12-2023

The Effectiveness of Interdependent Group Contingency in Decreasing Disruptive Behaviors while Increasing Academic Achievement for Students with or at Risk for Emotional Behavioral Disorder

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The Effectiveness of Interdependent Group Contingency in Decreasing Disruptive Behaviors while Increasing Academic Achievement for Students with or at risk for Emotional Behavioral Disorder

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A Starred Paper

Submitted to the Graduate Faculty of St. Cloud State University

In Partial Fulfilment of the Requirements for the Degree Master of Science

in Special Education

December, 2023

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Chapter 1: Introduction

Students who have challenges with emotional and behavioral disorders are often referred to as displaying disruptive behaviors or disruptive students. Much research has concluded that these students' behavior negatively affects maximizing instructional time and they exhibit low academic achievement. Teachers need help to support diverse behaviors, and it is almost impossible for them to support each student's behaviors individually. It is therefore imperative to examine group contingency to understand better managing students' behavior with or at risk for EBD. This monograph examines the different types of Interdependent Group contingencies, specifically highlighting their effectiveness in decreasing disruptive behaviors while increasing academic achievement.

Managing disruptive behaviors of students with emotional and behavioral disorders can be a significant challenge for teachers, impacting academic achievement and instructional time. Research has well-established the negative effects of such behaviors, highlighting the need for effective interventions. Group contingency interventions such as Interdependent Group contingencies, have shown promise in reducing behaviors and the prospect of improving academic performance. Interdependent Group Contingencies involve rewarding students based on their behavior, with positive reinforcement for minimizing inappropriate behaviors, enhancing academic performance, and staying on task. Previous studies have demonstrated the efficacy of group contingency intervention for students of different ages, including preschoolers. Interdependent Group Contingencies have also been successful in improving academic achievement and reducing disruptive behaviors in students with or at risk of emotional and behavioral disorders.

Research Question

The following question guides this paper and literature review:

1. How effective is Interdependent Group Contingency in reducing disruptive behaviors for students grappling with emotional and behavioral following question disorders and increasing their academic achievement?

Theoretical History

The difficulties associated with managing students' behavior inspired the creation of several strategies and methods to institute the implementation of effective practices. Among the most broadly researched classroom management strategies accessible is group contingencies, in which students are rewarded a pre-establish liking item or activity contingent on the behavior of one or more students in a group, specifically, students are rewarded based on whether a subset of students meet predetermined behavioral criteria (Maggin, Pustejovsky, & Johnson, 2017).

Maggin et al. (2017) further postulated that from the principle of B.F. Skinner's operant conditioning, group contingencies are efficacious because the behavior of each student is conditioned through the delivery of a positive consequence for meeting a set of named expectations. Furthermore, group contingencies have a straightforward antecedent event through formally communicated start and end points, which show that the behavioral expectations and potential for earning positive consequences are in operation. Like the behavioral learning theory, students learn to respond in conformity with the expectations because doing so generates positive results.

Historical Overview

Emotional and behavioral disorders (EBD) are used to recognize children whose social, emotional, and/or behavioral exceptionalities make it challenging to succeed in school. Recent estimates of the prevalence of EBD in schools vary from 6% to over 20% (Jacquett et al., 2021). Students with EBD frequently demonstrate marked problem behaviors and often experience academic skill deficits (Jacquett et al., 2021).

Schizophrenia is an emotional, behavioral, or psychiatric disorder, including depression, mood, or anxiety disorders, post-traumatic stress disorder (PTSD), oppositional defiant disorder, and schizophrenic and psychotic disorders (Collins et al., 2017). Sheaffer, Majeika, Gilmour, and Wehby (2021) posit that students with or at risk for EBD are prone to confluent behavioral, academic, and social factors and display maladaptive behaviors that hinder them from developing appropriate relationships and impede their learning. Also, the explanation of EBD generally involves outbursts, physical aggression, or painfully shy and withdrawal behaviors. Such issues may disrupt classroom instructions and the learning of other students (Hirsch et al., 2016).

Group contingencies are a class of interventions used to address low levels of engagement and elevated levels of disruptive behaviors for students with challenging behaviors (Hawkins et al., 2020). They entail the distribution of common consequences contingent on students' behavior in a classroom, supporting class-wide behaviors in students with EBD (Hawkins et al. 2020). Three types of group contingencies are independent, dependent, and interdependent (Hawkins et al., 2020).

Importance of the Topic

As a special education instructor, I work closely with students with Emotional and Behavioral Disorders (EBD). I recognized the gaps in these students' academics resulting from their disorders. In schools, students with EBD may exhibit low levels of academic engagement and high levels of disruptive behavior in comparison to their peers, which negatively impacts their learning as well as their relationships with peers and adults (Hawkins et al., 2020). They have the aptitude to learn but do not see the importance of staying in class for the duration, adhering to rules, or completing class assignments. This causes the teachers to be exhausted by the end of each day and think we have failed our students. Research in self-contained EBD classrooms stipulates that only 30% of classroom time was utilized for instructional time (Hawkins et al., 2020). Additionally, because of the heightened rate of aggressive and noncompliant behavior of students with EBD, teachers can experience high levels of stress, resulting in burnout and attrition (Hawkins et al., 2020).

