

The Effects of Increasing the Ratio of Approvals to
Disapprovals in a Classroom on Destructive, Disruptive, and
Aggressive Behaviors

by

Samantha Evans

Submitted in Partial Fulfillment of the Requirements

for the Degree of

Master of Science

in the

Applied Behavior Analysis

Program

YOUNGSTOWN STATE UNIVERSITY
May, 2014

The Effects of Increasing the Ratio of Approvals to Disapprovals in a Classroom on
Destructive, Disruptive, and Aggressive Behaviors

Samantha Evans

I hereby release this thesis to the public. I understand that this thesis will be made available from the OhioLINK ETD Center and the Maag Library Circulation Desk for public access. I also authorize the university or other individuals to make copies of this thesis as needed for scholarly research.

Signature:

Samantha Evans, Student

Date

Approval:

Stephen R. Flora, Thesis Advisor

Date

Michael C. Clayton, Committee Member

Date

Corinne Milentijevic, Committee Member

Date

Dr. Salvatore A. Sanders, Associate Dean of Graduate Studies

Date

©

S. Evans

2014

Abstract

The current study examined the effects of an independent group contingency behavior plan, that included a token economy using punch cards on a fixed duration schedule, and the effects of increasing the ratio of approvals to disapprovals on destructive, disruptive, and aggressive behaviors in a fourth grade classroom at an alternative school for children with AD/HD, Autism Spectrum Disorders, and other related behavior challenges. The independent group contingency intervention greatly reduced all problem behaviors almost immediately and the teachers adopted it for continued use despite initial resistance. Increasing the rates of approvals in the classroom also reduced problem behaviors and greatly improved the overall classroom environment and student/teacher relationship. These findings indicate that independent group contingencies and increasing the rates of approvals should be more widely adopted and researched.

Keywords: *approvals, disapprovals, independent group contingency, autism spectrum disorders, ADHD*

Table of Contents

Introduction.....	1
Contingency Management.....	2
Approvals/Disapprovals.....	5
Method.....	8
Participants, Setting, Personnel, Materials.....	9
Independent and Dependent Measures, Integrity Measures.....	10
Procedure.....	11
Experimental Design.....	11
Baseline.....	12
Intervention.....	13
Results.....	14
Discussion.....	16
References.....	22
Figure 1.....	26
Figure 2.....	26
Figure 3.....	27
Appendix A.....	28
Appendix B.....	29
Appendix C.....	30

The Effects of Increasing the Ratio of Approvals to Disapprovals in a Classroom on Destructive, Disruptive, and Aggressive Behaviors

This study addressed two factors that directly affected the classroom environment and academic learning. First, the type of behavior management system used in the classroom was changed to a more effective, individualized system. The introduced behavior management system held each individual student accountable for their own behavior. The second factor was the rate of teachers' approval and disapprovals. The current study investigated the effect of increasing the rate of approvals on inappropriate behavior in the classroom.

Group behavior management procedures are commonly used in school systems throughout the United States. With education being the center of new governmental policies, like No Child Left Behind and Race to the Top, behavior management strategies that are both effective and scientifically valid are in demand. One of the most effective behavior management strategies being used in the classroom is contingency management. In contingency management, contrived reinforcement is controlled by the teachers in the classroom and delivered to the students contingent on specific target behavior(s). Contingency management can be introduced several ways to the classroom environment. One of the most popular and effective ways to use contingency management in the classroom is with token economies. With token economies, conditioned reinforcers (tokens, stamps, coins, stickers) are delivered to the students contingent on specific target behavior(s); later these tokens can be exchanged for larger, more meaningful reinforcers (extra recess time, food). Token economies have been used to increase classroom participation (Boniecki and Moore, 2003), reduce disruptive behavior in preschoolers

(Filcheck, Mcneil, Greco, and Bernard, 2004), increase reading comprehension (Novak and Hammond, 1983) and improve multiple behaviors (Cooper, Heron, & Heward, 2007, p. 270).

Contingency management can be delivered on an individual or group level. Contingency management is generally used at the individual level if only a few students are engaging in problem behavior in the classroom. In this case, each student would be provided with an individual response contingency and would receive reinforcement contingent on the target behavior(s). At the group level, the entire class functions under the same contingency; however, obtaining reinforcement depends on the type of group contingency that has been selected. Litow and Pumroy (1975) categorized group contingency management into 3 types: dependent, independent, and interdependent. With all 3 types of contingency management, students are all functioning under the same contingency; the only difference is how the students are able to obtain reinforcement for their behavior(s). Dependent group contingencies only permit the entire class to receive reinforcement for their behavior contingent on a predetermined student or small group reaching the set criterion for reinforcement. For example, the entire class would get to have an extra recess contingent on the student with the poorest math grade receiving a specific percentage on a test. Independent group contingencies permit each student to receive reinforcement for their behavior contingent on the individual student reaching the set criterion for reinforcement. For example, each student in the class would get an extra recess if they received a specific percentage on the math test. Students who do not meet the criteria would not receive the additional recess. Interdependent group contingencies permit the entire class to receive reinforcement for their behavior contingent on the class

as a whole reaching the set criterion for reinforcement. For example, the whole class would receive an extra recess if the whole class received a specific percentage on the math test.

Each contingency management plan has its own strengths and weaknesses depending on the acceptability to teachers and the population of students. Shapiro and Goldberg (1986) found that students preferred the independent group contingency more so than interdependent and dependent group contingencies. In another evaluation on acceptability, Elliott, Turco, and Gresham (1987) found that teachers, students, and psychologists preferred independent and interdependent group contingencies over dependent group contingencies.

