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Proactive Strategies for Managing Problem Behavior in Secondary Classrooms

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PROACTIVE STRATEGIES FOR MANAGING PROBLEM BEHAVIOR IN SECONDARY CLASSROOMS

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Abstract

Problem behaviors in the classroom can negatively impact all students in that particular setting, and result in work-related stress and reduced well-being for teachers. Many teachers rely on public reprimands or exclusionary discipline methods such as office referrals, detention, or suspension to manage student misbehavior. These strategies, however, can damage student-teacher relationships and perpetuate problem behavior. Research reviewed suggests that proactive behavior management strategies are key to preventing misbehavior from occurring in the first place and increasing academic engagement. The purpose of this thesis is to review literature related to proactive strategies for managing problem behavior in secondary classrooms. Three types of strategies are discussed and examined in this thesis: relationship building strategies, group contingencies, and targeted interventions.

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CHAPTER I: INTRODUCTION

Purpose of Thesis

The purpose of this thesis is to discuss proactive strategies for managing student problem behavior, primarily low-level disruptive behavior and disengaged behavior, to increase academic engagement in secondary classrooms.

Definition of Terms

- Coercive: No explicit definition stated, however, this generally means using force or threats to make someone do something.
- MotivAider: A programmable device that emits silent pulsing signals at periodical, preset intervals to cue teachers to do something (e.g. provide praise) (Cook et al., 2017).
- Academically engaged time (AET): Any instance where students attended to instruction, watched the teacher or speaker, or concentrated on their classwork (Cook et al., 2017; Bruhn, Woods-Groves, Fernando, Choi, & Troughton, 2017; Collins et al., 2015).
- Behavior specific praise (BSP): A statement where a teacher rewards a specific academic or social behavior with a praise statement (Haydon & Musti-Rao, 2011).
- Positive Greetings at the Door (PGD): A method of teachers greeting students at the door in a positive, intentional, and strategic way (Cook et al., 2018).
- Establish-Maintain-Restore (EMR): An approach for student-teacher relationships that is based on prior research and represents an intentional approach to cultivating, maintaining, and repairing relationships (Duong et al., 2019).
- Independent Contingency: A procedure through which access to a reward is based on individual performance (Dart et al., 2016).

- Group-oriented Contingency: A procedure through which access to a reward is dependent on the behavior of an entire group (Dart et al., 2016).
- Tootling: A peer-mediated positive behavior intervention that involves students anonymously recording “Tootles” (instances of their classmates exhibiting positive prosocial behavior) onto slips of paper that are placed into a designated container; the Tootles are later read publicly by the teacher and rewards are often given to students (Lum et al., 2017; Lum, Tingstrom, Dufrene, Radley, & Lynne, 2019).
- Tier 2 Intervention: Specialized or targeted support to some students who may be at risk for academic or behavioral problems (Mitchell, Hirn, & Lewis, 2017).
- Class Pass Intervention (CPI): A behavior management strategy that consists of providing students with passes that they can either use to appropriately request a break from an undesired activity or exchange at a later time for a preferred item or activity (Collins et al., 2015).
- Check-in/Check-out (CICIO): A mentor-based behavioral intervention that involves the use of a daily progress report that a student carries throughout the day to monitor behavior; at the end of the day the student may earn a reinforcement if the daily progress report indicates they had behaved appropriately (Campbell & Anderson, 2008; Klingbeil, Dart, & Schramm, 2019).

The Impact of Student Problem Behavior on the Offending Students

Students who exhibit classroom problem behaviors are more inclined to experience negative outcomes than their peers. In the short-term, these individuals are likely to experience poor grades, absenteeism, exclusionary discipline, conduct problems, and school dropout (Cook

et al., 2018). These concerns are higher for students in certain subgroups who are considered at-risk for poor school outcomes; these subgroups include English language learners, ethnic minorities, recipients of free or reduced lunch, and students with disabilities (Mitchell et al., 2017). It is also thought that childhood problem behavior may result in various adverse outcomes later in life via a snowball effect, meaning that the consequences of problem behavior as a child may result in an accumulation of difficulties that extend into adulthood (van der Molen et al., 2015). These difficulties may include involvement in crime, mental health concerns, substance dependence, and work-related problems (Trentacosta, Hyde, Shaw, & Cheong, 2009).

The Impact of Student Problem Behavior on All Students

Problem behaviors in the classroom can negatively impact all students in that particular setting, even those not actively engaging in the behaviors. This is due to the fact that off task and disruptive behaviors "interfere with instructional delivery, contribute to an unproductive learning atmosphere, and compromise students' ability to stay focused and learn" (Cook et al., 2018). Unless these behaviors are properly managed, they can result in a reduction of academic learning time and ultimately, lower student achievement for all students in the classroom (Mitchem, Young, West, & Benyo, 2001; Lum et al., 2019). Furthermore, problem behavior can become increasingly common if it is not managed, even amongst those well-behaved students who wouldn't normally engage in such behaviors (Lum et al., 2019). This can be attributed to peer pressure and adolescents' desire to fit in and be accepted by their peers. For instance, if peers discourage disruptive behavior or respond with disinterest, it is less likely to occur. Conversely, if peers encourage disruptive behavior and respond positively, it is more likely to

occur (Shin & Ryan, 2017). Therefore, if left unmanaged or unchecked, undesirable behavior in the classroom can become increasingly problematic, resulting in reduced academic learning time and possibly lower student achievement.

The Impact of Student Problem Behavior on Teachers

Behavior management in the classroom is an area of high concern for teachers, with 40.7% of public school teachers in the U.S. reporting that student misbehavior interfered with their teaching (Robers, Kemp, Rathbun, Morgan, & Snyder, 2014). In a survey conducted to investigate teacher views about student behavior in South Australian schools, teachers and school leaders were asked to identify a range of student behaviors they observed or experienced. While educators in this study indicated that all categories of unproductive behavior exist in classrooms, disengaged and low-level disruptive behaviors were the most frequent and challenging. The following behaviors were described as being most difficult to manage: avoiding doing schoolwork, disrupting the flow of a lesson, disengaging from classroom activities, talking out of turn, and being late for class (Sullivan, Johnson, Owens, & Conway, 2014). While these behaviors may appear relatively trivial or minor, "the high frequency of these behaviours make them 'irritating and time-wasting and, over time, ultimately exhausting and stressful'" (Sullivan et al., 2014). Many teachers struggle to manage these behaviors because "the unfortunate reality is that the majority of educators receive very limited to no training in behavior and classroom management but are expected to meet the social/emotional needs of students who present daily challenges in the classroom" (Mitchell et al., 2017). This is consistent with a survey referenced by the American Psychological Association

which found that teachers across all grade levels reported needing more training and ongoing support in behavior management (as cited in Cook et al., 2018, p. 150).

Rather than using proactive strategies, teachers often rely on reactive strategies to manage problem behaviors that are not necessarily effective. For instance, teachers might use public reprimands or exclusionary discipline methods such as office referrals, detention, or suspension to manage student misbehavior. These strategies not only can damage student-teacher relationships, but they can result in lost instructional time and perpetuate problem behaviors (Cook et al., 2018). Furthermore, constantly dealing with these problem behaviors can cause work-related stress and reduced well-being for teachers (Narhi, Kiiski, & Savolainen, 2017). Not only does this take a toll on teachers emotionally and physically, but it may impact their teaching because "while under stress, teachers behave differently with students; they become less tolerant, less patient, less caring, and, overall, less involved" (Blase, 1986). In some cases, this stress can even lead to teacher burnout and result in teachers leaving education altogether (Lum et al., 2019). A survey conducted by the Australian Education Union, for instance, revealed that 50.3% of first year teachers said they will not be staying in public education for longer than ten years and of those not committed to staying in public education, 56.9% stated they would be working in an industry outside of education (Australian Education Union, 2008).

Need for Study

Problem behavior in the classroom can result in lower academic achievement for the offending student, as well as the student's classmates. In addition, attempting to manage these behaviors can result in work-related stress for teachers that can impact their ability to provide

effective instruction and in some cases, lead to burnout. Considering these issues, it is important that teachers are equipped with strategies for managing and preventing problem behavior in their classrooms. This thesis will address the following questions: What are classroom intervention and support strategies for managing disruptive and off-task student behavior and increasing academic engagement at the secondary level? What actions can be taken within the classroom to prevent disruptive and off-task behaviors from occurring in the first place?

CHAPTER II: LITERATURE REVIEW

Overview of the Literature Reviewed

Literature for this thesis was located through searches of ERIC and Google Scholar. For the results, the list was narrowed down by only reviewing published articles related to strategies for managing problem behavior and increasing academic engagement in secondary classrooms. The key words that were used in these searches were “disruptive student behavior,” “behavior problems,” “positive behavior supports,” “behavior interventions,” “targeted interventions,” “group contingencies,” “contingency management,” and “successful behavior management.” The structure of the following chapter is broken up into three sections written in this order: Relationship Building Strategies, Group Contingencies, and Targeted Interventions.

Relationship Building Strategies

Relationship building strategies play an important role in developing positive student-teacher connections. When effectively and consistently implemented, these strategies work to prevent disruptive behavior from occurring, thus allowing the teacher and students to focus their time and attention on learning with fewer distractions or disruptions. Examples of relationship building strategies include increasing praise statements and utilizing behavior specific praise, reducing teacher reprimands, positively greeting students at the door, and Establish-Maintain-Restore (EMR). These strategies help establish a positive classroom climate in which students feel comfortable and safe. When a classroom is lacking these elements, “teacher-student interactions are likely to become negative (and perhaps even coercive)” (Conroy, Sutherland, Snyder, & Marsh, 2008), which can interfere with learning and result in a

chaotic and adverse classroom environment. For this reason, classroom management strategies have become increasingly more proactive rather than reactive, with an emphasis on building relationships and reinforcing positive or desired behaviors.

