

A COMPARISON OF THREE OPPORTUNITIES TO RESPOND STRATEGIES  
ACROSS STUDENTS WITH EMOTIONAL AND BEHAVIORAL DISORDERS IN  
HIGH SCHOOL CLASSROOMS

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A COMPARISON OF THREE OPPORTUNITIES TO RESPOND STRATEGIES  
ACROSS STUDENTS WITH EMOTIONAL AND BEHAVIOR DISORDER IN HIGH  
SCHOOL CLASSROOMS

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And hereby certify that, in their opinion, it is worthy of acceptance.

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## DEDICATION

I would like to dedicate this dissertation to my parents, Clyde and Judy Paul. Both of my parents worked in the field of education and instilled in me the importance of setting goals and striving to be the best individual that you can be. My parents have supported me emotionally and mentally throughout this process and encouraged me to persist through all of the trials and tribulations. My parents have been my biggest supporters and continue to serve as models for how I would like to live my life, a debt which I can never repay and will continue to shape my future. Thank you mom and dad for being my biggest cheerleaders, I love you!

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## **ABSTRACT**

A single subject alternating treatment design across three teacher-student dyads was used to investigate the comparative impact on student academic engaged time (AET) of three common opportunities to respond (OTR) interventions, a) guided notes, b) class-wide peer tutoring, and c) response cards. Subjects were three students with Emotional/Behavioral Disorders (EBD) who displayed both failing academic performance and high rates of problem behavior. All selected dyads were within a high school math class. Results indicated all OTR interventions were effective in improving percentage of AET and related academic outcomes. Using visual analysis and an additional replication phase, response cards proved to be the most efficacious in improving student outcomes. Implications for future research and practice within high school are discussed.

## **CHAPTER I**

### **LITERATURE REVIEW**

The defining characteristic of students identified for Emotional and Behavioral Disorders (EBD) under the Individuals with Disabilities Education Act (IDEA) is that educational achievement is adversely influenced by inappropriate and problem behaviors (Section 300.7(b)(9)). Although the federal definition of EBD is clear, within educational settings specialized instruction is provided to students on a broader spectrum of manifestation of EBD. The specific range and prevalence of EBD is necessary to understand the complexities which exist in serving this population (Cassidy, James, & Wiggs, 2001). This population of students includes those with significant internalizing and externalizing behavioral problems and mental health issues (Kauffman, Mock, & Simpson, 2007). Research has also shown high co-morbidity of mental health diagnosed disorders and EBD, such as conduct disorder, anxiety, depression, and attention deficit hyperactive disorders (Cassidy, James, & Wiggs, 2001; Dietz & Montague, 2006).

Students with EBD present administrators, teachers, parents, policymakers, and researchers with challenges related to the social and academic aspects of education and related services (Gage et al., 2010; Peacock Hill Working Group, 1991). This population of students is increasingly educated within general education environments and less frequently in pull out self-contained classrooms (Trout, Nordness, Pierce, & Epstein, 2003). By definition, this population struggles to achieve in any environment. Insuring academic success among students with EBD who are educated within general education classrooms often falls on the shoulders of teachers with minimal training in behavior and classroom management (Reschly & Christenson, 2006). This issue is compounded

within secondary settings. The effective design of classrooms to foster individual student academic and behavioral success is often a difficult task for many secondary teachers with the resulting high rates of student misbehavior often documented as one of the leading reasons teachers leave the field (Simpson, Peterson, & Smith, 2011).

To support students' academic and behavioral needs, which are critical for students with EBD, it is important to implement effective instruction within classrooms. Educating students with EBD must insure student academic growth towards graduation, post-secondary education, and limit problem behavior, which can disrupt the learning environment (Trout et al., 2003). Information from the US Department of Education's 30<sup>th</sup> annual Report to Congress (2008) on the implementation of IDEA reported that only 43% of students with EBD during the 2005-2006 school year graduated with a regular diploma. Students with EBD often display low school engagement, poor attendance, low academic achievement, conflicts with adults and peers, disruptive behavior, mental health issues, failing grades, high dropout rates, and are at risk for school suspension (Lane, Carter, Pierson, & Glaeser, 2006; Merrell & Walker, 2004; US Department of Education, 2008).