Interdependent contingencies plans are the most popular in the school settings because they are the easiest to implement for teachers and staff (Shapiro & Goldberg, 1986). At the school in this study, teachers subjectively decided whether or not the class as a whole has reached a vaguely defined level of appropriate behavior and reinforced accordingly. Unfortunately, this group contingency plan made the students with the highest rate of problem behaviors the most noticed and ignored the students with the lowest rate of problem behaviors. A few students with a high rate of problem behavior can ruin the opportunity of reinforcement for the whole class. Thus giving the students who are behaving appropriately little to no reason to continue to behave appropriately.

Dependent group contingency plans are also easily implemented in the classroom and have similar problems. Dependent group contingency plans may rely on peer pressure which can easily become dangerous for student(s). Since reinforcement is contingent on the behavior(s) of one student or a small group of students, those students

can easily become the target of aggressive behaviors from the rest of the class.

Furthermore, with this type of group contingency plan, if the selected student(s) reach the predetermined level for reinforcement, there will likely be students receiving reinforcement who did not reach the same level. Therefore, some students are being reinforced but not performing appropriately. On the other hand, if the selected student(s) do not reach the predetermined level for reinforcement, there will likely be students not receiving reinforcement who did reach the appropriate level. Therefore, some students may be punished for performing appropriately.

Conversely, independent group contingencies are the most difficult to implement in the classroom because they require that the teachers pay close attention to each individual student's behavior. It can be challenging for teachers to teach the entire class and keep track of each individual student's behavior. However, independent group contingencies are more highly preferred by the students (Shapiro & Goldberg, 1986). This contingency makes each individual student responsible for their own behavior(s) and reinforcement for each student is contingent on only the individual's behavior(s).

However, research on the effectiveness of different types of group contingency plans has been mixed. While Kazdin and Geesey (1977) showed that dependent contingencies were more effective at decreasing problem behaviors in the classroom compared to independent group contingencies; Shapiro and Goldberg (1986) found that there were no major differences among all three types of group contingency plans. All types reduced maladaptive behavior in the classroom equally. In several studies (Gresham & Gresham, 1982; McReynolds, Gange, & Spelts, 1981; Pigott, Fantuzzo, Heggie, and Clement,

1984) interdependent group contingencies were shown to have a more positive effect on student performance compared to independent group contingencies, however, students rated the independent group contingency higher than either the interdependent or dependent group contingency (Shapiro & Goldberg, 1986). While research to date on independent group contingencies is limited, independent group contingencies are the most theoretically consistent with the principles of applied behavior analysis.

In the current study, to better assess the effects of an independent group contingency, an independent group contingency plan was implemented in a classroom. A token economy, specifically a punch card system, was introduced to the entire class. Using a fixed duration interval schedule, students received a hole in their punch card if they exhibited appropriate behavior throughout the entire interval. Once a student had completed their punch card they were permitted to select a larger, backup reinforcer.

Another aspect of this study that was examined was the teachers' use of approvals and disapprovals in the classroom. Several studies over the last 40 years have shown that the behavior of the teachers in the classroom can be a powerful influence on the behavior of the individual students and sometimes, the class as a whole (Beaman & Wheldall, 2000). For teachers experiencing problem behaviors in the classroom, it has been a common suggestion to increase contingent praise for specific appropriate behaviors (Merrett & Wheldall, 1987). However, most teachers believe that they are already employing such techniques in their classrooms. However, by varying the behavior of the teachers in the classroom Thomas, Becker, and Armstrong (1968) were able to produce and eliminate disruptive classroom behavior. Using a classroom of students who were labeled "a good class" with no "bad" kids, the researchers were able to vary the

conditions (baseline, no approval, and frequent disapproval) to show that the teachers' behavior had a direct effect on the rate of disruptive behavior in the classroom. In baseline, disruptive behavior occurred in an average of 8.7% of the intervals observed. In the "no approval" condition, disruptive behaviors increased to an average of 25.5%. During the "frequent disapproval" condition, disruptive behaviors increased to an average of 31.2% (Thomas, Becker, & Armstrong, 1968). Therefore, an increase in disapprovals in the classroom increased the rate of disruptive behavior.

White (1975) analyzed findings from 16 different studies involving 104 teachers and their classrooms in the United States in order to report on the natural rate of teacher approval and disapproval in the classroom. White found that the highest rate of teacher approval occurred in the second grade with an approval rate of 1.3 verbal approval responses per observed minute. Unfortunately, after grade two, the rate of teacher approval declines rapidly and stabilizes at around 1 teacher approval every 5-10 minutes (White, 1975). Additionally, White (1975) found that the rate of teacher approval was higher for instructional behaviors and the rate of disapproval was higher for managerial behaviors. Strain, Lambert, Kerr, and Lenkner (1983) found low levels of feedback (positive and negative) in grades kindergarten to 3rd grade with a good proportion of positive feedback being contingent on non-compliance. Even with low levels of feedback overall, teachers were still more likely to use disapprovals than approvals (Strain, Lambert, Kerr, & Lenkner, 1983). Brophy (1981) found slightly different results when examining the results of 6 different studies. He found that overall teachers presented more approvals than disapprovals. Similar to White (1975), Brophy (1981) found that teachers were most likely to approve of academic behavior. However, they were more

likely to disapprove of academic behavior before approving of social behavior. Merrett and Wheldall (1987) also found that teachers used more approvals (56%) than disapprovals (44%) overall. But like White (1975) they, found that positive responses were three times more likely for academic behavior and negative responses were five times more likely for social behavior (Merrett & Wheldall, 1987). Several additional studies (Nafpaktitis, Mayer & Butterworth, 1985; Wheldall, Houghton & Merrett, 1989; & Winter, 1990) found similar results; by small margins teacher approvals exceeded teacher disapprovals and disapprovals were more likely to occur for social behavior and approvals were more likely to occur for academic behavior.