The 5:1 Ratio. One such study which focuses on praise and positive student-teacher relationships was conducted by Cook et al. (2017). This study examined whether increasing the ratio of positive-to-negative interactions between teachers and students would promote better academic engagement and reduce disruptive behaviors. Specifically, they aimed to determine whether five positive interactions for every one negative interaction (called the 5:1 ratio) would increase academic engagement and reduce overall disruptive behavior. One hundred fifty-nine students and six teachers participated in the study. The students came from six classrooms, with four classes in elementary school (fourth and fifth grade) and two classes in middle school (seventh and eighth grade). The teachers in these intervention groups received training and were instructed to focus on positive behaviors, deliver specific verbal praise and approval statements, and engage in verbal and non-verbal positive interactions with students; teachers in the intervention group also received a MotivAider, which prompted them every five minutes to deliver praise and positive non-verbal interactions. To have a baseline for comparison, a control group with similar characteristics was paired with each intervention group (Cook et al., 2017).

Data was collected through observations of the teachers and students. At three points throughout the study, each teacher was observed for a period of forty-five minutes and every teacher-student interaction was classified as either positive, negative, or neutral. During six forty-five minute observations throughout the study, class-wide and individual student

behavior was also examined. Student behavior during each observation was either coded as AET (instances where the student was paying attention and on task) or DB (instances where behaviors were not related to the task at hand and were disruptive to learning and the classroom environment) (Cook et al., 2017).

The data collected revealed that teachers in the intervention group shifted their ratios from utilizing more negative interactions to utilizing more positive interactions. In these same classrooms, academic engagement increased and disruptive behaviors decreased. Teachers in the control group, on the other hand, consistently displayed a low ratio of positive-to-negative interactions and levels of academic engagement and disruptive behaviors remained relatively stable throughout the study. Cook et al. (2017) suggest, therefore, that the 5:1 ratio could be an effective classroom management strategy for increasing academic engagement and reducing disruptive behaviors. However, the authors realize that their sample size of teachers was small and that variations in the instructional conditions during observations could have influenced levels of academic engagement and disruptive behaviors. With that in mind, additional research with more teachers and students should be conducted to support their findings and future research should ensure that instructional conditions in all classrooms are similar when class-wide and student observations are conducted (Cook et al., 2017).

Behavior Specific Praise. A similar study conducted by Haydon and Musti-Rao (2011) examined how positive interactions in the form of behavior-specific praise (BSP) can be effective at reducing disruptive behaviors, while requiring fewer teacher reprimands. Unlike general praise statements, a BSP statement is specific in that "a teacher approves (rewards) a specific academic or social behavior with a verbal comment, the praise statement (i.e., "Joe, I

like the way you solved the division problem")" (Haydon & Musti-Rao, 2011). The key components of BSP are that it must link the praise statement to a specific behavior, provide feedback to the student, be sincere, and reflect on student skill level; furthermore, the teacher must evaluate the effectiveness of the praise statements and be able to adjust, as needed (Haydon & Musti-Rao, 2011).

This particular study conducted by Haydon and Musti-Rao (2011) involved two eighth-grade general education classrooms in a public middle school in a midwestern city. Prior to beginning the study, pre-baseline data was collected in both classrooms and these observations "indicated high rates of student disruptions, low rates of teacher praise, and high rates of teacher reprimands" (Haydon & Musti-Rao, 2011). Both teacher participants were in their first year of teaching and had tried other classroom management strategies prior to beginning the study, with those strategies having little to no impact on student disruptive behavior in the classroom. Before implementing the intervention in their classrooms, both teachers received individual training on the use of BSP statements. Specifically, they were instructed on how to effectively use BSP statements and were given a script with examples of BSP, which they were instructed to keep near the overhead projector. They were also given and taught how to use a MotivAider to cue them to provide BSP to a student every four minutes. To conclude their individual training session, both teachers practiced delivering BSP for 16 minutes (Haydon & Musti-Rao, 2011).

Data was collected twice a week throughout the eight-week intervention phase and examined teacher praise (either general or BSP), teacher reprimands, and student disruptive behaviors. During baseline, general praise statements and BSP statements were at zero levels

for both teachers but these levels increased following the introduction of the intervention. In addition, the number of teacher reprimands decreased from baseline to the intervention phase. Finally, the mean rate of disruptive behaviors in both classrooms decreased during the intervention phase. These results provide support for training teachers to use praise as a strategy to decrease disruptive behaviors. This study, however, did not collect data on academic measures and therefore does not provide information on how praise statements impact academic engagement or student learning (Haydon & Musti-Rao, 2011).

Clear Expectations, Immediate Feedback, and Weekly Consequences. Another study conducted by Narhi et al. (2017) evaluated the effects of a class-wide intervention on classroom behavioral climate and disruptive behavior in 38 Finnish middle schools. The researchers hypothesized that if teachers provided clear behavioral expectations, immediate positive feedback, and weekly consequences for middle school students who displayed unwanted behaviors, then the behavioral climate in the classroom would improve and levels of disruptive behaviors would decrease (Narhi et al., 2017).

607 teachers from seventh and eighth grade classrooms who were nominated to participate in the study based on their poor classroom climate. These teachers received training on how to implement the intervention in their classroom and were instructed to rephrase disruptive behaviors as behavioral instructions for students and were told to use behavior specific praise (BSP) when students succeeded in following behavioral instructions. An additional component of this intervention was that each student was evaluated weekly on whether or not they succeeded in behaving according to the expectations. Feedback on that week's behavior was then provided at a whole-class level during which the teacher focused on

praising students who succeeded in behaving according to expectations. If individual students did not meet expectations during a particular week, the student's parents were contacted and a meeting with the student, parents, and student services team was arranged. A second failure to meet behavioral expectations resulted in another meeting, this time with other school personnel in attendance (Narhi et al., 2017).

The study was conducted with a group of teachers and students during the fall term, and then repeated with a second group of teachers and students during the spring term. Data was collected pre and post-intervention through questionnaires completed by the teachers and students. The teacher questionnaire consisted of 17 statements that the teacher rated on a six-point Likert scale, with four of the statements related to students' learning, five to disruptive behaviors, five to physical and psychological safety, and three to caring for the classroom environment. The teachers also answered four questions related to the strain they experienced from teaching the participating class. The students completed a similar questionnaire during their homeroom class which consisted of 21 statements on a four-point Likert scale, which the student rated based on their thoughts and experiences in the classroom. At the conclusion of the intervention, both teachers and students completed another questionnaire which had them evaluate the acceptability of the intervention. Furthermore, treatment fidelity was assessed through questionnaires in which the teachers evaluated their own performance in implementing the intervention, and an additional questionnaire was completed by students where they evaluated the teachers' behavior in relation to the principles of the intervention (Narhi et al., 2017).

While the acceptability results indicate that the intervention was well accepted by teachers and students, the effect results obtained from both groups indicated varying results. The results from the teachers' evaluations of the classroom climate showed an improvement during the intervention, especially during the spring term. Anecdotal evidence from the teachers suggests that this may be due to the fact that having common behavioral expectations across classrooms at the middle school level makes lessons more predictable for students and requires them to make fewer behavioral adjustments to individual teacher expectations. The results from the student evaluations, however, were more inconsistent and indicated there were no intervention effects on the classroom behavioral climate. Despite the inconsistency with student results, Narhi et al. (2017) suggest that this intervention has the potential to produce significant improvements in classroom behavioral climate in middle schools.

Co-constructed Rules, Behavior-Specific Praise, and Reduced Reprimands. A study conducted by Hollingshead, Kroeger, Atlus, and Trytten (2016) examined the effects of a combination of class-wide interventions on on-task behavior for middle school students. Specifically, the authors wanted to determine if implementation of student co-constructed rules, behavior-specific praise (BSP), and reduced teacher reprimands (TR) would result in increased on-task behavior for students. The three interventions chosen for this study were selected based on the authors' belief that these strategies reflect the emerging principles of culturally responsive teaching (CRT), which can be defined as "using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant and effective" (Hollingshead et al., 2016). The authors suggest that "student co-constructed rules reflect the ability and willingness to use culturally

appropriate management strategies, increased awareness of power structures, and the development of community and sense of family in the classroom" (Hollingshead et al., 2016). Regarding BSP, they propose that its use in the classroom is consistent with positive student-teacher relationships and high expectations for students. Finally, the authors suggest that a reduction of teacher reprimands implies that the teacher is less reactive to unwanted behaviors and more interested in "increasing the positive tone of the classroom, a tone associated with community and sense of family where all present are perceived as parts of the whole" (Hollingshead et al., 2016).

This study was conducted in a seventh-grade classroom consisting of 31 students in a high-poverty, midwestern school. The classroom teacher who participated was a Caucasian female who had 17 years of teaching experience and a master's degree. Prior to implementation of the intervention, data was collected during three sessions on the frequency of on-task or off-task behavior and the frequency of BSP and TR. After baseline data was collected, the teacher underwent a 30-minute training session on using BSP statements, reducing TR statements, and designing classroom rules. During this training session the principles of culturally responsive classroom management were discussed, and the teacher was encouraged to ignore negative behavior and focus on providing praise to positive behaviors already present in the classroom (Hollingshead et al., 2016).

