A., Psychology, 4/2003, 3.96 GPA, Western Michigan University
B.S., Psychology, Sociology, 12/2000, 3.60 GPA, Western Michigan University

Teaching Experience


Professional Associations

Association for Behavior Analysis, student member 2001-present
Behavior Analysis Association of Michigan, student member 2001-2003
Capital Area of Florida Association of Behavior Analysis, 2003- present
Florida Association of Behavior Analysis, student member 2002-present
Mid-Western Association for Behavior Analysis, student member 2001-2003

Honors

Full graduate assistantship, Western Michigan University, 2002-2003; Florida State University 2003-present
Graduate Student Research and Travel Grant, Western Michigan University, 2002
Member of Golden Key National Honor’s Society, 2000-present
Dean’s List: 1999-2000, Western Michigan University

Presentations

Symposium conducted at the twenty-ninth annual meeting of the
Association for Behavior Analysis, San Francisco, California.


Research and Publications