There also appears to be a difference in average classroom academic ability on teacher approvals and disapprovals. Heller and White (1975) found that teachers use more verbal disapproval in lower ability classrooms than in higher ability classrooms in grades 7-9. Thomas, Presland, Grant, and Glynn looked at individual verbal approvals and disapprovals within the classroom. They collected data on the rate of approvals and disapprovals given to individual students (instead of the class as a whole) and found that the majority of teachers had higher individual rates of verbal disapproval than of verbal approval. Therefore the natural rates of approvals and disapprovals is not only disproportionate at the classroom level but also on an individual level.

Studies have also been conducted on the rates of approvals and disapprovals of “problem” students versus “non-problem” students. Fry (1983) examined 28 teachers and 400 elementary students and found that problem students received less positive statements and more negative statements from the teachers than their non-problem peers. A deterioration in student/teacher interaction over time and a decline in attention from the

students was also noted in the study. Similarly, Russell and Lin (1977) found that teachers were more likely to respond to inappropriate behaviors in the worst behaved group than the best behaved group of students. Demonstrating that compared to students who exhibit less problem behaviors, students who exhibit more problem behaviors have those problem behaviors reinforced with more attention from the teachers.

The current study aimed to add to the previous research of Thomas, Becker, and Armstrong (1968) by reversing the rate of approvals and disapprovals in a 4th grade classroom. Most of the past research in this area is based on descriptive data that has been collected across several different grades throughout several different countries. However, there is limited research that systematically manipulates the rate of approvals and disapprovals to show a relationship between the behavior of the teachers (approvals and disapprovals) and the behavior of the students (disruptive, destructive, and aggressive behaviors). From these studies, it is difficult to see if inappropriate behavior resulted in the low rates of approvals or if the high rate of disapprovals resulted in the inappropriate behavior. The current study attempted to directly manipulate the rate of approvals and measure its effect on the students' behavior.

Method

Participants

Participants were students (6 female, 12 male) in a fourth grade classroom at a school in northeastern Ohio for children with AD/HD, Autism Spectrum Disorders, and multiple diagnoses. This classroom was selected due to the high rate of problem behaviors being exhibited in the classroom. Both the principal and the behavior specialist

requested an intervention be implemented in the classroom. Informed consent forms were signed by parents or legal guardians informing them that allowing their child's data to be analyzed is voluntary, they can opt out of the study at any time, and no negative consequences will occur if they choose to not allow their child's data to be part of the study. Students who did not participate (no informed consent was provided by the parent/guardian) were still involved with the intervention as the intervention was part of the school's requirement. However, students whose parents did not give informed consent did not have their punch cards collected at the end of each academic period by the researchers.

Setting and Personnel.

The study took place in the 4th grade classroom at a charter school in northeastern Ohio. The room was 40' by 25', containing approximately 18 desks, 3 large group tables, 2 desks for the teachers, 6 computers, and a whiteboard/projector board in the front of the classroom. The sessions were from 9:30am-10:30am. The intervention was only implemented during math period. There were two teachers in the 4th grade classroom who participated in the study. During the beginning phases of this study two additional behavior support staff were provided for the classroom for intensive intervention.

Materials

The teachers continued to teach the class as usual and continued to provide usual educational materials for the class. The students were provided with punch cards (Figure 1). Each student went through 1-2 punch cards a day depending on their behavior. Four single whole punchers were provided to the teachers and additional behavior support staff to use for the implementation of the intervention. The researchers also provided the

classroom with reinforcers. These reinforcers were primarily edibles (candy, chips, etc.) which was determined via student questionnaire.

Independent Variables and Dependent Measures

The independent variables for this study were the increase in approvals given to the students and the implementation of an independent group contingency via a token economy using punch cards. Approvals were defined as any verbalization, physical touch, or delivery of a token or other reinforcing item that is contingent on an appropriate behavior. Disapprovals were defined as any verbalization or removal of privileges directed toward an individual child or the classroom as a whole that is corrective or punitive in nature. The dependent measures for this study were the inappropriate behaviors (specifically, “out of seat” and “verbal disruption”) exhibited by the students. Out of seat was defined any instance when a student’s bottom is no longer in contact with their own chair without permission from the teacher for more than 3 seconds. Verbal disruption was defined as any instance when a child speaks out of turn without the teacher’s permission at any point during class time.

Integrity Measures

The researchers will collected data using a pencil and paper data sheets. The researchers also used the smartphone application “MotivAider” to remind the teachers and additional behavior support staff to reinforce the students. The application is a timer system that allows the user to hear a tone or feel a vibration every X minutes. The timer resets itself automatically and continues to do so until manually stopped by the user.

In order to ensure accuracy in data collection, Interobserver agreement (IOA) was collected on 41% and 50% of baseline sessions for verbal disruption/out of seat and approvals/disapprovals, respectively. IOA was also collected 43% of intervention sessions for both verbal disruption/out of seat and approvals/disapprovals. A second observer collected data alongside the primary data collector during these sessions. For verbal disruption/out of seat sessions, IOA was 96% during baseline and 97% during intervention. For approvals/disapprovals sessions, IOA was 94% during baseline and 98% during intervention. Frequency data collection was used to collect data on the number of approvals and disapprovals in the classroom. Partial interval recording (every 20 seconds for a 15 minutes period) was used to collect data on inappropriate behaviors exhibited by the students.