At the start of the intervention period the teacher collaborated with the students to come up with class-wide rules. First, each student brainstormed five rules and then the teacher had the students work in small groups to develop a master list for their table. The teacher then

facilitated a whole-class discussion which led to the development of five rules on which they all agreed. The rules were then displayed in the classroom as:

> Rules for Room 157: In order to be successful and help make class run smoothly, I should: Stay in my seat, Stay quiet, Stay focused (on the speaker when someone is talking, on my work otherwise), Follow directions, Write down important information, Use positive words. (Hollingshead et al., 2016, p. 281)

Data collected during the baseline phase indicate that BSP statements were nonexistent and TR occurred an average of 23.4 times per observational segment. Upon implementation of the intervention, BSP statements increased significantly (occurring an average of 29.17 times) and TR decreased to an average of 6.08 times per observational segment. During the intervention phase, the average percentage of on-task behavior was 74.2, compared to only 52.6 during the baseline phase. A brief withdrawal phase resulted in an immediate decrease of on-task behavior which prompted the teacher to refuse continuation of the withdrawal phase and request a return to the intervention. Upon reimplementation of the intervention, the effects were immediate with the average percentage of on-task behavior increasing to 70.8 (from 57.0 during the withdrawal phase). Data was also collected during a four-day maintenance phase which indicated a strong increase in on-task behavior compared to the baseline phase, but a slightly lower average of on-task behavior (57.6) compared to the intervention phases (Hollingshead et al., 2016).

Furthermore, anecdotal comments from both the teacher and students provide additional support that the intervention was effective. For one thing, the teacher expressed how easy the intervention was to implement, stating that "'It took no more energy to begin

making positive statements as opposed to reprimands, and student engagement increased in ways that it had not with reprimands'" (Hollingshead et al., 2016). She also expressed how she planned to introduce the intervention to her colleagues through the school's Positive School Culture Committee, in hopes of initiating building-wide implementation of the intervention. Similarly, the students expressed their liking for the intervention and commented on the changes within days of its implementation. Anecdotal comments from students included "'We like this,' and 'Can you tell Mrs. X to do class like this?' and comments intended to illicit praise statements-- 'See? My notebook is out, too,' and, 'Am I doing a good job on my map?'" (Hollingshead et al., 2016). Furthermore, the students noticed when the intervention was withdrawn and some stated that they wanted the teacher to return to what she had been doing. These anecdotal comments, along with the data collected through observation, "suggest that student behavior can be increased by implementing a feasible intervention package consisting of BSP statements and reduced TR in a context of codeveloped rules" (Hollingshead et al., 2016). To strengthen these findings, additional studies in multiple classrooms with a multiple baseline design ought to be conducted (Hollingshead et al., 2016).

Positive Greetings at the Door. An additional study conducted by Cook et al. (2018) examined the effect of Positive Greetings at the Door (PGD). For this study, the authors wanted to determine if having teachers incorporate proactive strategies as students entered the classroom would result in fewer problem behaviors and increased academic engagement during class. The procedure for implementing PGD involved three specific steps; first, the teachers met each student at the door with a specific positive interaction, such as a handshake or greeting using the student's name. Next, the teacher provided both "individual student and

the whole class with pre-corrective statements to facilitate students' successful transition into the classroom setting" (Cook et al., 2018). In other words, the teacher would remind individuals and the class as a whole of what behaviors were desirable and would result in success. Finally, the teacher included a positive reinforcement contingency to recognize students coming to class and arriving on time, to decrease truancy and tardiness (Cook et al., 2018).

This particular study conducted by Cook et al. (2018) involved ten middle school classrooms, five which were assigned to the PGD group and five which were assigned to the attention control group. Baseline data for both groups was collected in the fall, with observers examining class-wide and individual student behaviors and recording behaviors as AET (engaged) or DB (disruptive). The same procedure for recording behaviors was used to collect post-data in the winter. Comparing results of baseline data with post-data, "this experimental study found that classrooms in which teachers receiving training and support to use the PGD strategy were associated with diminished DB and greater AET than those in the attention control" (Cook et al., 2018). Specifically, students in those classrooms which utilized PGD exhibited a 20% increase in AET, which corresponds to an additional hour of AET over the course of a five-hour school day. This study, therefore, provides support for using PGD in middle school classrooms as a means to provide effective instruction by reducing disruptive behaviors and increasing academic engagement. Future research should replicate the present findings amongst a larger, more diverse group of teachers and students to increase the generalizability of the findings (Cook et al., 2018).

The results of the study conducted by Cook et al. (2018) validate a similar claim made a decade earlier by Allday and Pakurar (2007). In this earlier study, teacher greetings were

examined to determine how they impacted on-task behavior of three middle school students with problem behaviors. No specific scripts were given for the teachers to follow but they "were instructed to greet each student at the door by using the student's name along with a positive statement (e.g., "I like your new shoes," "I am glad you are here today")" (Allday & Pakurar, 2007). Following this greeting at the door, the teachers then went about their normal classroom routine and on-task behavior was examined during the first ten minutes of class (Allday & Pakurar, 2007).

Data was collected of the three student participants over a six-week period. Observers watched the student as they participated in the normal class routine and the student's behavior was recorded using momentary time sampling, with fifteen second intervals. During each interval, the observer recorded whether or not the student was on-task (meaning he or she was actively listening, following instructions, participating in the activity at hand, or seeking help in an appropriate manner). The data from this study indicated that "teacher greetings were associated with an increase in on-task behavior for all participants" (Allday & Pakurar, 2007). Specifically, this method resulted in a 27% increase in academic engagement for the three student participants, thus providing support for greeting students at the door as a simple and effective strategy to improve student learning (Allday & Pakurar, 2007).

Establish-Maintain-Restore. Duong et al. (2019) conducted a study where they examined the impacts of the EMR (Establish-Maintain-Restore) approach on student-teacher relationships, academic engagement, and disruptive behaviors in middle school. The EMR approach focuses on the relationship between a student and a teacher and is "designed to improve teachers' skills in cultivating, maintaining, and restoring relationships with their

students." (Duong et al., 2019). During the *Establish* phase of EMR, the objective is to develop a connection between the teacher and the student through individual interactions with the student. Once a relationship has been established, the *Maintain* phase consists primarily of the teacher using the 5-to-1 ratio of positive to negative interactions with the student, to avoid the relationship diminishing. The final phase, *Restore*, comes into play when harm has come to the relationship "because of a misunderstanding, conflict, neglect, or some other negative interaction" (Duong et al., 2019). When this happens, the teacher delivers at least one restorative communication to the student such as letting go of the event, taking ownership for the problem, or validating the student's feelings. The researchers hypothesized that using this approach with middle school students would result in improvements in student-teacher relationships and academically engaged time, and result in a decrease in disruptive behavior (Duong et al., 2019).

20 teachers and 190 students from a middle school in the Pacific Northwest region of the United States participated in the study. The participating teachers and students were divided into a control group and an intervention group, and both groups of teachers were provided with the same amount of professional development time during the initial training and subsequent consultations. The teachers in the intervention group underwent a three-hour training about the EMR approach and how it can be used in their classroom to cultivate, maintain, and repair relationships with their students. The teachers in the control group, on the other hand, met and "were asked to discuss strategies they use to establish positive relationships with students and effective classroom management practices" (Duong et al., 2019). At the conclusion of the intervention period, a modified version of the Student-Teacher

Relationship Scale was used to measure the quality of student-teacher relationships. At pre and post-intervention, observations of student behavior were collected and coded as either academically engaged or disruptive behavior (Duong et al., 2019).

The results of this study provide support for using the EMR approach in middle school classrooms. Students in the EMR condition showed improved student-teacher relationships and experienced an increase in academically engaged time, while those levels for students in the control condition remained stable. Furthermore, disruptive behavior decreased for both groups, but the decrease was much larger among students in the EMR condition. While the effects of EMR were mostly consistent across student characteristics such as gender, ethnic minority status, and free/reduced lunch eligibility, “the intervention had the strongest positive impact on students with the lowest quality relationships with their teachers at baseline” (Duong et al., 2019). This may be due to the fact that students with higher scores at baseline had less room for improvement or that teachers focused on the relationships that needed more attention. To strengthen the findings in this study, additional research needs to be done with a larger sample size. Furthermore, evaluation of long-term outcomes such as student academic achievement should be conducted to determine if the effects of the EMR approach go beyond the study timeframe (Duong et al., 2019).

Group Contingencies

When relationship building strategies alone do not lead to improved student behavior, a second layer of support is needed to promote desired behaviors. Contingencies are commonly implemented in classrooms as a more intensive method of behavior management and to increase academic engagement. A contingency requires that a condition must be met or

satisfied before access to a reward is granted. Contingencies can be broken down into two main categories: independent contingencies and group-oriented contingencies. An independent contingency is a procedure through which access to a reward is based on individual performance. For instance, an independent contingency may be established with a student where they are told that they can earn a reward if they require no behavior redirections during class. Dart et al. (2016) found that while independent contingencies can be effective for correcting or modifying behavior, it can be time consuming to implement and difficult to carry out when multiple students are in need of behavior modification. Group-oriented contingencies, on the other hand, "allow for the modification of the behavior of an entire group through delivery of a single consequence" (Dart et al., 2016), which places less demand on the teacher because one contingency applies to all students in the classroom. As a result, group-oriented contingencies are commonly used as classroom intervention and support strategies for managing disruptive student behavior and increasing academic engagement at the secondary level (Dart et al., 2016).

