

Group Contingencies with a Randomly Determined Unidentified Responder Procedure

Using a Dependent Group Contingency with a Randomly Chosen Unidentified Responder Procedure: Effects for Talk Outs with an Entire Class in a Self-Contained Middle School Behavior Intervention Setting

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Abstract

The purpose of this study was to decrease the number of talk-outs from the entire group of middle school students with severe behavior disorders. The number of participants ranged from 8 to 11 for the class periods where data were gathered. The setting was a self-contained special education behavior intervention classroom. The dependent variable was the number of talk-outs emitted by the whole class for each class period (approximately one hour). A talk-out was defined as any verbal sound or word, audible to the whole class, spoken without permission. Prior to the start of each class period, one popsicle stick was drawn from a cup that had a student's name. If the child whose name (unidentified responder) was drawn talked-out less than two times during the period, everyone received an edible reward at the end of the class period. This intervention helped to reduce the number of talk-outs each class period. The primary strength of this study was the ease at which it was implemented and was able to become part of the daily classroom schedule and routine. The outcomes provide additional support for the use of an unidentified responder group contingency to a different population of students.

The use of behavioral interventions in various classroom settings continues (Alberto & Troutman, 2006). These interventions have ranged from token reinforcement programs to contingency management procedures. Behavioral procedures have found wide implementation in both general and special education classroom settings. These contingency management techniques have been employed with single students (Patterson, 1965), specific students in a class (Hall, Lund, & Jackson, 1968) whole classrooms (Barrish, Saunders, & Wolf, 1969; Herring & Wilder, 2006; Lohrmann & Talerico, 2004; McLaughlin, 1981; McLaughlin & Malaby, 1972), and entire elementary schools (Holland & McLaughlin, 1982).

A meta-analysis, by Stage and Quiroz (1997) noted that group contingencies produced the largest effect sizes in student social behavior in school settings. There are three forms of group contingencies (Litow & Pomroy, 1975; Morgan & Jenson, 1988; Skinner, Cashwell, & Dunn, 1996). These contingency arrangements differ in how consequences are earned as well as how contingencies are arranged.

With an independent group-oriented contingency, a student earns consequences based on his/her own performance. This is considered a group contingency procedure since all of students can earn the same rewards and are exposed to the same criteria (Skinner, Williams, & Neddreniep, 2004). Many classroom token economy programs employ such arrangements (McLaughlin & Williams, 1988; Swain & McLaughlin, 1997; Truchlicka, McLaughlin, & Swain, 1998).

The second type of group contingency arrangement is an interdependent group-oriented procedure. In this arrangement, the group is provided access to a reward based on the total or average performance of the entire group. With this system, all of the student's performances are part of the

reward structure. McLaughlin and his colleagues published a series of classroom studies which indicated that these contingency arrangements were very effective in improving the academic skills in reading, handwriting, and spelling of children with behavior disorders (McLaughlin, 1985, 1986, McLaughlin, Brown, Malaby, & Dolliver, 1977; McLaughlin, Herb, & Davis, 1980; Stewart & McLaughlin, 1986). They failed to find such large outcomes when it came to student social and/or on-task behavior (Holland & McLaughlin, 1982; Hutchings, Williams, & McLaughlin, 1989; McLaughlin et al., 1977). Other researchers have indicated these same outcomes (Gresham & Gresham, 1982; Skinner et al., 2004; Slavin, 1987)

A dependent-group contingency is where all or none of the group can earn the same reward based on an individual student's performance or a pre-selected student's performance (Skinner et al., 2004; McLaughlin, Brown, Dolliver, & Malaby, 1980). This type of procedure has been successfully modified using a random or unidentified student. This procedure has also be labeled at a "hero procedure" (Cooper, Heron, & Cooper, 2006). This modification should make this form of a contingency attractive to teachers and other school personnel because of the easy of data collection and implementation. This type of a group contingency procedure has been employed by teachers to reduce destructive behavior in the home (Gresham, 1983), disruptive behavior in general education (Allen, Goselig, & Boylan, 2002) and academic output in special education settings (McLaughlin, 1981, 1982). Teachers have indicated they like this procedure due to its practicality, simplified data collection, ease of implementation in a classroom setting, and other positive attributes (Cooper et al., 2006; Gresham & Gresham, 1982; Reimers, Wacker, & Koepl, 1987; Speltz, Shimamura, & McReynolds, 1982). In addition, there has been an increase in the publication group interventions in middle (Allen et al., 2002; Swain & McLaughlin, 1997) and high school (Hutchison et al., 1987) settings.