Procedure

Experimental Design. The effects of reversing the ratio of approvals to disapprovals was assessed using a withdrawal design (Kazdin, 2011, p. 128). A withdrawal design (ABAB) was chosen because it facilitates quick judgment on whether or not the intervention is having an effect on the target behavior(s) (Kazdin, 2011, p. 128). In this experimental design, the baseline is continued until a stable rate of responding is recorded. A stable rate of responding during the baseline condition is needed to project what the behavior would be like in the immediate future if no intervention was implemented. Once the target behavior(s) have reached a stable rate of responding during the baseline (phase A), then the intervention can be introduced to the classroom. The intervention phase (phase B) is similar to the baseline in that it is needed to not only describe the current rate of problem behaviors in the classroom but also to predict the future rate of problem

behaviors in the classroom if the conditions were unchanged (Kazdin, 2011, p. 128).

With this design, if the intervention is successful then the rate of problem behaviors will depart from the projected level of baseline. In the third phase (the second phase A), the intervention was withdrawn from the classroom *briefly*. During this phase we want to see the rate of problem behavior(s) return to baseline levels since the intervention is being withdrawn. This phase will allow the experimenters to test the prediction from the prior phase (phase B). This phase also confirms what was predicted in the first phase A condition; that the classroom problem behavior(s) would have remained the same if no intervention was implemented. The final phase of the experimental design is the second phase B. During this phase the intervention was reinstated in the classroom. If the intervention was effective than the rate of problem behavior(s) will again depart from the predicted level of baseline and return to the intervention levels seen in the first phase B.

Baseline. During baseline, the classroom proceeded as normal. The teachers continued to teach the required material in their usual method. The classroom continued to operate under an “interdependent group contingency plan”; using a point system where the teachers’ points were contingent on the classroom as a whole exhibiting problem behaviors and the class’ points were contingent on the classroom as a whole exhibiting appropriate behaviors. If the teachers had more points at the end of the day then the classroom did not receive reinforcement for their behaviors. If the classroom had more points at the end of the day then the classroom received reinforcement for their behaviors. During baseline, the teachers were judging non-systematically and subjectively if vaguely defined appropriate behaviors were occurring or not. During baseline, data was collected on the number of approvals and disapprovals delivered by the teachers to the class and on

the two previously defined target behaviors in the classroom (out of seat and verbal disruption).

Intervention. In this condition the classroom functioned under an independent group contingency. As discussed previously, the whole classroom was required to adhere to the same classroom rules but individual students received reinforcement dependent on their individual behavior. This allowed the students who were exhibiting appropriate behaviors to receive reinforcement regularly independent of those who were exhibiting problem behaviors. Ideally, the students who were consistently exhibiting problem behaviors should begin to exhibit appropriate behaviors as a function of the changed reinforcement contingency.

At the beginning of class, each student was provided with a punch card. Each punch card had 5 spots that needed to be “punched” in order to complete the card. Every 5 minutes a timer (MotivAider) would vibrate to signal to the teachers and additional staff that reinforcement needed to be delivered. At this time, all students who had been exhibiting appropriate behavior for the entire 5 minute interval were given a hole in their punch card. Any student(s) that did not exhibit appropriate behavior for the entire 5 minute interval was not given a hole in their punch card. During the 5 minute interval the students were also be provided with behavior specific praise and physical touch when appropriate and as frequently as possible from both the teachers and the additional behavior support staff. Once a student had completed their punch card, they were able to exchange these cards for back up reinforcers (i.e. candy, chips, small toys). The teachers determined that the exchange would occur directly after math period but before lunch.

There were 3 behaviors that earned the students holes in their punch card. These behaviors are as follows: 1. The student must remain in their seat unless otherwise instructed by the teacher. 2. The student must raise their hand in order to speak out in class unless otherwise instructed by the teacher. 3. The student must be working on assigned tasks and follow directions given by the teacher. These rules were stated at the beginning of math period each day. If these rules were followed, the student received a hole in their punch card after each 5 minute interval. The interval was gradually increased throughout the intervention until an interval of 10 minutes was reached.

Results

The independent group contingency data produced significant and consistent decreases in targeted problem behaviors, verbal disruption and out of seat, when compared with baseline data (Figure 2).

The first target problem behavior, out of seat, occurred at a mean rate of 53% during baseline conditions. During intervention, this target problem behavior rapidly decreased to a mean rate of 4%. Similar to baseline, this target problem behavior significantly increased during the reversal conditions to a mean rate of 47% (Figure 2). Thus demonstrating that implementing an independent group contingency was responsible for the significant decrease in out of seat behavior in this classroom.

The second target problem behavior, verbal disruption, occurred at a mean rate of 51% during baseline conditions. During intervention, this target problem behavior decreased to a mean rate of 6%. This behavior increased drastically during the reversal conditions to a mean rate of 73%, which is significantly higher than the mean baseline

rate of 51% (Figure 2). Again, the data demonstrates that implementing an independent group contingency was responsible for the significant decrease in verbal disruption behavior in this classroom.

Rates of approvals and disapprovals (Figure 3) in the classroom were also analyzed for this study. During baseline conditions, rates of disapprovals (reprimands) occurred at a mean rate of 24 disapprovals per 15 minute observation period (1.6 disapprovals per observed minute). Disapprovals significantly decreased during intervention to a mean rate of 13 disapprovals per 15 minute observation period (.9 disapprovals per observed minute). It was challenging for teachers to increase the amount of disapprovals during the reversal conditions due to the newly formed habit of giving approvals to reinforce appropriate behaviors. Thus, during reversal conditions, disapprovals occurred at a mean rate of 8.5 disapprovals per 15 minute observation period (.6 disapprovals per observed minute).