Group-oriented contingencies can be divided into three main categories: dependent, interdependent, and independent group contingencies. While research suggests that all three types of group contingencies can be effective, Dart et al. (2016) argues that independent group contingencies may have an advantage as they "target the behavior of all students within a group and may maximize the potential for individual student success." An independent group contingency is similar to that of establishing an independent contingency for an individual student, except that the criterion for reinforcement is the same for all students in the classroom. With an independent group contingency, each student has the opportunity to earn

the reward and their likelihood of earning the reward is not dependent on the behavior of their peers (Dart et al., 2016). While other types of group contingencies create some level of social pressure, independent group contingencies "puts each individual in control of his or her own goal attainment, potentially eliminating social pressure by removing the overt peer-mediated aspect inherent in dependent and interdependent contingencies" (Dart et al., 2016). Therefore, students who are unable to or do not want to participate in the intervention are not reprimanded by their peers because their failure or lack of participation does not impact their classmates (Lum et al., 2019).

The Classroom Password. Dart et al. (2016) conducted a study where they examined the effectiveness of an independent group contingency in three middle school classrooms. The strategy, called the Classroom Password, was investigated to determine its effectiveness at increasing academic engagement and decreasing off-task, inattentive, and disruptive behaviors of students during lecture-based instruction. For this intervention, the teacher chose a password (any word as long as it wasn't too common or too obscure) which they delivered a specific number of times during a lecture. Students were told the password and were given a recording sheet which they used to mark the number of times that they heard the password during the designated time period. At the end of the lecture, the teacher collected the recording sheets and students who correctly identified the number of times the password was delivered were put into a random drawing to earn a share of a prize (Dart et al., 2016).

Before beginning the intervention, student behavior was observed and behaviors were recorded as one of the following: academically engaged, disruptive, off-task, or inattentive. Based on comparisons of the results during the baseline phase and intervention phase,

academic engagement increased and disruptive behavior decreased upon implementation of the intervention. However, the results indicated that the Classroom Password did not have any noticeable effects on off-task or inattentive student behavior (Dart et al., 2016).

Despite the observational results indicating that the intervention was successful at increasing academically engaged behavior and decreasing disruptive behavior, the intervention received low social validity scores from the teacher participants. Dart et al. (2016) state that "the teachers in the study did not endorse the intervention as effective, despite the presence of clear intervention effects, as indicated by observational data." While the study did not collect feedback from teachers upon completion of the study, it is thought that the inconsistency between teacher ratings and observational data may be due to behavior occurring after the completion of the intervention, considering the intervention was implemented over periods of only fifteen minutes. Other areas that may have led to feelings of ineffectiveness were "minimal change in off-task and inattentive behavior, or the fact that the intervention may not have produced substantial changes in the behavior of those students who demonstrated the most severe disruptive behavior" (Dart et al., 2016). Furthermore, one teacher expressed frustration due to her students' negative response to submitting incorrect answer sheets as her reason for withdrawing from the study early, thus terminating collection of data from her classroom. The authors suggest, therefore, that future research "should attempt to identify any barriers to social validity that the protocol may pose and remediate them through modifications to the intervention" (Dart et al., 2016).

The Good Behavior Game. Another type of group-oriented contingency that can be used to manage behavior and increase academic engagement is the interdependent group

contingency, which “permits all the members of a group to access the same reward for the entire group’s collective performance” (Dart et al., 2016). One such example that is “a well-established classroom management intervention with a wealth of empirical evidence to support its use in reducing disruptions and promoting on-task behavior” (Groves & Austin, 2019) is the Good Behavior Game (GBG). The GBG is a peer-mediated intervention designed to discourage undesirable behaviors and improve academic engagement through the use of rewards. While many variations of the GBG exist, teachers either utilize a punishment-based version or a reinforcement-based version (Groves & Austin, 2019). In both versions, the students are divided into two teams and target behaviors are identified and rules are stated and posted in the classroom (Flower, McKenna, Muething, Bryant, D., & Bryant, B., 2014). In the punishment-based version, teams earn a point each time a member of their team breaks a rule with the goal being to earn the fewest points. The reinforcement-based version, on the other hand, requires all members of the team to follow the rules in order to earn a point for their team and then the team with the most points wins. For both versions, the teams that meet the designated criterion at the conclusion of the game receive the previously agreed upon reward (Groves & Austin, 2019).

Up until recently, most research on the GBG has been conducted at the elementary level (Flower et al., 2014; Kleinman & Saigh, 2011). Studies by Flower et al. (2014) and Kleinman & Saigh (2011) have expanded this research to high school special education classrooms and regular education classrooms, respectively. In both studies, implementation of the GBG resulted in a reduction of target behaviors. In the study conducted by Flower et al. (2014), the overall findings support the use of the GBG for reducing class-wide off-task behavior in high

school special education students. Similarly, results obtained by Kleinman & Saigh (2011) support the use of the GBG for reducing disruptive behaviors among high schoolers in regular education classrooms.

Being that the GBG had up until this point been primarily implemented at the elementary level, modifications were made in both studies conducted by Flower et al. (2014) and Kleinman & Saigh (2011) to promote student buy-in at the secondary level. Flower et al. (2014) suggest that a key motivator in getting older students to participate in the intervention is to ensure that the reinforcement is appropriate and preferred. To ensure this, the teacher had the students complete a preference assessment to determine what rewards would be given out to the winners. In the study conducted by Kleinman & Saigh (2011), target behaviors were described as classroom expectations rather than rules, and students were given the "opportunity" to participate and earn rewards, rather than being told that they had to. This was thought to have facilitated participation and compliance in the GBG for this group of students, as it gave them a choice and the freedom to decide whether or not to engage in the intervention (Kleinman & Saigh, 2011).

Tootling. Another strategy, called Tootling, is a peer-based intervention that utilizes an interdependent group contingency or an independent group contingency to promote positive behaviors in secondary classrooms. "It [Tootling] receives its name because it is the opposite of tattling, and is a play on the expression, 'tooting your own horn'" (Lum et al., 2017). The general procedure for Tootling involves students recording and submitting "tootles," or instances of their classmates exhibiting prosocial behavior into a designated container. The teacher then draws tootles from the container and reads them aloud. If the tootles are correct

(describing appropriate behaviors,) then the teacher acknowledges the students who exhibited those behaviors to provide praise and feedback. Incorrect or inappropriate tootles are either corrected or ignored (Lum et al., 2017; Lum et al., 2019).

While this procedure is for the most part consistent across Tootling variations, differences in the Tootling framework exist in how the students are reinforced or rewarded for their behavior. Traditionally, an interdependent group contingency is utilized with "the class earning a reward if the cumulative number of tootles submitted by the class reached a certain goal" (Lum et al., 2019). Lum et al. (2017) conducted a study with three high school classrooms where an interdependent group contingency was combined with public posting of the class' progress toward the cumulative goal. Students were instructed on how to correctly submit tootles and were encouraged to submit as many as they wanted during a class period. At the end of each class, the teacher would randomly draw a minimum of five tootles which were read aloud to provide reinforcement for the positive behaviors which were described. The number of correctly submitted tootles was also added to the class' cumulative total which was publicly posted on a whiteboard or wall, so students were visually able to see their progress towards reaching the predetermined goal. When the class reached their goal, the entire group earned a reward such as watching a movie, bonus points for tests, free homework passes, or snacks (Lum et al., 2017).

Another strategy is to utilize an independent group contingency with the Tootling framework, which means that only the students who engage in the target behaviors receive a reward. Lum et al. (2019) conducted a study with three high school classrooms which rewarded students who submitted tootles as well as those who had tootles submitted about their

behavior. When submitting a tootle, students submitted the tootle about a peer into one container and their name on another slip of paper into a second container. At the end of each class period, the teacher randomly drew three of the submitted tootles and those individuals whose positive behaviors were described were rewarded. In addition, the teacher randomly drew two paper slips from the other container which contained the names of students who submitted tootles, and those students were also rewarded. This strategy has advantages as it avoids antagonizing students who are unable or do not want to participate, and avoids situations where only a few students are responsible for the whole group's success in an interdependent group contingency (Lum et al., 2019).

As with many classroom management strategies, most studies on Tootling have been conducted at the elementary level. The studies conducted by Lum et al. (2017) and Lum et al. (2019) extend the literature on Tootling by demonstrating the strategy's effectiveness with older students. Results from Lum et al. (2017) "reflect clinically meaningful decreases in class-wide disruptive behavior and increases in AEB [academically engaged behavior] during intervention phases compared to baseline and withdrawal phase in all three participating classrooms." In addition, all three teachers who participated in the study rated Tootling as an overall acceptable intervention and one teacher even reported feeling less stress at the end of the day while implementing the intervention. Similarly, the results from the study conducted by Lum et al. (2019) support the use of Tootling in high school classrooms, indicating an "immediate decrease in class-wide DB [disruptive behavior] and increases in AEB during both intervention phases relative to the baseline and withdrawal phases in each participating classroom." Furthermore, the teacher participants and students in all three classrooms rated

Tootling as an overall acceptable intervention (Lum et al., 2019). Both of these studies, therefore, support the use of Tootling in secondary classrooms as a means of reducing disruptive behaviors and increasing academic engagement.