The purpose of this study was to decrease the number of talk-outs from the entire group of students with severe behavior disorders using an independent group contingency. It was also felt that a decrease in classwide talk-outs would maximize instruction, improve class discussions, and increase overall academic success. A final purpose was to replicate the previous work of Gresham (1983) and Allen et al., (2002) with group contingencies using a randomly determined unidentified responder in a different setting and population.

Method

Participant and Setting

The participants for this project included each student in four class periods (1, 4, 5, 6) in a middle school special education behavior intervention (BI) classroom. There were 11 male students and 1 female student. The group also consisted of three 7th graders and nine 8th graders. The racial demographics included eight Caucasian, two Native American, one Hispanic, and one African American student. To be placed in the classroom, each student had at least one behavioral goal specifically outlined in his or her IEP. The classroom teacher stated that at times, the increase in talk-outs had created an environment that was not conducive for productive instruction and classroom discussion.

The setting for the study was in this self-contained, middle school special education, behavior intervention classroom. The number of participants ranged from 8 to 11 each day. There were 13 individual desks in the room and were placed facing the front. There were also four isolated study carrels in the corners of the class. This was done to separate a particular student from the group at teacher discretion and/or student request. The lead teacher, two instructional assistants, and a student teacher were all present during the 1st period class. A third instructional assistant was also present during the 4th, 5th, and 6th period classes.

Materials

The materials needed for this study were popsicle sticks with each student's name written on one, blank paper to tally number of talk-outs, and candy to be used as rewards.

Dependent Variable and Measurement Procedures

The dependent variable was the number of talk-outs for the whole group each class period. The middle school ran on a modified block system so on Tuesdays and Thursday, a class period was 75 minutes. Data were taken in each period using both the typical 50-minute class session and the expanded period. A talk-out was defined as any verbal sound or word, audible to the whole class, spoken without permission. An example of speaking with permission would be raising ones hand and being called. Each class period, the first author recorded any talk-out as a tally mark on a blank piece of paper. The tally marks were totaled at the end of each period. Data were collected each day during 1st, 4th, 5th, and 6th period during the first 20 minutes. These data were also gathered as part of an ongoing NCATE and state standard requiring teacher training institutions to document they their candidates can positively affect student behavior (McLaughlin, B. Williams, R. Williams, Derby, Peck, Weber, & Bjordahl, 1999).

Experimental Design and Conditions

A multiple baseline design across class periods (Kazdin, 1982) was used for this study. A description of each phase follows.

Baseline. During baseline, the first author tallied the number of talk-outs. The students were not informed that talk-outs were being recorded. Four baseline data points were taken for 1st period, six data points for 4th period, eight data points for 5th period, and 10 data points for 6th period.

Group consequences using a randomly determined unidentified student. The first author implemented a reward procedure contingent on decreasing numbers of talk-outs during each class period. Prior to the start of class, one popsicle stick was drawn from a cup that had a student's name written on it. This name was noted by the author but remained unknown to the participants. If the child whose name was drawn talked-out less than two times during the period, everyone received a candy reward at the end of the class period. If, however, the chosen student had two or more talk-outs, no one earned a piece of candy. If the chosen student succeeded, his or her name was also announced orally to the class. If no reward was earned, the chosen student's name was left undisclosed to the class. This was done as the suggestion of Shores, Gunter, and Jack, (1993) to avoid reprisals on the part of other students. Data were taken for 5 to 12 school days during the intervention. For some students this consisted of four weeks of school.

Reliability of Measurement

Reliability was taken a total of three times: once during baseline and twice during the intervention. These data were taken by having both recorders tally talk-outs simultaneously, but independently. Both the author's supervisor and a classroom IA assisted in taking reliability data. At the end of the period, the number of tally marks recorded were compared. The smaller number of recorded talk outs was divided by the larger number of recorded talk-outs and multiplied by 100. Reliability measurement was 80%, 96%, and 100%.

Reliability of the Independent Variable

Reliability as to the implementation of the independent variable was also taken three times. These data were taken without informing the first author that these data would be taken. An observer with a description of the two experimental conditions came into the room and determined which procedures (baseline or unidentified responder) was in effect. This was independently taken and given to the classroom teacher. Reliability was 100% for each observation.