Successful learning environments address the individual needs of students within the classroom to allow for the academic and social success of all students (Haydon, Borders, Embury, & Clark, 2009). Ensuring success at the high school level requires universal interventions to be implemented that are flexible enough to meet the needs across the spectrum of student abilities within a classroom, be implemented with fidelity, and easily embedded within any instructional content area (Sprick, & Borgmeier, 2010).

One intervention incorporating all of the above recommendations is to increase the number of student “opportunities to respond” (OTR).

The remainder of this chapter will provide a review of the current challenges in educating students with and who display EBD. Within the review, a broad use of the term EBD is taken to include any student with a mild disability who is presenting intense and challenging behavior (e.g., LD, OHI). A review of the current literature focused on improving academic and behavioral outcomes will follow. Next, a review of the potential impact of increasing OTRs will be examined with a focus on the specific challenges that exist within secondary settings. Finally, the chapter concludes with the proposed need for the study and research questions.

### **Academic and Social Outcomes**

Outcomes for students with emotional and behavioral disorders have been described as “particularly troubling” (Wagner, 1992, p.11). Wagner’s conclusion is based on the continuing poor post-secondary outcomes found among this population of students. Dismal outcomes for students with EBD have remained static with only minimal gains since longitudinal data were first collected and reported in the early 1980’s (Bradley, Doolittle, & Bartolotta, 2008). Bradley and colleagues, recommend that educators’ attempt to build environments and supports that effectively address the needs of students with EBD. To do this effectively, a system that focuses on behaviors within the individual child, the child’s environment, and all adults who interact with the environment is necessary (Bradley et al, 2008). Addressing each of these components of students’ with EBD academic and behavioral need is critical to understanding how to support successful academic achievement.

As early as third grade, a clear trend of poor academic growth is often established among student at risk for EBD when compared to typically developing peers (Hinshaw, 1992). Much of the existing research that addresses the academic and behavioral needs of students has been done with elementary age students during a time that is assumed to be critical in changing poor post-secondary outcomes (Hinshaw, 1992). However, very little research has addressed the possibility of continuing these interventions for secondary students to address their ongoing academic and behavioral needs. Ignoring intervening in secondary settings may neglect an additional critical period in these student's lives where students drop out of school because of disengagement from education (Gage et al., 2010; Gunter & Denny, 1998; Peacock Hill Working Group, 1991). In elementary school, students with EBD typically perform 1.2 to 2 grade levels behind their peers (Coutinho, 1986). This gap widens to almost 3.5 grade levels by secondary school (Coutinho, 1986). Reid, Gonzalez, Nordness, Trout, and Epstein (2004) compared students with EBD were compared to non-disabled peers. Results showed that 75% of students with EBD scored below the mean on reading achievement tests. In addition, the average level for the students in the EBD group was at the 25<sup>th</sup> percentile.

Given the widening achievement gap, compounded by their challenging behaviors, it is not surprising that students with emotional and behavioral disorders have poor post-secondary outcomes (Trout et al., 2003). A review of literature from 1961 to 2000, reported that students with EBD performed poorer academically than their same-age peers across reading, writing, and math (Trout et al., 2003). These poor outcomes are

thought to be a result of the limited focus found in schools on combining both academic and behavioral supports.

Reschly and Christenson (2006) analyzed data from the National Educational Longitudinal Study and found that students with disabilities were more likely to take remedial courses, earn fewer credits in core curriculum, be retained prior to eighth grade, earn lower scores on math and reading proficiency tests, and drop out of school. These descriptors of students with EBD are precursors to the dismal post-secondary outcomes that have been well documented by the research community. Addressing these variables within the school context through successful interventions to support students both behaviorally and academically may help alter this trajectory.