The quest for behavior management and class management strategies led me to group contingencies, specifically interdependent group contingencies. Group contingencies are extensively utilized interventions that are effective strategies in enhancing outcomes for students with EBD and are reported as more manageable for students than implementing numerous individual contingencies (Collins et al., 2017). Interdependent group contingencies are particularly beneficial in classrooms in which more than one student is displaying undesired behaviors, and they allow teachers to deliver reinforcement contingent upon appropriate behavior simultaneously for the whole class, rather than at different times for certain students (Denune et al., 2015). By the end of this research, I will garner a wealth of knowledge about this

topic which I will implement in my classroom and share with other instructors who are supporting students with disruptive behavioral problems. Hopefully, we will see some changes in our students' behavior and improvement in their academic performance**.**

Focus of Paper

I identified 11 articles for inclusion in the review of literature in Chapter II. My research incorporated studies dated from 2003-2021. Studies were incorporated for review if the study is on the effectiveness of interdependent group contingencies for students with or at risk for EBD. EBSCOhost, ERIC, and EBSCOhost Megafile databases were utilized as an initial start for my literature review of peer-reviewed studies about the effectiveness of interdependent group contingencies in decreasing disruptive behaviors and increasing academic achievement. I utilized different keywords to access appropriate studies: group contingencies, interdependent group contingencies, students at risk for EBD, and classroom behavior management strategies. I searched Journals of Special education and amassed information from journals in the fields of School of Psychology Review, Psychology in the Schools, Education and Treatment of Children, Behavioral Disorders, PREVENTING SCHOOL FAILURE: Alternative Education for Children and Youth, Journal of Positive Behavior, Beyond Behavior, Journal of Behavioral Education, and Teaching Exceptional Children.

Definition of Terms

Group Contingencies: These are reinforcement procedures in which a common consequence (i.e., reward) is contingent on the performance of a group (Page, Zimmerman & Pinkelman, 2023).

Independent Group Contingency: In an independent group contingency, presumed reinforcers are given on an individual basis. Meaning, that a common contingency is issued to the group, but each member of the group earns a reward based solely on their behavior (Joslyn, Vollmer, & Kronfli, 2019).

Dependent Group Contingency: In a dependent group contingency, the reward is given to the whole group contingent on the behavior of one person or a small subgroup of people in the group (Joslyn et al., 2019).

Interdependent Group Contingency: In an interdependent group contingency, rewards are issued to the entire group contingent on the behavior of the whole (Joslyn et al. 2019). Also, the entire group must engage in the behavior for all to receive the reinforcement (Pokorski, 2019).

*Disruptive Behavior***:** These are problematic behaviors within the classroom that negatively impact instruction (Murphy et al., 2007).

Chapter 2: Review of Literature

This literature review aims to examine the use of group contingencies as an intervention strategy for individuals with or at risk of emotional behavioral disorder (EBD). A specific focus is on the use of interdependent group contingency and its efficacy in decreasing students' disruptive behaviors while increasing their academic achievements. This chapter is organized into two major parts. The first section is the comparison between independent and interdependent group contingency. This literature review looked at 11 quantitative and qualitative articles from 2003 to 2021. The review will examine how different interdependent group contingency interventions impact students' behavior and academic achievement the review discusses the result of the studies and how the data represents students' progress and teachers' progress to a lesser extent a summary table will be presented at the end of the reviews.

Comparing Independent and Interdependent Group Contingencies

Teachers' feedback affects students' behavior in negative or positive ways. Eaves et al. (2021) conducted a study to compare the effects of both an independent and interdependent group contingency on teachers' use of behavior-specific praise (BSP). Four teachers paired up as they worked through both the independent and interdependent treatment conditions. Data were collected using 20-minute observations which were further divided into 10-second intervals. All students were observed individually, and the independent and interdependent treatments were examined using a tallying system and a script designed to fit the corresponding intervention condition. This was to ensure consistency in the performance feedback procedures. Feedback was delivered to both teachers in the pair simultaneously.

Data indicated that the introduction of the intervention produced immediate and marked improvement in both intervention conditions. Both conditions showed that teachers offered more BSPs to students. However, the interdependent condition produced a slightly higher average than the independent condition. Also, teachers' use of behavior–specific reprimands was reduced, and behavior-specific praise increased which increased student level of engagement (Eaves et al., 2021). More behavior-specific praise positively impacted students' behavior across the classroom and not just the increase of teachers' frequency in its usage.

Table 1

Summary of independent versus interdependent group contingencies and their effectiveness

Authors	Study Design	Participants	Procedure	Findings
Eaves, Radley, Dufrene, Olmi, & Bernard (2021)	Quantitative	432 students in a preschool to 5th grade in an urban elementary school in the Southeastern United States. Approximately 93% of these students qualified for either free or reduced lunch. Of the student body, 79.9% of the students identified as African American, 5.5% as Caucasian, and 11.8% as Hispanic. The remaining 2.5% of students identified as either Asian, Native American, multiracial, or Pacific Islanders. Four general education	Determination of eligibility was done by an observer who conducted a 20-minute observation on each referred teacher's classroom. If the referred teacher gives less than ten behavior-specific praise (BSP) statements per observation, she is qualified to participate. Throughout the baseline phase, participants continued the use of everyday classroom management	Student level of academic engagement increased hence, decreasing disruption across both contingencies. Regarding whether independent or independent reinforcement contingency has a greater effect on increasing teachers' use of BSP, the result depicted little differentiation between the two treatment conditions. The interdependent contingency is more advantageous.

		teachers participated as well.	procedures. Teachers were trained on how to use BSP in the classroom.	