As seen in figure 3, rates of approvals (praise) occurred at a mean rate of 3.5 approvals per 15 minutes observation period (.2 approvals per observed minute) during baseline. Approvals significantly increased during the intervention condition to a mean rate of 32 approvals per 15 minute observation period (2.1 approvals per observed minute). During the reversal conditions it appeared to be easier for the teachers to decrease approvals than it was to increase disapprovals. The mean rate of approvals during the reversal conditions was 3 approvals per 15 minute observation period (.2 approvals per observed minute).

Lastly, data on the amount of physical approvals (high five, hug, pat on the back) was analyzed (Figure 3). During baseline, rates of physical approvals occurred at a rate of

.3 physical approvals per 15 minute observation period (.02 physical approvals per observed minute). Rates of physical approvals slightly increased during intervention to a mean rate of 1.5 physical approvals per 15 minute observation period (.1 physical approval per observed minute). Additionally, rates of physical approvals decreased to 0 during reversal conditions.

Discussion

The current study adds to the literature on independent group contingencies in the classroom (Brantley and Webster, 1993) by illustrating the effectiveness of independent group contingencies in comparison to the previously used intervention (interdependent group contingency). In Brantley and Webster (1993), even though the intervention was immediately successful, the teachers were extremely resistant to continuing with the strategy because they felt the class should have even more structure. In the present study, the teachers were also resistant to the intervention. The teachers expressed their concern about the amount of reinforcement and the frequency of reinforcement being provided for appropriate behaviors. The teachers frequently said things like “He should just do that anyway” or “Should he really be getting a hole punch for that?” However, this problem quickly subsided once the teachers observed the decrease in problem behaviors. Because of the initial teacher resistance, it was difficult to encourage the teachers to provide verbal and physical reinforcement during the first two days of intervention. This is reflected in Figure 2. Again, this problem was quickly resolved once the teachers saw the effects of the intervention and they promptly and consistently increased the number of approvals throughout the intervention.

In order for this intervention to be successful, it was critical that the teachers and researchers worked well together. Thus researchers included the teachers in all steps of the intervention, including the development of the intervention. Since the intervention simply combined and refined ideas that were already being used in the classroom, the teachers input gave them a sense of ownership over the intervention which increased the likelihood that the intervention would be continued after the researchers left. It was also important that the researchers provide emotional support and constant reinforcement for the teachers. Emails, written notes, and verbal praise directly to the teachers and to their supervisors were necessary to maintain the teachers' confidence in the intervention.

It was initially difficult for the teachers to increase their rates of approvals and decrease their rates of disapprovals. The teachers had mentioned early on that they felt the students were being reinforced too often and were not being corrected when they were not behaving appropriately. However, this concern was quickly eliminated once the teachers were able to see the results of the intervention. A limitation to this study is that the effects of approvals and disapprovals on the students' behavior was confounded by the effects of the independent group contingency. From this study, it is unknown whether or not the increase in approvals and decrease in disapprovals caused the change in the students' behaviors or if the implementation of the independent group contingency changed the students' behavior or if it was a combination of both. Future research should examine each component to determine the necessity of each.

During the intervention, the researchers noted that some students were able to calculate whether or not they would have the time to collect the required number of hole punches to receive reinforcement. On some occasions, those students would engage in

inappropriate behaviors and were able to verbally state that they “knew they wouldn’t have time to earn candy” for that day. Even though the incomplete punch cards were collected each day and passed out again the next day, the delay was too long for some students. However, these occurrences were small and appeared to have no significant impact overall.

Another variable that could have potentially confounded the results is that a school wide intervention was implemented during a portion of the current study. The school implemented “Tally Time” which was a school wide token economy. Throughout the school day, the behavior staff would announce “tally time” over the intercom and teachers would deliver tokens/tallies to all students who were on task during the exact moment the announcement was made. This intervention was implemented on the 24th data point and continued throughout the remainder of the study. While “Tally Time” may have affected the behavior of the students in the 4th grade classroom, there are no significant changes in the data to suggest it confounded the results.

Halfway through the intervention, the classroom teachers began to implement a similar independent group contingency intervention during their afternoon academic time. This intervention consisted of each student earning colored dots on a fixed duration 7 minute schedule. Upon filling up their card (10 circles), the students were able to exchange their cards for back-up reinforcers (candy, additional recess, small toys). The teachers continued to spread this intervention to other academic times and eventually (once the researchers left) used this intervention throughout the entire day. It should also be noted that the teachers told the researchers that the addition of the independent group

contingency increased their confidence in managing their classroom's behaviors and also in incorporating their own ideas into the current and future interventions.

Finally, there was one additional finding during this study that is important to document. During informal observations of the 4th grade classroom before baseline data was collected, researchers noticed that one particular student was responsible for a large portion of the problem behaviors in the classroom. When baseline data was being collected, the researchers also noted on the daily data sheets whether or not this particular student was present or absent for that day. This data is shown in Figure 3. During baseline, verbal disruption had a mean of 31% and out of seat had a mean of 26% when the target student was absent. When the target student was present, verbal disruption had a mean of 68% and out of seat had a mean of 71%. Clearly the presence of the target student increased the problem behaviors in the classroom. After the intervention was implemented, verbal disruption mean decreased to 4% and out of seat mean decreased to 3% when the target student was absent. Similarly, verbal disruption mean decreased to 7% and out of seat mean decreased to 5% when the target student was present. By implementing an independent group contingency, the impact that the target student's behavior once had on the classroom's behavior was virtually eliminated.