Targeted Interventions

Class Pass Intervention. When relationship building strategies and contingencies are not enough to prevent and manage disruptive behaviors in individual students, targeted or Tier 2 interventions are used to "provide an intermediate step between universal supports and more intensive, individualized Tier 3 supports that require substantial time and expertise to implement" (Collins et al., 2015). One such intervention is called the Class Pass Intervention (CPI), which is a strategy that allows a student to use classroom passes as a way to decrease off-task, disruptive behaviors. Students use the passes to escape a non-preferred task for a short period of time or can save them to be exchanged for a preferred item, activity, or privilege. Collins et al. (2015) found that:

> The combination of the positive and negative reinforcement components enables the CPI to be a multifunction intervention that allows students to exercise choice, while also incentivizing them to maintain on-task behavior, even though there may be a desire to avoid or escape academic tasks. (p. 206)

A study conducted by Cook et al. (2014) revealed that the CPI was effective at reducing escape-motivated disruptive behavior in four elementary-aged children. To determine whether the results from this study could be expanded to an older demographic of students, a similar study was conducted by Collins et al. (2015) which aimed to determine "whether the CPI was an effective, targeted, Tier 2 intervention for secondary-age students who exhibit off-task and

disruptive classroom behavior" (Collins et al., 2015). Four male participants were selected based on nominations from teachers of students who exhibited low academic engaged time (AET). The problem behaviors of these students included talking to peers about nonacademic content, making disruptive noises, throwing objects, seat leaving without permission, rummaging through belongings, making audible noises by humming or singing, calling other students names, and blurting out words. Two of the four participants were receiving special education services at the time of the study, and the only behavior supports each student received were basic classroom management strategies implemented by the teacher (Collins et al., 2015).

Prior to implementation, baseline conditions for each student were obtained and consisted of typical classroom management strategies or supports. The study began with each student undergoing a 30-minute training session on the proper use of the class passes and the conditions under which the passes should be used. During this time, a preference assessment was also conducted to determine the items, privileges, or social activities that the students could purchase by exchanging their class passes. Furthermore, a list of potential places and activities to go during a requested break were also discussed and explored (Collins et al., 2015).

Once all parties involved demonstrated mastery of the intervention procedures, the student participants were randomly assigned to experimental groups. Two of the students, Jake and Jim, were assigned to a six-week intervention period which consisted of a withdrawal phase and a reintroduction phase. Aside from during the withdrawal phase, Jake and Jim had three class passes throughout the intervention. The remaining two students, Curtis and Ronnie,

started their eight-week intervention period with three class passes and were systematically reduced by one pass each week thereafter (Collins et al., 2015).

Direct observations of each student were performed two to three times per week during each intervention phase and levels of AET were recorded using 10-second intervals. Results of the study indicate that the CPI increased academic engagement in all four participants, which resulted in a decrease in disruptive behavior. Upon implementation of the CPI, Jake's appropriate behavior immediately increased by 57% from baseline. When the CPI was withdrawn, his AET returned to baseline levels but then increased when the intervention was reinstated. Similarly, Jim's performance during baseline was stable and upon introduction of the intervention, his AET increased immediately by 37%. When the CPI was withdrawn, his performance decreased to levels similar to baseline but then immediately increased when the intervention was reinstated. In a similar fashion, Curtis experienced a 58% increase in AET when the CPI was implemented. As the number of class passes was systematically reduced throughout the study, Curtis's performance remained stable at 80%. The final participant, Ronnie, experienced a similar increase in AET when the CPI was introduced (his average AET increased from 60% during baseline to 89% when the CPI was introduced). Unlike Curtis, however, Ronnie's AET decreased as he underwent the fading procedure, as his AET averaged only 78% with only one class pass (Collins et al., 2015).

The benefits of the Class Pass Intervention is that it is a relatively low-cost, high-yield intervention that has demonstrated the potential to reduce disruptive behaviors and improve academic engagement in elementary and high school students. Despite the support provided from this study and the study conducted by Cook et al. (2014), additional research needs to be

conducted with larger sample sizes (both studies only used four student participants) and with middle school students. In addition, although this study included a two-week follow-up probe, a longer-term follow-up should be performed to determine whether there are long-term benefits to the CPI (Collins et al., 2015).

Check-in/Check-out. Another example of a widely used targeted intervention is a behavioral check-in/check-out (CICO.) This intervention typically consists of a twice daily meeting with the CICO coordinator and student, once at the beginning of the school day to go over goals and again at the end of the school day to review how the day went. As the student moves from class to class, they carry a point card on which teachers allot points for meeting defined behavior goals and provide feedback for the student. Once the student earns a predetermined number of points, they are able to cash in the points for tangible and intangible rewards (Campbell & Anderson, 2008). While this strategy may be effective for many students, research suggests that CICO is most likely effective for students "whose problem behavior is maintained by adult attention and/or students who enjoy positive interactions with adults" (Campbell & Anderson, 2008). Furthermore, while there is ample research which supports the use of CICO at an elementary level, there is less research on its use at the secondary level. There is more evidence, however, that a modified CICO can be effective at a middle school setting than high school setting (Klingbeil et al., 2019).

One particular study conducted in an urban middle school setting in New England aimed to "compare the effectiveness of a targeted-group behavioral check-in/check-out (CICO) intervention with the school's standard practice (SP) with respect to decreasing students' off-task and other problem behavior" (Simonsen, Myers, & Briere, 2011). 42 students were

selected to participate in this study based on teacher nominations and office discipline referrals within the previous month for disruptive behavior. The students were randomly assigned by coin flip to undergo the CICO intervention or the school's standard practice over a six-week period. Of the 42 participants, 27 students were assigned to the intervention group which involved checking-in with designated adults each morning and carrying a point sheet which was used to gather feedback from teachers throughout the day. At the end of the day, the students checked-out with designated adults who provided reinforcement (if the student earned a predetermined number of points during the day) and a copy of the point sheet to take home and share with their parents and guardians. The 15 student participants assigned to the SP condition, on the other hand, met with a counselor who then "assigned students to counseling sessions based on perceived need (e.g., anger management, grief counseling)" (Simonsen et al., 2011). The counselors then provided weekly counseling sessions to the students within each group, meanwhile documenting the frequency and basic content of each session (Simonsen et al., 2011).

Prior to implementing the intervention conditions, pre-intervention data was collected for each student through direct observation of student behavior by trained observers. In addition, the number of office discipline referrals during the six weeks prior to the intervention was recorded and a copy of the FACTS for each participant was obtained. (FACTS is a tool completed by teachers which gathers information about behaviors of concern and the context in which those behaviors occur.) Throughout the six-week intervention period, data was collected through three to five direct observations of student behavior and the number of office discipline referrals during the intervention time frame was also obtained. The results of

this study indicate that while all participants demonstrated less off-task behavior in class, students in the CICO intervention group improved more than those assigned to the SP condition. This study suggests, therefore, that the CICO intervention "appears to be more effective at decreasing off-task and problem behavior than the SP intervention, especially when considering in-class off-task behavior" (Simonsen et al., 2011).

The results of this study conducted by Simonsen et al. (2011) should be interpreted in light of a few limitations. First, the sample size of 42 students was relatively small and the subgroups sizes were unequal; therefore, additional replications and reproductions of this study ought to be conducted to strengthen the findings. In addition, two cohorts of students were enrolled in the study at different times (one cohort participated in the fall and the other cohort participated in the spring) which may have affected the participants' responsiveness to the intervention. Finally, there was some inconsistency with tracking points due to students forgetting to request teacher feedback and points at the end of each period and students failing to return the point sheets at the end of the school day. Despite these limitations, this study provides support and adds to the growing research on the use of a behavioral check-in/check-out with middle school students.

Self-Monitoring. Another strategy which can be used to support individual students is self-monitoring. Self-monitoring can be used to target a variety of behaviors including attention to task, academic productivity, academic accuracy, homework completion, disruptive behaviors, and various social behaviors. While there are many variations to the self-monitoring process, the intervention tends to share the following components with other Tier 2 interventions: it is readily available and can fit within existing classroom routines and

procedures; it requires no extensive training or skills; it aligns with Tier 1 expectations and procedures; it is able to be implemented by all staff; and it can be implemented with fidelity across groups of students (Bruhn et al., 2017).

A study conducted by Bruhn et al. (2017) aimed to examine the effects of technology-based self-monitoring for three middle school students who were identified as at risk for failure and needing immediate intervention. The study took place in a small, rural town in the Midwest and the school served 479 students in grades six through eight. One participant, Trey, was chosen for the study because "Although Trey often looked like he was working, he was often off task by daydreaming, doodling, talking to others, and playing on the computer. Occasionally, his socialization with peers was disruptive" (Bruhn et al., 2017). Another participant, Lisa, was selected to participate because her teachers had serious concerns about her behavior and social skills. Lisa was described as engaging in off-task behavior that included "excessive talking, hand flapping, movement, and petting the teacher; but it also was passive as seen in blank stares, doodling, and daydreaming" (Bruhn et al., 2017). The third participant, Anna, exhibited behaviors that teachers described as most intense and problematic including "daydreaming, blurting out, breaking or playing with materials, verbally refusing to complete tasks, and talking or arguing with others" (Bruhn et al., 2017). Anna was the only participant who was receiving special education services, however, her individualized education plan (IEP) included only academic goals (Bruhn et al., 2017).