The Effectiveness of Interdependent Group Contingency

A study was done by adding a randomized contingency component to the interdependent group contingency to target academic behaviors (Popkin & Skinner, 2003). All participants had social-emotional disorder (SED). Their ages ranged from 11 to 14 in grades 6 to 8. Three target behaviors were academic performance on seatwork assignments in Spelling, Mathematics, and English. This was a four-phase intervention. For the baseline phase, no additional contingencies were executed. It was usual seatwork where students were graded contingent upon their academic performance on independent seatwork, tests, and homework. The teachers were trained in how to execute the intervention and the students were trained on how they would earn rewards. The intervention began following the students' training. In all intervention phases interdependent group contingency was applied and students accessed rewards contingent upon class average correct on daily independent assignments. Both the reward and the criterion for earning the reward were randomly selected the intervention started with spelling performance then after nine consecutive days of applying the intervention, English performance was added then after nine days math performance was added.

Data indicated that with the application of the interdependent group contingency with the randomized component the class average throughout the intervention increased for all three

academic areas (Popkin & Skinner, 2003). This is an indication of the positive effects of the intervention strategy on academic performance.

Another study was done to determine if interdependent group contingency and randomized reinforcers would reduce disruptive classroom behaviors among preschoolers (Murphy et al., 2007). An ABAB reversal design was applied across all nine participants to assess the effectiveness of the interdependent group contingency with motivators to minimize disruptive classroom behaviors. The three target behaviors described before the intervention included "Keep feeding hand to yourself", "Remain on task", and "Sit properly on the rug". Data collected by the researchers were behavioral observations and were conducted by utilizing a partial-interval time sampling method. It consists of 15-second intervals conducted over 15 minutes. Students were told to comply with the posted rules. Five or fewer checks for nonconforming would qualify a student for rewards and reinforcers. This treatment was executed during the initial morning activity, a 15-minute large group activity, every day for eight days. Students who did not meet the criterion for the day had the opportunity to do so the following day. After two weeks, the intervention was withdrawn for six days and then reinstated for another eight days.

Researchers concluded that the interdependent group contingency and randomized reinforcers decreased disruptive behaviors in a Head Start preschool classroom. There was a reduction in all participants' disruptive behavior (Murphy et al., 2007). In addition, the treatment package was effective in increasing instructional time while reducing students' disruptive behavior which facilitated academic and social functioning as well as the chances of them being retained in the general education setting. Once the intervention was in effect, students' disruptive behaviors improved because they knew they would be rewarded.

Also, Ling et al. (2011) conducted a study that utilized the ABAB withdrawal design strategy. The researchers examined the effects of a class-wide interdependent group contingency on the on and off-task behaviors of at-risk students in a first-grade classroom in a private school in the Midwestern USA. This intervention was implemented for 10 weeks, up to five days a week during morning group academic activities. The target student's behavior was compared to individual peers who were randomly selected at every 5th interval and the behavior was recorded using the behavioral observation of students in school (BOSS). Active and passive engagement were observed and recorded as on-task or off-task behaviors. The expectation for the target student was to be on task at least 80% of intervals during the morning group activity. In this study, an ABAB withdrawal design was utilized to evaluate the effectiveness of the intervention to improve the target student's behavior as well as his classroom peers. This four-phase intervention had impacted the target student and his peers as well.

Data showed the target student's engagement instantly increased in the initial implementation of the intervention which remained above the goal of 80%. However, in the withdrawal of the intervention phase, his engagement decreased to baseline, and then when the intervention was reintroduced, his engagement increased in one observation session. The same happened to his peers as well. Not only was engagement positively impacted at the reintroduction, but there was also improvement in the target student's behavior as well as class-wide improvement in students' behavior (Ling et al., 2011). Hence, there is an indication that the interdependent group contingency is impactful for the entire class when managing behaviors.

Denune et al. (2015) attempted to examine the effects of combining the use of interdependent Group contingency and self-monitoring procedures to address unwanted student behaviors. Fourteen middle school students from an alternative school for students with emotional behavioral disorder (EBD) participated, eleven of whom were boys. The intervention was executed by the lead teacher. Students' engagement and disruptive behaviors were measured by utilizing an observation code created by the chief investigator like the observation of students in schools (BOSS) mentioned in the study done by Ling et al. (2011). Also, all on-task and off-task behaviors were measured by using momentary time sampling. This study utilized the ABCBC withdrawal design like Ling et al., 2011 and Murphy et al., 2007, which used the ABAB withdrawal design to measure the effectiveness of the group contingency. However, in this study self-monitoring intervention parts in increasing engagement and decreasing disruptive behaviors were measured. Throughout the first B phase, the interdependent group contingency intervention was executed. During the C phase, the self-monitoring intervention procedure was added to the interdependent group contingency. In the second B phase, the self-monitoring procedure was withdrawn. In the final C phase, the self-monitoring procedure was reinstated (Denune et al., 2015). Questionnaires were completed by all stakeholders in which statements concerning the usefulness and efficacy of the intervention were presented to be rated on a scale of 1 to 5 (i.e., 1=strongly disagree; 2= disagree; 3=not sure; 4= agree; and 5=strongly agree).

Data essentially indicated that the introduction of an interdependent group contingency was instantly proceeded by improvement in behavior that persisted across the subsequent experimental phases with no distinct differentiation of intervention effects across the two

conditions (Denune et al., 2015). Based on the findings in this study, interdependent group contingency and self-monitoring procedures have no contrast. They both have the same efficacy level.