As previously mentioned, the classroom was operating under an interdependent group contingency during baseline. In order for the classroom's behavior to be reinforced, every student had to exhibit what the teachers loosely defined as "good behavior". This contingency set the entire classroom up for failure, especially on days the target student was present. A few key situations were observed; first, when the target student was present, his problem behaviors required full attention from at least one

(sometimes both) of the teachers which essentially put a stop to all reinforcement and learning for the other students. Second, once the targeted student had engaged in problem behaviors, the rest of the class was aware that they would not be reinforced for their appropriate behaviors any longer. This dynamic lead to the rest of the class “giving up” and “joining in” with the target student instead of continuing to engage in appropriate classroom behaviors. And lastly, on most occasions, there was a large amount of animosity toward the target student for keeping the other students from reinforcement.

However, once the independent group contingency was implemented in the classroom, the above situations appeared to diminish along with the inappropriate behaviors. The problem behaviors of the target student decreased along with the class therefore the teachers were able to stay engaged with the lesson and provide reinforcement consistently to the entire classroom. If the target student did engage in inappropriate behaviors, it had no impact on the reinforcement eligibility of the rest of the classroom. Therefore, other students continued to engage in appropriate behaviors in order to receive reinforcement, even if the target student was not. And lastly, the other students ceased paying any attention to the target student during times he was exhibiting inappropriate behaviors and actually began to encourage him when he did receive reinforcement for behaving appropriately.

The current study should be replicated in a variety of grade levels with a variety of developmental abilities. There is very limited research in the area of independent group contingencies in the classroom. They are often viewed as being cumbersome and time consuming because the behavior of each individual student must be tracked consistently in order to determine reinforcement (Shapiro & Goldberg, 1986). The

teachers in the current study agreed but also felt that the effort was worth the end result. It may be of value to develop easier or brief methods of tracking the behaviors of each individual student so it requires less effort from staff. Additionally, comparing the implementation of a classroom wide behavior plan to an individual behavior plan should also be researched in the future. The current study decided to forgo an individual behavior plan for two reasons; first the target student was already being isolated from the rest of the class and it was determined that an individual behavior plan may only increase this isolation. And secondly, problem behaviors for the entire classroom were still considered to be at a high rate even when the target student was not present.

In conclusion, the classroom wide independent group contingency intervention significantly reduced problem behaviors. Although the intervention was cumbersome and required additional effort from the teachers, it was viewed as being successful and helpful. This suggests that classroom wide independent group contingencies should be more widely adopted, especially when other group contingencies have failed.

References

- Beaman, R., & Wheldall, K. (2000). Teachers' use of approval and disapproval in the classroom. *Educational Psychology, 20*, 431-446.
- Boniecki, K. A. & Moore, S. (2003) Breaking the silence: Using a token economy to reinforce classroom participation. *Teaching of Psychology, 30*, 224-227.
- Brophy, J. (1981). Teacher praise: a functional analysis. *Review of Educational Research, 51*, 5-32.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). Applied behavior analysis. (pp. 270, 560-567).
- Elliott, S. N., Turco, T. L., & Gresham, F. M. (1987). Consumers' and clients' pretreatment acceptability ratings of classroom group contingencies. *Journal of School Psychology, 25*, 145-153.
- Filcheck, H. A., McNeil, C. B., Greco, L. A. & Bernard, R. S. (2004). Using a whole class token economy and coaching of teacher skills in a preschool classroom to manage disruptive behavior. *Psychology in the Schools, 41*, 351-361.
- Fry, P. S., (1983). Process measures of problem and non-problem children's classroom behaviour: the influence of teacher behaviour variables, *British Journal of Educational Psychology, 53*, 79-88.
- Gresham, F., & Gresham, G. (1982). Interdependent, dependent, and independent group contingencies for controlling disruptive behavior. *The Journal of Special Education, 16*, 101-110

- Kazdin, A. E. (2011). Multiple-baseline designs. *Single case research designs* (pp. 128-143).
- Kadzin, A. E., & Geesey, S. (1977). Simultaneous-treatment design comparisons of the effects of earning reinforcers for one's peers versus for oneself. *Behavior Therapy*, 8, 682-693.
- Litow, L., & Pumroy, D. K. (1975). A brief review of classroom group oriented contingencies. *Journal of Applied Behavior Analysis*, 8, 341-347.
- McReynolds, W., Gange, J., & Speltz, M. (1981). Effects of multiple individual and group operant contingencies on student performance. *Education and Treatment of Children*, 4, 227-241.
- Merrett, F. & Wheldall, K. (1987). Natural rates of teachers' approval and disapproval in British primary and middle school classrooms, *British journal of Educational Psychology*, 57, 95-103.
- Nafpaktitis, M., Mayer, R., G., & Butterworth, T. (1985). Natural rates of teacher approval and disapproval and their relation to student behavior in intermediate school classrooms. *Journal of Educational Psychology*, 77, 362-367.
- Novak, G. & Hammond, J. M. (1983). Self-reinforcement and descriptive praise in maintaining token economy reading performance. *Journal of Educational Research*, 76, 186-189.
- Pigott, H., Fantuzzo, J., Heggie, D., & Clement, P. (1984). A student-administered group-oriented contingency intervention. Its efficacy in a regular classroom. *Child & Family Behavior Therapy*, 6, 41-56.
- Russell, A., & Lin, L. G. (1977). Teacher attention and classroom behavior. *The*

Exceptional Child, 24, 148-155.