Results

The outcomes for each period can be seen in Figure 1. During baseline, the total range of talk-outs in all four-class periods was from 6 to 99. The grand mean number of talk-outs was 28.2 for baseline across all class periods. For period 1, the number of talk-outs ranged from 10 to 64 with a mean of 33.3. For period 4, the number of talk-outs ranged from 11 to 99 with a mean of 63.3. For

period 5, the number of talk-outs ranged from 10 to 72 with a mean of 31.1. For period 6, the number of talk-outs ranged from 6 to 36 with a mean of 28.2

Figure 1. The frequency of talk outs for each class period by the entire class during baseline and the group contingency procedure.

During group consequences and rewards, the total range for talk-outs in all four class periods ranged from 0 to 50 with a grand mean of 7.2. During period 1, talk-outs ranged from 0 to 11 with a mean of 3.1. Fourth period had a range of 0 to 25 talk-outs with a mean of 6.6. Fifth period had a range of 7 to 50 with a mean of 17.1. The range for talk-outs during 6th period was 0 to 5 with a mean number of 2.6.

A Friedman Analysis of Variance (Siegel, 1956) was carried between each condition and academic period. There were no significant differences between any baseline condition ($cr^2 = .077$; $p = .9945$; NS), but significant for the unidentified responder phases ($cr^2 = 6.37$; $p = .0954$) using a one-tailed analysis. A Wilcoxon-Signed-Ranks Test (Siegel, 1956) was performed between the baseline and the unidentified responder condition. All comparisons between baseline and the unidentified responder condition were not significant except between baseline period 6 and the unidentified responder in period 6 ($Z = -2.033$; $p = .0431$).

Discussion

This whole group intervention helped to reduce the number of talk-outs each class period. It was also noted by the adult staff that class participation did not decrease; rather the students simply began raising their hands more to speak rather than shouting out questions and comments. Also, students began walking up to the teacher's desk when they had a question during independent work times, rather than shouting from across the room as was previously observed. These findings replicate much of what was found by Skinner and his colleagues and confirm the outcomes of Stage and Quiroz (1997) meta analysis.

A primary strength of this study was the ease at which it was implemented and the outcomes obtained. The group contingency arrangement was simply added to the daily classroom schedule. Others researchers have noted the ease of employing group contingency procedures (Alberto & Troutman, 2006; Gresham & Gresham, 1982; Speltz et al., 1982). The present group contingency procedures took little time away from classroom instruction and were used with the entire class. It was also very cost effective. The only money was spent only for candy rewards. Finally, teachers indicated that group contingencies are an acceptable intervention to employ in their classrooms (Reimers et al., 1987; Turco & Elliott, 1990). Also, it provides some evidence that teachers can carry out action research in their respective classrooms. The employment of action research by teachers in their classrooms has been advocated by others (Bender, 2008; McLaughlin et al., 1999). Carrying out action research can be viewed as a professional development and as a professional improvement plan (PIP).

The use of this type of group contingencies could also be an easily modified intervention (projecting a standard of no talk-outs for a reward to be earned, choosing more than one name each class period to track, etc.), or allowing teachers to tailor it towards the needs and goals of their respective classrooms. Many of these issues have been examined in prior research (Gresham, 1983; Gresham & Gresham, 1982; Kelshaw-Levering, Sterling-Turner, Henry, & Skinner, 2000). Speltz et al., 1982). However, in the present research, an entire classroom of children with severe behavior disorders was employed.

A difficulty noted for this study was determining consequences that would be desirable for an entire class. One student stated that he did not like eating candy. However, upon further questioning, the teacher discovered that the student did like jolly ranchers, so those were purchased with the other forms of candy as part of the candy reward. Another limitation was a short duration of data collection.

Due to spring break and state-wide high stakes testing, data could not be gathered for an additional 11 school days. Another limitation was the small number of sessions where reliability of measurement was taken. This was due to the availability of observers and the amount of material that had to be presented for the upcoming high-stakes state testing. It would have been better to have taken reliability of measurement more often, but it simply could not be carried out because of other pressing issues in the classroom. Future research will have to address this issue. Finally, if academic data were collected, this would have provided a nice permanent product that would have allowed for reliability to be taken each school day.

The classroom staff viewed the use of an unidentified responder as a positive and effective component of these procedures. Refraining from informing the class the identity of target student when the class failed to meet the criteria was positive and avoided some of the pitfalls of using group contingencies. Finally, this present study provides some additional evidence in support of employing some form of an unidentified contingency arrangement (Kelshaw-Levering et al., 2000; Skinner et al., 1996; 1999) with either the consequence, student responder, or contingency system.

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