Hawkins et al. (2015) examined the effects of a randomized interdependent group contingency on the transition behavior from lunch back to class in three high school classrooms in an alternative school serving students with EBD. The ABAB withdrawal design was utilized to assess the effectiveness of the randomized interdependent group contingency on students' behavior. The duration of the study was 16 weeks excluding two weeks of winter break. Throughout the intervention phase, the interdependent group contingency was executed daily. The high school classroom teachers implemented the procedures of data collection two to five times weekly and conditionally. The first 4 weeks were allotted for baseline (A); 4 weeks for training; implementation of Randomized Interdependent Group contingency (B); 4 weeks for withdrawal of intervention (A); and the last four weeks for the reintroduction of the interdependent group contingency (B). Teachers across the three classrooms used the intervention time as a checklist for students who displayed class readiness within five minutes before beginning class. The intervention showed some positive signs of effectiveness.

Results indicated that overall, in all three classrooms, the intervention influenced improvements in behaviors. Also, on the introduction of the intervention, the percentage of students' readiness within 5 minutes of the start time increased by 50% to 60% and when the intervention was withdrawn there was a decrease of 22.20% to 35.20% of students and reintroduction of the intervention again increased acceptable behavior in all classrooms. Students and teachers completed questionnaires on the intervention acceptability. A high

percentage of students agreed that they liked the chance to receive rewards which made them return to class sooner. The teacher agreed to the simplicity of the intervention, and they would implement it again in the future because it had positive effects on the behavior of students (Hawkins et al., 2015). Hence, the findings in this study underscore the effectiveness of interdependent group contingency in reducing unwanted behaviors.

Collins et al. (2017) conducted a study that evaluated the effectiveness of Behavior Bingo as an intervention with a diverse population of high school students with emotional behavioral disorder (EBD) in an alternative school setting. The Behavior Bingo was used along with the ABAB withdrawal design. This was used to bolster academic engagement of off-task and disruptive behavior of students with EBD while they completed independent seat work. For the target variable, the observation data on on-task and off-task behaviors and disruptive behaviors were collected. Target behaviors were randomized. The three target behaviors were observed the same number of times over 40-minute class sessions. The ABAB withdrawal design was used across the two classrooms. Following a minimum of 5 minutes of baseline classroom sessions, the Behavior Bingo intervention was executed. The intervention was then withdrawn after a minimum of five sessions and later reinstated in each classroom. Like Ling et al. (2011) and Hawkins, et al. (2015), this intervention had some positive results on behavior. Classroom one showed that with five-minute intervals for the Behavior Bingo, there was an increase in trend coded as on-task and a decreasing trend observed for off-task. In essence, disruptive behavior levels remained at near zero levels during the study in Class 0ne. Class two showed a slightly different reaction to the implementation of the interval. For them, the levels of on-task and off-task behavior fluctuated speedily meaning that, after implementing the five-minute intervals an

instant and stable increase in behavior occurred with its corresponding stable decrease in off-task and disruptive behavior. However, when the intervention was withdrawn, students' behavior reversed to variable levels consistent with the original baselines. When Behavior Bingo was reinstated, an instant increase in on-task behavior and a decrease in off-task and disruptive behavior were observed.

The result of this study supported the use of the intervention for improving academic engagement and off-task behavior in several students exhibiting challenging behaviors in an alternative education setting. This intervention can be effective in doing the same for students in my setting with the same challenging behavior as well if applied with fidelity.

A study was done in 2019 on the teacher praise-to-reprimand ratio (PRR) comparing students at risk for EBD to typically developing peers (Caldarella et al., 2019). The negative academic results for students with EBD may be associated with teachers' struggle to manage these students' classroom behaviors. Teachers who give students positive feedback frequently may be particularly effective with students with EBD when it comes to student engagement (Caldarella et al., 2019). The authors embarked on finding out the impact of the praise-to-reprimand intervention on students with EBD in comparison to their peers. Teachers were stratified by grades (i.e., K-2 and 3-6) in general and special education classrooms. Teachers from both treatment and control classes identified that subject and chose the most challenging behaviors for researchers to observe. Following the randomization, teachers in the treatment condition were trained on the Class-Wide Function-Related Intervention Teams (CW-FIT). The four main parts of the CW-FIT included direct social skills, instruction interdependent group contingency, positive reinforcement for the use of expected social skills, and secondary support for example,

self-management or health cards for students who need them. Teachers in the control classrooms maintained the usual routine management practice (i.e., praise, reprimands, tokens). Data was collected.

Results from this study indicated that peer-comparison students had lower disruption rates, higher engagement, lower reprimands, and higher PRR than at-risk students. However, the praise rates were roughly equal between both groups. Also, the results indicated that teachers' reprimand is associated with students' disruption and PRR was negatively associated with students' disruption but there was no correlation between praise rate and the disruption (Caldarella et al., 2019). Teachers' reactions to students' behavior can negatively impact students' behavior. Teachers giving more reprimands than praise to especially at-risk students will facilitate disruptive behaviors versus if they are praised for behaving appropriately. Hence, as teachers, we need to be more positive in our feedback to students particularly those with behavioral challenges.

Joslyn, Vollmer, and Kronfli (2019) examined the efficacy of the Good Behavior Game (GBG) in decreasing severe disruption demonstrated by students aged 14 to 19 years with histories of delinquency and emotional behavioral disorders (EBD) diagnosis and attending an alternative school. The method used was a combination of class-wide academic instruction for the first half of the duration and then independent seatwork. Classroom 1 was a life skills class that focused on money management and resume writing. Classroom 2 focused on World History and Classroom 3 focused on Civics. A level system was utilized at the end of the class period; teachers rewarded the students for exhibiting behaviors such as respecting peers and adults, punctuality, and following dress codes. There were four levels for this intervention with

progressively rigid point requirements and dependence upon the students' level which is chiefly used to decide if the student is ready to return to their home school.