Prior to implementing the intervention, baseline data of academic engagement (AE) and disruptive behavior (DB) was collected in two classes for each student through direct observation. The intervention condition consisted of the same classroom practices with the

addition of the teacher and student using an iPad app called SCORE IT during class. This app prompted the student (and teacher) to monitor and rate three behaviors which were aligned with the school's PBIS plan: "(a) Practice Responsibility (definition: Be on time. Have your materials ready.), (b) Respect and Safety (definition: Keep hands and feet to yourself. Follow directions.), and (c) Do Your Best (definition: Try your hardest. Complete work on time. Cooperate when in groups.)" (Bruhn et al., 2017).

At the start of class, the teacher would select the "start" button on the app which activated a ten-minute timer. At the end of the ten-minute period, the teacher was prompted to bring the iPad to the student who rated his or her behaviors on a scale of 0 to 4. After the student completed his or her ratings, the teacher completed the same procedures by rating the student's behavior. Once both the student and teacher's ratings were recorded, the teacher selected the "start" button again to activate the next interval; this entire process was repeated three or four times throughout each class period. At the end of each period, the teacher and student met to view the student's progress and compare their ratings. At this time, the teacher provided feedback to the student and if the student met the goal according to the teacher's rating, then he or she earned a PBIS ticket exchangeable at the school store (Bruhn et al., 2017).

The student outcomes from this study provide mixed results. While Lisa increased her AE and decreased her DB during reading class, her behavior improved only slightly in language arts class. This may be due to the reading class being much smaller and less structured with only a few students in it, whereas the language arts class was a typical, large general education classroom. These results suggest that Lisa may need additional support beyond SCORE IT during language arts. Anna, on the other hand, demonstrated immediate improvements in both

classes at the start of the intervention but her behavior shifted to being highly variable, likely as a result of inconsistent attendance due to illness and suspension. While the results show that Anna's AE improved and her DB decreased over baseline, these results are not stable and robust enough to attribute these changes to SCORE IT. Conversely, Trey demonstrated clear and consistent changes in behavior in both his social studies and science classes which suggest that SCORE IT improved his AE and DB. Trey's baseline data suggests, however, that his behavior problems may not have been as severe as Lisa's, and certainly not Anna's. "One plausible explanation for these findings is that, by nature, Tier 2 interventions are reserved for students with moderate behavior problems, not necessarily for students with high frequency or high intensity behaviors" (Bruhn et al., 2017). The results of this study suggest, therefore, that a technology-based self-monitoring intervention may be successful for students such as Trey who exhibit moderate behavior problems, particularly in the area of hyperactivity or inattention (Bruhn et al., 2017).

While the results of this study add to the literature base on self-monitoring as an intervention to improve problem behavior, there are several important limitations to consider. For one thing, the sample size of participants was rather small; additional studies are needed, therefore, with more participants and in different settings. Furthermore, no academic measures were included in this study "So despite improvements in AE, there is no evidence indicating improved engagement resulted in improved achievement" (Bruhn et al., 2017). Future studies, therefore, would benefit from including academic progress monitoring assessments or pre-post academic measures. Finally, while anecdotal comments from the

teachers involved in the study suggest that SCORE IT was easy to use and effective, this study did not involve a formal evaluation of social validity (Bruhn et al., 2017).

A similar study conducted by Wills and Mason (2014) assessed the effectiveness of a technologically delivered, self-monitoring intervention in improving on-task behavior in two high school students. The study took place at a suburban high school located in the Midwest and the intervention setting was a general education, ninth grade remedial level science classroom. The students chosen to participate were selected based on the following criteria:

> Participants received special education services, exhibited off-task and/or classroom disruptions, participants were not served currently by any other university study, participants were struggling academically in a general education classroom, and, based on the case manager's opinion, the nominated students would be willing to engage in self-monitoring of behavior in a classroom setting. (Wills & Mason, 2014, p. 424)

Student 1 was a fifteen-year-old male whose special education classification was a specific learning disability; however, in years past he had received services under the category of emotional disturbance. Despite being medicated for ADHD prior to and during the study, Student 1 struggled with disengaging and being distracted which according to the classroom teacher, led to his poor classroom performance. As a result, Student 1 was repeating the course after failing it the previous academic year. Student 2, on the other hand, was a fourteen-year-old male who was classified as other health impaired (OHI) due to a diagnosis of ADHD. Student 2 exhibited off-task and disruptive behavior and struggled with work completion. Similar to Student 1, Student 2 received medication for ADHD prior to and throughout the study. Student

2 was taking the course for the first time and even though he passed exams, his behavior in the classroom was greatly impacting his assignment completion which according to the teacher put him at risk for failure (Wills & Mason, 2014).

An ABAB withdrawal design was used to evaluate the effects of the intervention and included the following phases: baseline, I-Connect self-monitoring intervention, withdrawal, and return to intervention. During baseline, data was collected during science class and consisted of one to two fifteen-minute observations per day. After five baseline observations were collected for both students, I-Connect self-monitoring was implemented. Before collecting data during this phase, the students were trained by investigators on how to open and use the I-Connect application on a tablet. Following the training, the students were instructed to place the tablet in the upper right-hand corner of their desk during science class, initiate the application, and monitor their behavior when prompted by the device. Every five minutes the device prompted them to answer yes or no to the following question: “Are you on task?” If the student failed to provide a response after six seconds, then the subsequent five-minute interval was initiated by the application. At no point during the intervention did the students receive feedback or contingencies on the accuracy of their self-monitoring; furthermore, they did not have access to review their recorded data (Wills & Mason, 2014).

After improvement in the targeted behavior occurred, the withdrawal phase was instituted. During this phase, the participants were informed that they would no longer monitor their behavior with the I-Connect application and the tablet would be returned to the investigators. Then, once data returned to levels similar to baseline, the intervention was reintroduced and the students were once again provided the tablet with the I-Connect

application and were instructed to resume monitoring their behavior. During the reintroduction of the intervention, all procedures were the same as during the initial implementation phase (Wills & Mason, 2014).

The results of this study support the use of the I-Connect application as a strategy to increase on-task behavior in high school students receiving special education services. When the I-Connect intervention was implemented, Student 1's on-task average improved immediately to an average of 95%. When the intervention was withdrawn, his on-task behavior decreased to levels below baseline (averaging 41%). Upon reintroduction of the intervention, Student 1's on-task average increased immediately to an average of 94%. Similarly, the introduction of the I-Connect intervention resulted in immediate increases in Student 2's on-task behavior. At baseline, Student 2's on-task average was 18% but this increased to 91% when the intervention was introduced. When the I-Connect intervention was withdrawn, Student 2's average on-task immediately declined by nearly 30%. When the intervention was reintroduced, his average on-task recovered to an average of 91% (Wills & Mason, 2014).

While this study demonstrated clear improvements in on-task behavior, the results were more variable for disruptive behavior. However, the researchers suggest that these results may be due to one unusual observation period which occurred during session 11 for Student 1 and session 14 for Student 2. On this particular day, "three snakes maintained in the classroom became audibly agitated and active in their terrariums" (Wills & Mason, 2014) which resulted in both students being more disruptive and less on-task. During this observational period, five disruptive behaviors were recorded for Student 1, which was higher than levels at baseline (average disruptive behaviors during baseline was 2.2 for this student). Similarly, seven

disruptive behaviors were recorded for Student 2, which was also higher than levels at baseline (average disruptive behaviors during baseline was 4.2 for this student). The researchers suggest, therefore, that "If one were to exclude these datapoints, improved classroom disruptions are immediately and more visually convincing" (Wills & Mason, 2014). With this in mind, additional studies are needed to determine the impact self-monitoring applications (such as I-Connect) have on disruptive behavior (Wills & Mason, 2014).

The results of this self-monitoring intervention conducted by Wills and Mason (2014) support prior literature on self-monitoring and extend the literature base in several ways. First, this study extends the literature on self-monitoring to high school students receiving special education services. With this in mind, it is unknown whether these results can be generalized to other age groups or abilities. In addition, this study is unique when compared to similar studies as it provided no reinforcement strategies in the design, other than students using the self-monitoring application on a tablet. Third, while similar interventions often use shorter intervals (1 minute or less,) this study used 5-minute intervals. With this in mind, future research ought to examine how different interval lengths impact targeted behaviors. Finally, a notable limitation to this study is that academic data was not collected. To determine whether increased on-task behavior results in greater academic achievement, additional studies are needed to measure achievement outcomes (Wills & Mason, 2014).

CHAPTER III: DISCUSSION AND CONCLUSION

Summary of the Literature

Problem behavior in the classroom can negatively impact both students and teachers. First and foremost, students who exhibit classroom problem behaviors are more inclined to experience poor grades, absenteeism, exclusionary discipline, conduct problems, and school dropout (Cook et al., 2018). Moreover, it is thought that these same students may be more likely to experience difficulties into adulthood such as involvement in crime, mental health concerns, substance dependence, and work-related problems (Trentacosta et al., 2009). Additionally, student misbehavior can impact other students in the classroom who are not actively engaging in the problem behaviors; this is due to the fact that off task and disruptive behaviors "interfere with instructional delivery, contribute to an unproductive learning atmosphere, and compromise students' ability to stay focused and learn" (Cook et al., 2018).

Considering this, it is of utmost importance for teachers to implement effective behavior management strategies to make instructional time efficient and productive for all students. Unfortunately, however, many teachers struggle with this due to having received little to no training in behavior and classroom management (Mitchell et al., 2017). As a result, many educators resort to using reactive strategies for managing behavior, such as office referrals or suspensions. These strategies are not only damaging to student-teacher relationships, but can result in lost instructional time and perpetuate problem behaviors (Cook et al., 2018). Furthermore, being unable to effectively manage behavior in the classroom can be frustrating and result in an increase in work-related stress and reduced well-being for teachers (Narhi et

al., 2017). In some cases, struggles with behavior management can lead to burnout and teachers leaving the profession altogether (Lum et al., 2019).