Shapiro, E. S., & Goldberg, R. (1986). A comparison of group contingencies for increasing spelling performance among sixth-grade students. *School Psychology Review*, 15, 546- 557.

Strain, P. S., Lambert, D. L., Kerr, M. M., Stagg, V., & Lenkner, D. A., (1983). Naturalistic assessment of children's compliance to teachers' requests and consequences for compliance, *Journal of Applied Behavior Analysis*, 16, 243-249.

Thomas, D. R., Becker, W. C., & Armstrong, M. (1968). Production and elimination of disruptive classroom behavior by systematically varying teacher's behavior. *Journal of Applied Behavior Analysis*, 1, 35-45.

Thomas, J. D., Presland, I. E., Grant, M. D., & Glynn, T. L. (1978). Natural rates of teacher approval and disapproval in grade-7 classrooms. *Journal of Applied Behavior Analysis*, 11, 91-94.

Wheldall, K., Houghton, S., & Merrett, F. (1989). Natural rates of teacher approval and disapproval in British secondary school classrooms. *British Journal of Educational Psychology*, 59, 38-48.

White, M. A., (1975). Natural rates of teacher approval and disapproval in the classroom, *Journal of Applied Behavior Analysis*, 8, 367-372.

Winter, S. (1990). Teacher approval and disapproval in Hongkong secondary school classrooms. *British Journal of Educational Psychology*, 60, 88-92.



Figure 1. Punch card for students.

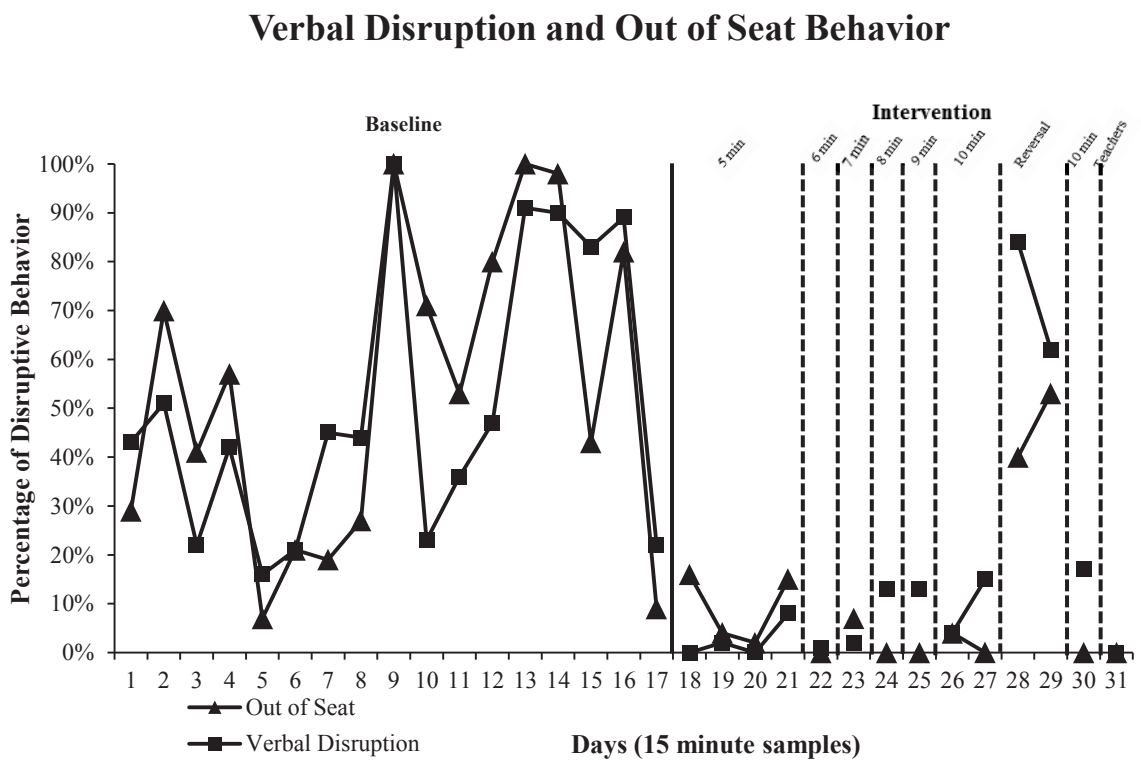


Figure 2. Displays classroom wide “out of seat” and “verbal disruption” data.