Furthermore, frequent use of evidence-based practices are noticeably absent from instruction for many students with EBD (Gunter & Denny, 1998). In the absence of academic supports, many students with emotional and behavioral problems successfully learn coping mechanisms and tactics to both exist and function within a general education classroom without having to be actively engaged and participating in academic content and learning in the same capacity as their peers (Sutherland & Oswald, 2005).

Understanding the relationship between academic and behavioral problems is crucial to our understanding of how to effectively support students within the general education setting. In a study conducted by Hinshaw (1992), students that demonstrated inattention and hyperactivity were more at risk for academic problems than other measured factors including aggression or internalizing problems. This co-occurring effect of academic and behavioral problems emphasizes the necessity of placing equal importance upon academic and behavioral goals when addressing the overarching needs

of students with and at-risk for EBD (Simpson, Peterson, & Smith, 2011). The focus should be to address student problem behaviors by teaching replacement behaviors that encourage appropriate classroom behavior. Equally addressing a student's academic and behavioral needs has the potential to impact student academic performance by creating classroom environments, which can then foster student success across achievement and behavior.

### **Challenges of Academic and Social Behaviors**

Environments that discourage behavioral disruptions, teach replacement behaviors, and successfully address a student's academic and behavioral needs must cultivate a structure where students are able to take academic risks and feel secure learning alongside higher achieving peers (Sprick & Borgmeier, 2010). The "transactional model" is one theoretical model that describes the experiences of a child as a function of his or her environment and illustrates the need to address both individual and classroom supports simultaneously (Sutherland & Oswald, 2003). Students and teachers create an instructional climate within the classroom based on reciprocal interactions that take place throughout the school day (Conroy, Sutherland, Snyder, & Marsh, 2008). The transactional model describes the environment shaping the child, and in turn, the environment being affected by the child. This model describes the impact that a child and teacher have on one another within a classroom. Sutherland and Oswald (2005) describe how these interactions exist within the classroom and how they influence both teacher and student behavior. The authors describe the bi-directionality of behaviors and the influence that teacher and student have on behavior of the other. This

is an area that is suggested for further exploration and of specific consideration for effective interventions and practices for students with EBD.

Students with EBD create situations where the classroom teacher is negatively reinforced through the student's disruptive and inappropriate behavior (Wehby, Lane, & Falk, 2003). For example, when students are asked to engage with difficult material or challenging instruction, such as individually asking a student to respond to a complex question, a student may consistently respond in an inappropriate manner. To avoid negative student behavior teachers avoid asking students to respond to difficult tasks. Many students with EBD find taking these academic risks, such as individually responding aloud in front of their peers to an academic related question, to be aversive, and they create escape patterns though acting out and causing disruptions (Sutherland, Wehby, & Yoder, 2002). This pattern of bi-directionality can create an education environment where students are allowed to disengage from learning. The disengagement actually becomes reinforcing to the classroom teacher. Interactions such as this, can drastically impact academic achievement for students with EBD. In addition, this pattern of negative reinforcement potentially also discourages general education classroom teachers to implement effective practices to respond to academic and behavioral challenges and increases student removal due to problem behavior.

Direct observation with specific focus on the functional relationship that exists between teachers and students has confirmed this transactional theory of interaction. An early study explored the nature of classrooms and the transactional model by describing how individual student responses and ability are directly affected by student participation as elicited by the teacher (Good, 1970). The Good study found that teachers were more

likely to actively engage students who had high academic ability and had the ability to answer questions correctly. Creating supportive environments and encouraging positive interactions between the student and teacher must exist in an instructional setting where students are willing to take academic risks and be actively engaged with instruction (e.g., Haydon, Mancil, & Van Loan, 2009; Sutherland, Wehby, & Yoder, 2002). To create this environment a large amount of environmental supports must be in place to meet the individual needs of students, especially those with distinct academic and social deficits like students with EBD.