The focus of my research was to examine proactive classroom management strategies which teachers can use to prevent and manage problem behavior in secondary classrooms. The strategies examined can be broken down into three categories: relationship building strategies, group contingencies, and targeted interventions.

Relationship building strategies are perhaps one of the most effective techniques for preventing problem behavior from occurring in the first place. In my research I discovered that many of the most effective relationship building strategies incorporate a common theme: they create a positive classroom climate through interventions that promote praise and positive student-teacher interactions. For instance, increasing the ratio of positive-to-negative interactions between teacher and students, called the 5:1 ratio, can increase academic engaged time and decrease disruptive behavior (Cook et al., 2017). Similarly, utilizing behavior specific praise (BSP) and reducing teacher reprimands can also be effective at decreasing disruptive behavior (Haydon & Musti-Rao, 2011). In addition, simply greeting students at the door as they enter the classroom can result in increased on-task behavior and academic engagement (Cook et al., 2018; Allday & Pakurar, 2007). These strategies are relatively simple, low-cost, and require minimal training, making them good options for teachers looking for quick-to-implement strategies for preventing and managing problem behavior.

Establish-Maintain-Restore (EMR), on the other hand, is a somewhat more intensive strategy as it requires educators to undergo training on how to cultivate, maintain, and repair relationships with their students. When implemented building-wide, EMR could be integrated

as a universal prevention practice and it fits within most school-wide positive behavioral interventions and supports (PBIS) management systems. While it may be more time consuming to learn and implement, EMR is a promising cost-effective strategy for improving student behavior, thus making it a good option for professional development within schools (Duong et al., 2019).

Relationship building strategies are typically implemented in conjunction with other strategies, and the combination of strategies which a teacher may use in their classroom depends on their specific situation. A study conducted by Hollingshead et al. (2016), for example, found that the combination of student co-constructed rules, behavior-specific praise (BSP), and reduced teacher reprimands (TR) resulted in improved student behavior. Similarly, another study examined how the combination of clear behavioral expectations, immediate positive feedback, and weekly consequences for not following expectations has the potential to produce significant improvements in classroom behavioral climate (Narhi et al., 2017). With this in mind, teachers may have more success if they implement relationship building strategies along with other behavior management strategies.

When relationship building strategies alone do not lead to improved student behavior, group-oriented contingencies can be used to promote desired behaviors. These strategies "allow for the modification of the behavior of an entire group through delivery of a single consequence" (Dart et al., 2016), thus making them a good option when multiple students are in need of behavior modification. The three group-oriented contingencies examined in my research were the Classroom Password, the Good Behavior Game, and Tootling.

One group-oriented contingency which was examined in my research is the Classroom Password. This strategy involves the teacher choosing and delivering a password a specific number of times during a lecture, while the students listen for and keep track of the number of times they hear the password delivered. At the end of the lecture, those students who correctly recorded the number of times the password was delivered are put into a random drawing to earn a share of a prize. A study conducted by Dart et al. (2016) examined this strategy in middle school classrooms and the results suggest that the Classroom Password is a promising class-wide strategy for increasing academic engagement and decreasing disruptive behavior. However, this particular study found that the Classroom Password did not have any noticeable effects on off-task or inattentive behavior (Dart et al., 2016).

Perhaps the most commonly used and researched group-oriented contingency is the Good Behavior Game (GBG). The GBG is a peer-mediated intervention designed to discourage undesirable behaviors and improve academic engagement through the use of rewards. Studies conducted by Flower et al. (2014) and Kleinman & Saigh (2011) examined the use of the GBG in high school classrooms and both studies found that its use resulted in a reduction of target behaviors. The study conducted by Flower et al. (2014) demonstrated that the GBG is effective for reducing class-wide off-task behavior. The study conducted by Kleinman & Saigh (2011), on the other hand, supports the use of the GBG for reducing disruptive behaviors such as talk or verbal disruption, aggression or physical disruption, and seat leaving. These studies provide support for using the GBG in secondary classrooms, an area that previous research had not widely explored (Flower et al., 2014; Kleinman & Saigh, 2011).

Another example of a group-oriented contingency is Tootling, which involves students reporting instances of their classmates' positive prosocial behavior in exchange for praise and reinforcement. Two similar studies examined the effects of Tootling on class-wide disruptive and academically engaged behavior of high school students, and both studies resulted in a decrease in disruptive behavior and an increase in academically engaged behavior (Lum et al., 2017; Lum et al., 2019). The results of these studies, therefore, provide support for Tootling as an effective strategy for teachers to deliver positive reinforcement for appropriate behaviors of students.

When relationship building strategies and group-oriented contingencies are not enough to manage problem behavior in individual students, a teacher can implement targeted interventions to "provide an intermediate step between universal supports and more intensive, individualized Tier 3 supports that require substantial time and expertise to implement" (Collins et al., 2015). Examples of targeted interventions which were examined in this research are the Class Pass Intervention (CPI,) behavioral check-in/check-out (CICI,) and technology-based self-monitoring. Each of these strategies are designed to provide an additional level of support to students who continue to struggle behaviorally, despite relationship building strategies and group-oriented contingencies that are in place in the classroom.

The Class Pass Intervention (CPI) is a strategy which allows a student to use classroom passes as a way to decrease off-task, disruptive behaviors. The student can either use the pass to escape a non-preferred task or exchange it for a preferred item, activity, or privilege. A study conducted by Collins et al. (2015) examined the impacts of this strategy on academic engagement of four high school participants and found that the CPI increased academic

engagement in all four participants, which resulted in a decrease in disruptive behavior. This study suggests, therefore, that the CPI is a relatively low-cost, high-yield intervention that has the potential to reduce disruptive behaviors and improve academic engagement in high school students.

Another study conducted by Simonsen et al. (2011) examined the use of a behavioral check-in/check-out (CICO) with middle school students. This strategy involves a student carrying a point card on which teachers allot points for meeting defined behavior goals and provide feedback for the student. Once the student earns a predetermined number of points, they are able to cash in the points for tangible and intangible rewards. This particular study found that the use of a behavioral check-in/check-out decreased off-task and problem behavior. While this strategy may be effective for many students, research suggests that CICO is most likely effective for students “whose problem behavior is maintained by adult attention and/or students who enjoy positive interactions with adults” (Campbell & Anderson, 2008).

A final strategy which can be used to support individual students who struggle with behavior is technology-based self-monitoring. Research suggests that self-monitoring can be used with students of all ages and abilities as long as the student is able to identify or note when he or she is engaged in the targeted behavior and realizes that the behavior is either socially or environmentally inappropriate (Rafferty, 2010). Bruhn et al. (2017) examined the effects of a self-monitoring app called SCORE IT on the behavior of three middle school students. The student outcomes from this study provide mixed results, with only one participant exhibiting clear and consistent changes in behavior. The results of this study suggest

that a technology-based self-monitoring intervention may be successful for students who exhibit moderate behavior problems, rather than those with severe behavior problems.

A similar study conducted by Wills and Mason (2014) examined the impacts of a different technology-based self-monitoring app, called I-Connect, on on-task and disruptive behavior in two high school students receiving special education services. The results of this study support the use of the I-Connect application as a strategy to increase on-task behavior in high school students receiving special education services. However, the results for disruptive behavior were more variable which suggests that more research may be needed in this area.

Professional Application

Because they lack knowledge on more effective strategies, teachers often rely on reactive behavior management strategies (such as public reprimands, office referrals, detention, or suspension) that are not necessarily effective. These strategies not only damage student-teacher relationships, but can create a negative classroom environment that is not conductive for learning. With this in mind, teachers need to focus on using proactive behavior management strategies. For instance, a simple yet effective strategy which teachers can use is reducing the number of reprimands and increasing praise statements in the classroom. When a teacher provides praise for an appropriate or desired behavior, they are reinforcing that behavior and making it more likely to occur again in the future. Reprimands, on the other hand, can perpetuate problem behavior because they focus on unwanted behaviors and often fail to tell the student how they should behave. Therefore, as educators we must examine our current system for managing problem behavior in the classroom and focus on implementing strategies that reinforce desired behaviors, rather than punishing undesirable ones.

Limitations of the Research

Being that I am licensed to teach at the secondary level, I decided to limit my research pool to studies conducted with middle school and high school students. Originally, my plan was to only include mainstream students not receiving special education services in my research pool. However, I found that this excluded some excellent studies and wasn't realistic of the environment I teach in because as a middle school science teacher, I often work with students receiving special education services.

Once I began my research I was a little shocked to find that my research pool was quite limited; despite multiple searches using different keywords and parameters I discovered that much of the research conducted on behavior management and intervention strategies has been done at the elementary level. I came across many strategies and interventions which proved effective for elementary aged students, but research had not yet been done to test those same strategies with older students. With that in mind, most of the studies which I did include in my research are studies which were originally conducted at the elementary-level and had been modified to use with middle school or high school students.

Implications for Future Research

Teachers across all age groups struggle with managing problem behavior in their classrooms, yet the majority of the research on this topic has been conducted at the elementary level. With that said, more studies need to be conducted on strategies for managing problem behavior in middle school and high school classrooms. Most of the studies which I examined in my research were conducted within the last fifteen years or so, suggesting that this area of study for this particular age group is just beginning to gain attention and grow.