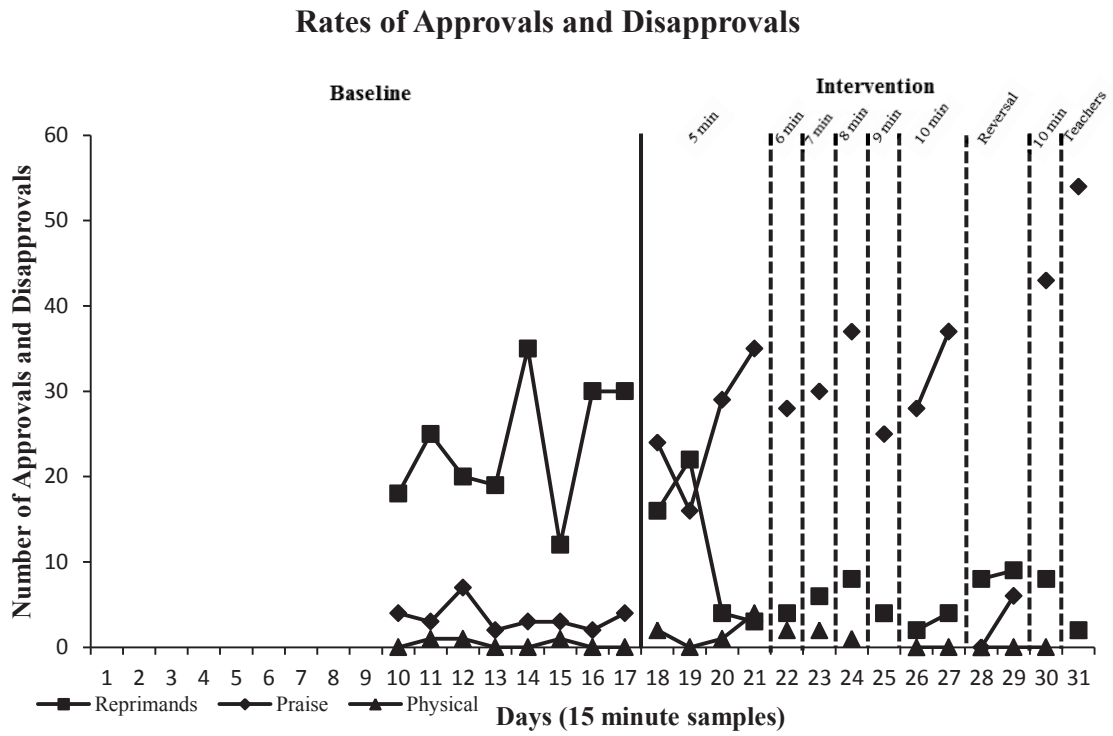


Figure 3. Rates of classroom wide approvals and disapprovals distributed by the teachers.

Appendix A

Dear Parents/Guardians,

My name is Samantha Evans and I am a graduate student at Youngstown State University. I am inviting you to allow your child to participate in a research study.

I am interested in learning more about the effects of implementing reward systems within the classroom environment to improve the behavior of the students. Your child will be provided with a punch card and will receive punches every 5 minutes as long as they are exhibiting good behavior. Once they have filled out their punch card (5 punches) they will be able to choose a small reward (i.e. pencils, stickers, football cards, food). At the end of the week, if your child has completed 5 punch cards, they will be allowed to choose an even larger prize (i.e. extra recess). Your child will also be provided with additional social praise throughout the day (“You’re doing a great job with your math!”)

The benefit of this research is that your child will be rewarded for having good behavior and with bad behavior decreasing, more learning can occur in the classroom. The risks to your child are minimal. If they do exhibit bad behavior then they will not be provided with a punch and therefore may not receive a prize for that academic period. All data that will be collected and used for the study will be completely anonymous. No names or identifying information will be used at any point. Data will only be collected on the whole classroom, not individual students. If effective, this reward system will continue to be used throughout the remainder of the school year.

Involvement in the study is voluntary, so you may choose to allow your child to participate or not. Please feel free to ask any questions that you may have about the research; I will be happy to explain anything in greater detail.

Stephen Flora Ph.D BCBA
Applied Behavior Analysis Program Director
srflora@ysu.edu
(330) 941-1619

Samantha Evans B.A.
Graduate Student
sjevans01@student.ysu.edu
(330) 941-1619

I voluntarily choose to allow my child _____ to participate in the above study.

I DO NOT choose to allow my child _____ to participate in the above study.

(Parent or Legal Guardian Signature)

(Date)

Appendix B

4th Grade Data Sheet

Date: _____

Interval	Out of Seat	Verbal Disruption	Interval	Out of Seat	Verbal Disruption
0-20s			7:41-8:00s		
21-40s			8:01-8:20s		
41-60s			8:21-8:40s		
1:00-1:20s			8:41-9:00		
1:21-1:40s			9:01-9:20s		
1:41-2:00s			9:21-9:40s		
2:01-2:20s			9:41-10:00s		
2:21-2:40s			10:01-10:20s		
2:41-3:00s			10:21-10:40s		
3:01-3:20s			10:41-11:00s		
3:21-3:40s			11:01-11:20s		
3:41-4:00s			11:21-11:40s		
4:01-4:20s			11:41-12:00s		
4:21-4:40s			12:01-12:20s		
4:41-5:00s			12:21-12:40s		
5:01-5:20s			12:41-13:00s		
5:21-5:40s			13:01-13:20s		
5:41-6:00s			13:21-13:40s		
6:01-6:20s			13:41-14:00s		
6:21-6:40s			14:01-14:20s		
6:41-7:00s			14:21-14:40s		
7:01-7:20s			14:41-15:00s		
7:21-7:40s			Total % of Intervals		
Physical					
Praise					
Reprimand					

November 12, 2013

Dr. Stephen Flora, Principal Investigator
Ms. Samantha Evans, Co-investigator
Department of Psychology
UNIVERSITY

RE: HSRC Protocol Number: 058-2014
Title: Effects of Approval Rate and Independent Group Contingencies on Classroom Behaviors

Dear Dr. Flora and Ms. Evans:

The Institutional Review Board has reviewed the abovementioned protocol and determined that it is exempt from full committee review based on a DHHS Category 5 exemption.

Any changes in your research activity should be promptly reported to the Institutional Review Board and may not be initiated without IRB approval except where necessary to eliminate hazard to human subjects. Any unanticipated problems involving risks to subjects should also be promptly reported to the IRB.

The IRB would like to extend its best wishes to you in the conduct of this study.

Sincerely,

Dr. Scott Martin
Interim Associate Dean for Research
Authorized Institutional Official