Creating instructional environments that incorporate supports for academic and social behavior has the potential to allow students with EBD to be successful with educational tasks by increasing academic engagement and improving content mastery (Simonson, Fairbanks, Briesch, Myers, & Sugai, 2008; Vannest, Temple-Harvey, & Mason, 2009; Wehby, Lane & Falk, 2003). A significant predictor of student dropout for individuals with EBD is the overall level of student engagement within instruction when compared to typically developing peers (Reschly & Christenson, 2006). Therefore, implementation of an intervention that can be incorporated into instruction and increase a student's educational success through academic engagement and decreased problem behavior is needed.

One specific target of any intervention implemented with students with EBD should be increasing students' academic engaged time (AET). AET refers to the covert, passive (e.g., listening to the teacher instruct) or overt, active (e.g., responding orally to a question) time a student spends interacting with instruction (Skinner, Pappas, & Davis, 2005). Existing literature for students with EBD supports a co-occurrence of problem

behaviors and academic failures (e.g., Deno, 1998; Greenwood, Terry, Marquis, & Walker, 1994). Greenwood and colleagues (1994) found that when increasing student AET, lower rates of incompatible problem behavior (e.g., disruptions, out of seat) typically occur. Current research being conducted by Hirn and Scott (2012) describes the status of high school educational environments and the rate of instructional intervention variables related to increasing AET for secondary students. Hirn and Scott (2012) conducted 1,347 individual behavioral observations across six high schools in general education classrooms that included students with EBD. Rates of AET were overall dramatically low across all students. Students were individually given an opportunity to respond at a rate of 0.056 minutes, or about once every 20 minutes within a class period. Students received reinforcement (i.e., praise) either individually or as a group once every 41 minutes. In contrast, students received negative feedback over twice as often or once every 17 minutes.

There are many additional unique challenges that exist within secondary settings in comparison to K-8. Sprick and Borgmeier (2010) note that size, responsibility for numerous students, assumptions about student knowledge of behavioral expectations, frequent class changes, and disruptions to classroom management from misbehavior may be one reason why many evidence-based practices are not examined or even commonly implemented within secondary settings. Distinctive challenges exist in the implementation of academic and behavioral supports at the secondary setting that would increase student AET and decrease behavioral problems; however, there is much information and research which exists at the K-8 level which can help to establish what evidence-based practices should be investigated within secondary settings. Any of the K-

8 supports would have to be versatile to adjust to the different academic settings and students that exist across educational environments in addition to supporting achievement and behavioral deficits (Grossman & Stodolsky, 1995).

Simonsen et al. (2008) have identified 20 evidence-based practices for all educational environments and grouped them within five categories; 1) maximize structure and predictability, 2) post, teach, review, monitor, and reinforce expectations 3) actively engage students in observable ways, 4) use a continuum of strategies to acknowledge appropriate behavior, and 5) use a continuum of strategies to respond to inappropriate behavior. One of the five categories is to actively engage students in observable ways. Within this category, some of the specific strategies listed are the rate of OTRs, response cards, class-wide peer tutoring, and guided notes.

### **Opportunities to Respond**

The Council for Exceptional Children (CEC, 1987) proposed optimal rates of OTR for all students with high-incidence disabilities. Suggested rates during instruction proved that teachers should be prompting at minimum students 4-6 times per minute with 80% accuracy. An article by Stichter et al. (2009) investigated OTR at the elementary level and reported on prompts, or the initiation of OTR. Observational data demonstrated that mean prompts given to students in instructional settings was at a rate of 2.61 per minutes; a rate almost five times higher than what was shown in secondary settings. In addition the positive to negative feedback ratio was at a rate of 4.5:1. This ratio demonstrates a stark contrast to the 1:2 ratio that was observed by Hirn and Scott (2012) at the secondary level. The contrast in these rates demonstrate the current dynamic of secondary settings for students with EBD highlighting the need for an intervention to

address these alarming low rates of practices routinely called for in the literature (praise, OTR), and high rates of ineffective strategies (negative teacher attention). Since secondary settings have shown to be unique from K-8 classrooms with respect to the rate of teacher interactions with students and student AET, there may be an established covert transactional agreement that exists between students with EBD and the general education classroom teachers. Instructional strategies must also address AET and create a transactional classroom model which encourages student success, such as increased use of reinforcement for desired behaviors and appropriate responses through the opportunity and rate of successful presentations (Sutherland & Singh, 2004). Simonsen and colleagues (2008) suggest all educators in all environments use evidence-based practices that have a high degree of success and effectively address classroom management. However, the use of these evidence-based practices is less commonly found within secondary settings.