With that in mind, several of the studies I examined were among the first of their kind conducted with older students and therefore need to be replicated with more students and in different settings, to increase the generalizability and strengthen their findings. As I conducted my research, the following questions came to mind: What causes students to misbehave? What are the goals of misbehavior?

Conclusion

Research indicates that reactive classroom management strategies are ineffective at preventing and managing problem behavior in the classroom, despite how commonly they are used. Proactive classroom management strategies, on the other hand, are key to managing and preventing problem behaviors in the classroom and increasing academic engagement. Although research supports this, many teachers continue to use more ineffective methods because they lack the knowledge and support to implement the more effective strategies. For this reason, educating teachers on proactive classroom management strategies initially during teacher preparatory programs and then providing continued training and support through professional development are key to equipping teachers with the necessary knowledge and skills to prevent and manage problem behaviors in their classrooms.

References

Allday, R. A., & Pakurar, K. (2007). Effects of teacher greetings on student on-task behavior. *Journal of Applied Behavior Analysis, 40*(2), 317 - 320. doi: 10.1901/jaba.2007.86-06

Australian Education Union (2008). *New educators survey 2008. Results and report.* Retrieved from Australian Education Union website: http://www.setearc.com.au/wp-content/uploads/2013/10/Nesurvey08res.pdf

Blase, J.J. (1986). A qualitative analysis of sources of teacher stress: Consequences for performance. American Educational Research Journal*, 23*(1), 13 - 40. doi: 10.3102/00028312023001013

Bruhn, A. L., Woods-Groves, S., Fernando, J., Choi, T., & Troughton, L. (2017). Evaluating technology-based self-monitoring as a tier 2 intervention across middle school settings. *Behavioral Disorders, 42*(3), 119 - 131. doi: 10.1177/0198742917691534

Campbell, A., & Anderson, C. M. (2008). Enhancing effects of check-in/check-out with function-based support. *Behavioral Disorders, 33*(4), 233 - 245. doi: 10.1177/019874290803300404

Collins, T. A., Cook, C. R., Dart, E. H., Socie, D. G., Renshaw, T. L., & Long, A. C. (2015). Improving classroom engagement among high school students with disruptive behavior: Evaluation of the class pass intervention. *Psychology in the Schools, 53*(2), 204 - 219. doi: 10.1002/pits.21893

Conroy, M. A., Sutherland, K. S., Synder, A. L., & Marsh, S. (2008). Classwide interventions: Effective instruction makes a difference. *TEACHING Exceptional Children, 40*(6), 24 - 30. doi: 10/1177/004005990804000603

Cook, C. R., Collins, T., Dart, E., Vance, M. J., McIntosh, K., Grady, E. A., & DeCano, P. (2014). Evaluations of the class pass intervention for typically developing students with hypothesized escape-motivated disruptive classroom behavior. *Psychology in the Schools, 51*(2), 107 - 125. doi: 10.1002/pits.21742

Cook, C. R., Grady, E. R., Long, A. C., Renshaw, T., Codding, R. S., Fiat, A., & Larson, M. (2017). Evaluating the impact of increasing general education teachers' ratio of positive-to-negative interactions on students' classroom behavior. *Journal of Positive Behavior Interventions, 19*(2), 67 - 77. doi: 10.1177/1098300716679137

Cook, C. R., Fiat, A., Larson, M., Daikos, C., Slemrod, T., Holland, E. A., Thayer, A. J., & Renshaw, T. R. (2018). Positive greetings at the door: Evaluation of a low-cost, high-yield proactive classroom management strategy. *Journal of Positive Behavior Interventions, 20*(3), 149 - 159. doi: 10.1177/1098300717753831

Dart, E. H., Radley, K. C., Battaglia, A. A., Dadakhodjaeva, K., Bates, K. E., & Wright, S. J. (2016). Classroom password: A class-wide intervention to increase academic engagement. *Psychology in the Schools, 53*(4), 416 - 431. doi: 10.1002/pits.21911

Duong, M. T., Pullmann, M. D., Buntain-Ricklefs, J., Lee, K., Benjamin, K. S., Nguyen, L., & Cook, C. R. (2019). Brief teacher training improves student behavior and student-teacher relationships in middle school. *School Psychology, 34*(2), 212 - 221. doi: 10.1037/spq0000296

Flower, A., McKenna, J., Muething, C. S., Bryant, D. P., & Bryant, B. R. (2014). Effects of the good behavior game on classwide off-task behavior in a high school basic algebra resource classroom. *Behavior Modification, 38*(1), 45 - 68. doi: 10.1177/0145445513507574

Groves, E. A., & Austin, J. L. (2019). Does the good behavior game evoke negative peer pressure? Analysis in primary and secondary classrooms. *Journal of Applied Behavior Analysis, 52*(1), 3 - 16. doi: 10.1002/jaba.513

Haydon, T., & Musti-Rao, S. (2011). Effective use of behavior-specific praise: A middle school case study. *Beyond Behavior, 20*(2), 31 - 39. Retrieved from https://eric.ed.gov/?id=EJ958714

Hollingshead, A., Kroeger, S. D., Atlus, J., & Trytten, J. B. (2016). A case of positive behavior supports-based interventions in a seventh-grade urban classroom. *Preventing School Failure, 60*(4), 278 - 285. doi: 10.1080/1045988X.2015.1124832

Kleinman, K. E., & Saigh, P. A. (2011). The effects of the good behavior game on the conduct of regular education new york city high school students. *Behavior Modification, 35*(1), 95 - 105. doi: 10.1177/0145445510392213

Klingbeil, D.A., Dart, E. H., & Schramm, A. L. (2019). A systematic review of function-modified check-in/check-out. *Journal of Positive Behavior Interventions, 21*(2), 77 - 92. doi: 10.1177/1098300718778032

Lum, J. D. K., Tingstrom, D. H., Dufrene, B. A., Radley, K. C., & Lynne, S. (2017). Effects of tootling on classwide disruptive and academically engaged behavior of general-education high school students. *Psychology in the Schools, 54*(4), 370 - 384. doi: 10.1002/pits.22002

Lum, J. D. K., Radley, K. C., Tingstrom, D. H., Dufrene, B. A., Olmi, D. J., & Wright, S. J. (2019). Tootling with a randomized independent group contingency to improve high school

classwide behavior. *Journal of Positive Behavior Interventions 21*(2), 93 - 105. doi: 10.1177/1098300718792663

Mitchem, K.J., Young, K.R., West, R.P., & Benyo, J. (2001). CWPASM: A classwide peer-assisted self-management program for general education classrooms. *Education and Treatment of Children, 24*(2), 111 - 140. Retrieved from https://www.jstor.org/stable/42899650

Mitchell, B.S., Hirn, R.G., & Lewis, J.L. (2017). Enhancing effective classroom management in schools: structures for changing teacher behavior. *Teacher Education and Special Education, 40*(2), 140 - 153. doi: 10.1177/0888406417700961

Narhi, V., Kiiski, T., & Savolainen, H. (2017). Reducing disruptive behaviors and improving classroom behavioural climate with class-wide positive behaviour support in middle schools. *British Educational Research Journal, 43*(6), 1186 - 1205. doi: 10.1002/berj.3305

Rafferty, L. (2010). Step-by-step: Teaching students to self-monitor. *Teaching Exceptional Children, 43*(2), 50 - 58. Retrieved from https://eric.ed.gov/?id=EJ902293

Robers, S., Kemp, J., Rathbun, A., Morgan, R.E., & Snyder, T.D. (2014). *Indicators of School Crime and Safety: 2013* (NCES 2014-042/NCJ 243299). Retrieved from https://nces.ed.gov/pubs2014/2014042.pdf

Shin, H., & Ryan, A. M. (2017). Friend influence on early adolescent disruptive behavior in the classroom: Teacher emotional support matters. *Developmental Psychology, 53*(11), 114 - 125. doi: 10.1037/dev0000250

Simonsen, B., Myers, D., & Briere, D. E. (2011). Comparing a behavioral check-in/check-out (CICO) intervention to standard practice in an urban middle school setting using an

experimental group design. *Journal of Positive Behavior Interventions, 13*(1), 31 - 48. doi: 10.1177/10983007-0359026

Sullivan, A.M., Johnson, B., Owens, L., & Conway, R. (2014). Punish them or engage them? Teachers' views of unproductive student behaviours in the classroom. *Australian Journal of Teacher Education, 39*(6), 43 - 56. doi: 10.14221/ajte.2014v39n6.6

Trentacosta, C.J., Hyde, L.W., Shaw, D.S., & Cheong, J. (2009). Adolescent dispositions for antisocial behavior in context: The roles of neighborhood dangerousness and parental knowledge. Journal of Abnormal Psychology*, 118*(3), 564 - 575. doi: 10.1037/a0016394

van der Molen, E., Blokland, A.J., Hipwell, A.E., Vermeiren, R.J.M., Doreleijers, T.A.H., & Loeber, R. (2015). Girls' childhood trajectories of disruptive behavior predict adjustment problems in early adolescence. *Journal of child Psychology and Psychiatry 56*(7), 766 - 773. doi: 10.1111/jcpp.12339

Wills, H. P., & Mason, B. A. (2014). Implementation of a self-monitoring application to improve on-task behavior: A high-school pilot study. *Journal of Behavioral Education, 23*, 421 - 434. doi: 10.1007/s10864-014-9204-x