The researchers concluded that interdependent group contingency demonstrated efficacy in reducing disruptive classroom behaviors of students (Joslyn et al. 2019). Rewarding the students for good behavior helped in decreasing their disruptive behaviors.

Hawkins et al. (2020) examined the direct generalized effects of combined independent and interdependent group contingencies utilizing the ABAB withdrawal design with a group of students enrolled in an alternative school in the urban area of the middle Midwestern United States. The participants comprise 15 students enrolled in two classes, seven from middle school and eight from high school. A high level of disruptive behaviors and low levels of engagement were observed in these classes. The teachers implemented the group contingency procedures as an intervention to target off-task and disruptive behaviors. This study lasted for 12 weeks. The combined independent and interdependent group procedures were implemented daily in the targeted settings throughout the intervention phases. Teachers and students were trained on how the intervention would be executed.

Both classes applied the intervention of the independent and the interdependent combination. Each student earned a small piece of candy if their behavior met the criterion (independent group contingency). In addition, teachers combined data on individual student behavior to evaluate class-wide behavior. When the criteria were met class-wide, all students obtained a bigger reinforcer such as mechanical pencil interdependent group contingency. Both classes tracked and recorded behaviors in different ways. At the end of the class, teachers randomly selected criteria for individual and group reinforcers and this was repeated daily.

Results from this study suggested that the combined independent and interdependent group contingency procedure developed collaboratively between teachers and researchers resulted in noticeably improved behavior in the target settings. It also suggested that there was a functional relationship between students' behavior and the intervention procedures resulting in a class-wide improvement in behavior it is important to note that disruptive behaviors in the generalized setting in both classes decreased by more than 50% and engagement increased by 9% to 16% with the initial implementation of the interdependent group contingency procedures (Hawkins et al., 2020). This study showed efficacy in engagement, decreasing disruptive behaviors, and meeting the needs of the students with EBD.

Finally, a study was conducted by Jacquett et al. (2021) as extended research on interdependent group rewards by evaluating and comparing the effects of two interdependent group contingency on academic performance, task behavior, and disruptive behavior of an eighth-grade student with emotional and behavioral disorder EBD, while they were engaged in social studies independent seatwork. This study was conducted in an alternative middle school in the southeastern United States. This school focuses on remedying chronic or high-intensity problem behavior. The social studies class was targeted for this study. The study was executed over eight weeks, 15 minutes long each day. The average of academic assignments was calculated by grading each participant's independent seatwork that was accurately completed, at the end of each class. Direct observation was utilized to garner on-task and disruptive behavior data. Behaviors such as participants focusing on the speaker or school-related materials were on-task behaviors. Singing, talking out, and making more noises were inappropriate vocalizations and off-task. To determine how prevalent these off-task behaviors

occurred, they were measured on a 15-second partial interval schedule followed by a 5-second interval used for scoring on-task behaviors. In addition, a response cost system was utilized to show when students lost or gained points for their behaviors. Also, an alternated treatment design (ATD) with no-treatment series (NTS) fixed within the alternating treatment (AT) phase was utilized to assess and compare each effectiveness of the two interventions on the participants' academic performance, disruptive behavior, and on-task behaviors.

The results of this intervention indicated that students exhibited on-task behaviors in three-quarters of the class sessions. They met or exceeded the unknown selected contingency criteria and earned a reward in 75% of the sessions across all phases. This underscores the notion that rewarding students for good behavior plays an integral part in reinforcing these behaviors which ultimately will improve academic achievement. Overall, to manage class-wide unwanted behaviors in the classroom, the intervention that best helps students stay on task is the group contingencies, specifically interdependent group contingencies as was evident throughout this literature review.

Table 2:

Summary of the Findings of the Effectiveness of the Interdependent Group Contingency

Authors	Study Design	Participants	Procedure	Findings
Pokin & Skinner (2003)	qualitative	Five students from an intact self-contained classroom serving students with serious emotional disturbance (SED). All males.	During the intervention phase, the participants had to meet a randomly selected criterion of 80% or 90% class average on a daily assignment to earn a randomly selected group reward.	There were valid increases in academic performances as target assignments were added to the program. Maintenance and generalization of

			Mathematics and then English daily assignment performance was added to the progress in subsequent phases call and target assignments were either spelling, mathematics, or English criteria were randomly selected.	behavior change were unclear.
Murphy, Theodore, Aloiso, Alric-Edwards, & Hughes (2007)	Qualitative	Nine preschoolers (5 females, and 4 males) enrolled in a Head Start classroom in the Northeast United States of America. Age ranges from 3 to 5 years. All of whom were of Hispanic descent.	Baseline data were collected over eight days. During this time the teacher applied her usual method of classroom management which included verbal reprimands and time-out techniques. The intervention was an activity for 15 minutes in a large group each day for eight days. Then there was a withdrawal after two weeks for 6 days then the intervention was reinstated for another 8 school days.	Interdependent group contingency and randomized reinforcers reduced disruptive behaviors in the Head Start preschool classroom. There was a decrease in disruptive behaviors from phase to phase among all students, with the last reinstatement of the intervention demonstrating the greatest reduction of disruptive behaviors.

Table 2 continued

Ling, Hawkins, & Weber (2011)	Qualitative	Ling, Hawkins, & Weber (2011)	The intervention was implemented for up to 10 weeks, up to five days a week during morning group	Classwide Interdependent group contingencies can be individualized to

			academic activities. The student chose where to sit. The target student's behavior was compared with peers who were randomly selected at every 5th interval, the behavior of comparison was recorded using the behavioral observation of students in school (BOSS).	improve the behavior of a target student, as well as classwide behaviors. The intervention reduced the individual student's off-task behavior and increased academic engagement while also having positive effects on overall behaviors in the classroom.
Denune, Hawkins, Donovan, Mckoy, Hall, & Moeder (2015)	Qualitative	Fourteen middle school students attending an alternative school for students with EBD in an urban setting in the Midwestern United States. Their ages ranged from 12 to 15 years and included eleven boys (3 white and 8 Black) and three girls (one White and two Black).	Ensuing baseline, the classroom teacher implemented an interdependent group contingency utilizing randomized criteria reinforcers. Next, a self-monitoring intervention procedure was added to the existing interdependent group contingency intervention. The self-monitoring procedure was then withdrawn and reinstated.	The interdependent group contingency interventions effectively increased on-task behaviors and decreased off-task and disruptive behaviors in middle school students with EBD. Results did not stipulate that adding a self-monitoring component to an existing interdependent group contingency intervention advanced overall behavioral improvement.
Hawkins, Haydon, Denune,	Qualitative	Three high school classrooms in an alternative school	The ABAB withdrawal design was utilized. The teacher informed the	There was a marked improvement in

Larkin, & Fite (2015)		for students with EBD. Classroom 1 included eight students (five males and three females; four Black and four White). Classroom 2 included eight students (four males and four females; five Black and three White). Classroom 3 included five students (four males and one female; three Black and two White).	students when class began and scanned the room to count the number of students ready for example, seated at the assigned desk, with eyes directed at the teacher or the front of the room, not being physically or verbally disruptive. The teacher randomly selected a criterion number of students who needed to be ready to start instruction. If the class met the criterion, the teacher randomly selected the reward. The teacher directly stated the class was starting.	students' transition behaviors. Interdependent group contingency with randomized components improved transition behavior in three high school classrooms for students with EBD.

Table 2 (Continued)

Collins, Hawkins, Flowers, Kalra, Richard, & Haas (2017)	Qualitative	An urban alternative setting serving 55 students in grades 2 to 12. They were students with EBD in the Midwestern United States. Thirty-nine males and 15 females, 91% of whom received free or reduced lunch.	The class collaborated to fill out a posted bingo board contingent on demonstrating appropriate behavior and with the use of an ABAB withdrawal design.	The results embraced the use of the intervention for improving academic engagement and off-task behavior in multiple students exhibiting challenging behaviors in an urban alternative educational setting.

		Demographics of 44 African American students. (80.8%), 10 Caucasian students (18%) and one Asian student (.02%).		
Caldarella, Larsen, Williams, Willis, & Wehby (2019)	Qualitative	540 students (311 students at risk for EBD and selected 229 as peers' comparison). 149 teachers all from 19 elementary schools across Missouri, Tennessee, and Utah.	Teachers and their classes were stratified by grade and classroom type and randomized to treatment or control conditions using a selection function in Microsoft Excel. Students themselves were not randomized, rather their classes were randomly assigned. Teachers of both treatment and control classes identified the subjects in their daily schedule that included the most behavior problems for teachers to observe.	Praise-to-reprimand ratios (PPR) were significant for increasing the engagement of students who are at risk for EBD.
Joslyn, Vollmer, & Kronfli (2019)	Quantitative	Students from three high school classrooms consisted of 5-10 students in grades 9 through 12 (ages 14-19).	The Good Behavior Game (GBG) was evaluated utilizing multiple baselines across classroom design with an embedded reversal in each classroom. 1-5 sessions were conducted per week. Treatments were implemented.	Interdependent group contingencies can be effective in reducing the disruptive classroom behaviors of students.

Hawkins, Collins, Ramirez, Murphy, & Ritter (2020)	Quantitative	Fifteen enrolled in two classes, one consisting of seven middle school students (grades 6-8, ages 11-14) and one consisting of eight high school students (grades 9-12, ages 15-17) in an alternative school in an urban area of the Midwestern United States.	An ABAB withdrawal design was utilized to examine direct and generalized combined independent and interdependent group contingencies. Following the baseline, the group contingency was introduced in the targeted period Only and then withdrawn before being rein-introduced.	Implementation of the group contingency led to improvements in classroom behaviors in the target class period for both groups of students and generalization.
Jaquett, Skinner, Moore, Ryan, McCurdy, & Cihak (2021)	Qualitative	An eighth-grade social studies class at an alternative middle school in the Southeastern United States.	Delivered rewards contingent upon participants' average percent correct enhanced on-task behavior and percent correct on independent seatwork assignments.	Neither group contingency resulted in consistent or meaningful changes in disruptive behaviors. Nor did it increase disruptive behaviors.

Chapter 3: Summary and Findings

Chapter 1 focused on the historical background of the effectiveness of interdependent group contingency in decreasing disruptive behaviors while increasing academic achievement for students with or at risk for EBD, and Chapter 2 presented a review of the literature. Chapter 3 incorporates a discussion of chapter 2 findings, recommendations, and implications from research findings.

Conclusion

I reviewed 11 studies that examined the effectiveness of interdependent group contingencies. All eleven articles specifically referenced the intervention of independent group contingency and disruptive behaviors. In all eleven articles observation was key in deriving outcomes (Eaves, Radley, Dufrene, Olmi, & Bernard, 2021; Popkins & Skinner, 2003; Murphy, Theodore, Aloiso, Alric-Edwards, & Hughes, 2007; Ling, Hawkins, & Weber, 2011; Denune, Hawkins, Donovan, McCoy, Hall, & Moeder, 2015; Hawkins, Haydon, Denune, Larkin, & Fite, 2015; Collins, Hawkins, Flowers, Kalra, Richard, & Haas, 2017; Caldarella, Larsen, Williams, Willis, & Wehby, 2019; Joslyn, Vollmer, & Kronfli, 2019; Hawkins, Collins, Ramirez, Murphy, & Ritter, 2020; and Jacquett, Skinner, Moore, Ryan, McCurdy, & Cihak, 2021).

Of the 11 studies reviewed, three utilized the Good Behavior Game (GBD) as a form of interdependent group contingency to bolster appropriate behaviors (Collins et al., 2017; Denune et al. 2015; & Joslyn et al., 2019). Three studies utilized the ABAB Withdrawal design (Hawkins et al., 2015; Hawkins et al., 2020; & Ling et al., 2011). Two studies utilized the interdependent group contingency with randomized reinforcers (Popkin et al. 2003 & Murphy et al. 2007). Jacquet et al. 2021, evaluated and compared the effects of two interdependent group

contingencies on academic performance, on-task behavior, and disruptive behavior; Caldarella et al. (2019) examined the relationship between Praise-to-Reprimand Ratios (PRRs); and Eaves et al. (2021) compared the effects of both an independent and interdependent group contingency on teacher use of Behavior-Specific Praise (BSP). Also, conclusions are discussed in two sections as they relate to a comparison between independent and interdependent group contingency and the effectiveness of interdependent group contingency in decreasing disruptive behaviors while increasing academic achievement.

In the study that compared interdependent and independent group contingency on teachers' use of behavior-specific praise, the researchers noted that, unlike the independent group contingency, interdependent group contingencies provide reinforcers for all group members contingent upon each group member accomplishing a performance criterion. Eaves et al. (20210 further noted that after implementing the intervention for both conditions, there was an increasing trend in utilizing the BSP. However, overall, the interdependent condition showed a slightly higher average (M= 29.3) than the independent condition (M= 28.6).

In 7 of the 10 articles in this section that examined the effectiveness of interdependent group contingencies in decreasing disruptive or off-task behaviors while increasing academic achievement on performance, several themes loomed. The first theme is utilizing the Good Behavior Game (GBD), a group contingency intervention to bolster appropriate behavior; the second theme is utilizing the ABAB withdrawal or reversal design interdependent group contingencies to decrease off-task behaviors. One study applied interdependent group contingencies with randomized contingency components to academic target behaviors. One study evaluated and compared the effect of two interdependent group contingencies on

academic performance, on-task behavior, and disruptive behavior. One study examined the relationship between teacher Praise-to-Reprimand (PPR).

Good behavior group contingency (GBG). The GBG intervention showed relatively high efficacy in decreasing disruptive behaviors and is an effective class management strategy. According to Joslyn et al. (2019), the implementation of the GBG produced substantial reductions in disruptive behaviors in all classrooms (i.e., M = 2.9, 2.3, and 2.9 responses per minute, respectively). In general, the GBD reduced disruptive behaviors by 67.9%, 82.5%, and 80.8% in classrooms one, two, and 3, respectively. Collins et al. (2017) reported a similar result in a decrease in off-task and disruptive behavior. They posit that after introducing the good behavior bingo intervention procedure, the overall results supported the utilization of the intervention for improving academic engagement and off-task behaviors. There was a decrease in the trend of off-task behavior (M=34.54%) and disruptive behavior (M=5.41%) at the end of the intervention phase. Denune et al. (2015) postulated that the introduction of the GBG was instantly preceded by improvement in behavior that persisted across the subsequent experimental phases, with no distinct significant differentiation of intervention effects across the two conditions examined.

The ABAB withdrawal design

The ABAB withdrawal design is effective in decreasing off-task and disruptive behaviors. Ling, et al. (2011) posit that with the implementation of the ABAB withdrawal design intervention, the target student’s behavior improved and there was a class-wide improvement in students' behavior. Additionally, the mean percent of intervals of these behaviors remained constant at 25%. Murphy et al. (2007) found that the interdependent group contingency and randomized

reinforcers decreased disruptive behaviors in a Head Start preschool classroom. A reduction in all participants' disruptive behaviors occurred. Also, this treatment package which utilized the ABAB reversal design may have been effective in increasing instructional time while reducing students' disruptive behavior which facilitated academic and social functioning and the chances of them being retained in the general education setting. Hawkins et al. (2015) reported that the introduction of the intervention which utilized the ABAB design, and all three classrooms had an instant increase in the level of data. The percentage of students' readiness within 5 minutes of the start time increased by 50% to 68%. Also, data showed high and steady levels of student readiness in classrooms 2 and three but highly variable in classroom 1. Hawkins et al. (2020) found that disruptive behavior in the generalized setting in both classes decreased by more than 50% and engagement increased by 9% to 16% with the initial implementation of the interdependent group contingency procedure which included the ABAB withdrawal design.

Popkins and Skinner (2003) reported that utilizing the randomized contingency components to academic target behaviors as an extension of the interdependent group contingency intervention increased the class average throughout the intervention. For spelling the increase was 96.2% (SD=8.12), for mathematics the increase was 86.6% (SD=9.2), and for English the increase was 93.3% (SD= 6.3).

Jacquett et al. (2021) found that the alternative treatment design (i.e., Group rewards) used to evaluate and compare the effects of the two interdependent group contingencies on academic performance, on-task behavior, and off-task behavior was effective. The participants met or exceeded the unknown selected contingency criteria in 13 out of 16 sessions (81%). They

earned rewards for six out of eight (75%) sessions under academic performance contingency (APC) and seven out of eight (87.5 %) under the on-task contingency (OTC).

Caldarella et al. (2019) found that the relationship between teacher Praise-to-Reprimand (PPRs) and the various behaviors of students who were at-risk and not at risk for emotional behavioral disorder (EBD) rates was approximately equal between the two groups (i.e., variables such as at-risk and peer-comparisons treatment and nontreatment) when the class-wide Function-Related Intervention Teams (CW-FIT) intervention was utilized as the interdependent group contingency.

Overall, the authors of these studies reported a good efficacy level in interdependent group contingency in decreasing disruptive behavior and increasing on-task or academic achievement when applied with fidelity.

Recommendations for Future Research

After reviewing the literature regarding the efficacy of interdependent group contingency in reducing disruptive behaviors while increasing academic achievement, I believe it is effective. The studies reviewed indicated its effectiveness. However, generalization and maintenance were an issue. When the intervention is done in one specific classroom or setting, it shows good results but the question of whether it will work in another setting lingers. After the interventions are completed in one class, one subject, and one area, there should be a long-term follow-up to see if the results remain the same in other classes, subjects, or areas. This would underscore the effectiveness of the intervention. For example, Ling et al. (2011) listed generalization as a limitation because the study was done in one classroom on one target student.

Several of the literature I reviewed utilized the ABAB withdrawal design intervention as a group contingency which has several steps starting with a baseline. Validity became an issue in my view. I believe that the teachers were not 100% accurate because they had to multitask, and this negatively impacted accurate data collection especially when they had to focus on several off-task behaviors using the five-second intervals. I would recommend that for a large group of nine students or more, at least four adults should be collecting data for assigned students to ensure accuracy and validity. For instance, in the study completed by Hawkins et al. (2015), the school psychologist collected the data. In her absence no data would be collected therefore, the validity of the data would be tainted.

Ling et al. (2011) examined the effects of a class-wide interdependent group contingency to improve the behavior of an at-risk student. The student had a high level of off-task behavior, and the other students did not. They were all comparison peers to the at-risk students. The reinforcers were chosen by the teacher. I believe the students could have sabotaged the intervention if they did not like the reinforcers given by the teacher choice. I therefore recommend that reinforcers should be selected based on a preference assessment for individual students. Applying the interdependent group contingency can be effective in decreasing disruptive behavior and increasing academic performance for students with EBD who have such deficits. Although the high efficacy level of interdependent group contingency was attested by numerous research, it may not necessarily happen. Students can still be disruptive by vocalizing and completing their class assignments as well. I would recommend that researchers conduct studies on how to both increase disruptive behaviors and increase academic performance simultaneously and not just target the behaviors with the hope that academic performance will

increase. Overall, more research needs to be done on how to apply the interdependent group contingency in an EBD classroom where disruptive behaviors vary, are intense, and are displayed at the same time as well as how to decrease these disruptive behaviors while increasing their academic performance.

Implications for Current Practice

Of the three main group contingencies, interdependent group contingency is supported by many researchers to be the most effective for an entire class or larger groups of students who exhibit behavioral problems specifically those with or at risk for EBD (Hawkins et al., 2020; Ling et al., 2011; Collins et al., 2017 & Eaves et al., 2021). This is because various behaviors are dealt with simultaneously. Students are rewarded based on the behavior of the entire group. This is cost-effective and more manageable for the teacher to apply to an entire class. For instance, the rewards can range from a preferred activity to tangible commodities that are affordable. For my future classroom, I will not have to request these rewards from the administrative department. Rewards can be given based on individual student preferences or interests. I am aware that cars, animals, games, extra choice time, and watching a favorite movie are things my students like and are interested in. I can find magazines with cars for them to read about, and I can even find some reasonably priced cars in the stores. If they choose to watch movies, I will use my Netflix account to access the movie of their choice once it is school-appropriate and age-appropriate. I will apply the intervention of the random reward system as a daily routine throughout the day and if the class earns the reward, they will enjoy an extra 10 minutes of choice time, watch a movie, play 5 minutes of games, earn PBIS tickets which they can redeem at the school store for an item they like at the end of the school week. In addition, applying the interdependent group

contingencies such as the ABAB will allow me valuable data while keeping the students on task. There are at least three educational support team members in my classroom along with me therefore, they can participate in applying the ABAB withdrawal design interdependent group contingency process. Not only does the interdependent group contingency decrease disruptive behaviors, keep students on task and potentially increase their academic achievement, but it also facilitates collaboration. Hawkins et al. (2020) posit that the interdependent group is advantageous in promoting cohesion and collaboration. In my classroom working together is a great attribute and I will incorporate and maintain the interdependent group contingencies that also enhance social skills. I would share my findings with my colleagues who are facing challenges with supporting various behavior challenges in their classrooms and invite them to observe how I am implementing this intervention in my daily class routine and provide some training for them.

Summary

Numerous research articles suggested that students with or at a higher risk for EBD are at risk for dropping out of school than their peers. This is because they spend a lot of time in the principal's office, they are suspended, they are behind in academics, or they cannot maintain social competencies (Murphy et al., 2007; Ling et al., 2011; Hawkins et al., 2020; Hawkins et al., 2015). It is evident from the research and information presented in the previous chapter that interdependent group contingency has some positive effects on reducing disruptive behaviors with a chance of increasing academic achievements for students with or at risk of emotional and behavioral disorders within the classroom. Hawkins et al. (2020) postulated that it is the most beneficial contingency to use when a teacher is supporting a large group or a whole class

that has behavioral problems. This theory appears to be logical since all behaviors can be monitored simultaneously by rewarding students using contingencies as motivating factors.

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