Suggested interventions within this category to improve AET have been supported within previous research by specifically increasing the opportunity for students to engage with instruction. This method of presentations is called opportunities to respond (OTR). Opportunities to respond can be described by a three-part sequence: stimuli, response, and response contingency (Skinner, Fletcher, & Hennington, 1996). Stimuli have also been described within the OTR sequence as a prompt (Simonsen, Myers, & DeLuca, 2010; Stichter et al., 2009). This initial interaction is specifically aimed to elicit an action or response from students (i.e., prompt). The student response then follows. This interaction component is critical to the student choosing to engage in instruction (Skinner, Pappas, & Davis, 2005). By providing students with the necessary

tools and skills to engage in instruction there is an increased likelihood for enhancing academic engagement and students choosing to respond. Finally, the third step in providing an OTR is the response contingency (Skinner, Fletcher, & Hennington, 1996). This interaction has largely been described within OTR research as verbal praise or feedback regarding the accuracy of the response (e.g., Sutherland & Wehby, 2001). However, due to the low rates of verbal praise at the secondary level, the manifestation of the response contingency component within secondary settings needs to be more thoroughly investigated.

Multiple methods of OTR implementation have been investigated across settings; however the majority of research has been conducted at the elementary level. The use of guided notes was investigated with secondary students during an in-class review for students with mild disabilities within a general education history class (Mastropieri, Scruggs, Spencer, & Fontana, 2003). Within this study, the use of guided notes was found to improve students test score within the classroom. A pre- post- test design demonstrated a relationship between the use of guided notes within the classroom and students academic performance on weekly quizzes. Students were given a packet of guided notes that accompanied teacher lecture and discussion and were prompted when to provide answers within their packet which became a permanent record of the teacher's instruction.

Another method of implementation of OTR is class-wide peer tutoring (CWPT). CWPT has been investigated at the middle school level across three seventh grade and eighth grade classes comparing CWPT to typical instruction (Spencer, Scruggs, & Mastropieri, 2003). Classes were randomly assigned into typical instruction or CWPT

and then switched after a period of two weeks creating a crossover design. Specific analyses were conducted on students that had emotional or behavioral difficulties within the larger study to determine the effect of this intervention on their specific behavior. After the implementation of CWPT the high risk students scored higher on content area tests, were more on task during class, and reported to enjoy the intervention method more than traditional methods of instruction. CWPT has also demonstrated positive outcomes for encouraging students to engage within instruction (Bowman-Perrott, 2009).

An additional method of OTR is the use of response cards. In a study by Amendariz and Umbreit (1999) two methods of active responding were investigated with students in a fourth grade general education classroom during math instruction. The comparative conditions were conventional lecture with hand raising and a response card condition. During the response card condition students had to respond to the teacher's questions by writing answers onto individual cards and then showing the answers to the teacher. Results demonstrated that behavioral disruptions were less during the response card condition for most students within the classroom. When students were asked which method they preferred, 19 of the 21 students also selected the response card method. A similar study was conducted by Lambert and colleagues (2006) within a fourth grade classroom during mathematics instruction but additionally focused on academic responses during a response card OTR implementation method. Students selected for participation within the study were students who had demonstrated a pattern of disciplinary issues and disruptive behavior within the classroom. Results indicated that students demonstrated higher rates of OTR, decreased behavioral disruptions, and a higher rate of correct academic responding during the response card condition.

Three of the suggested interventions by Simonsen et al. are increasing OTR through the use of response cards, class-wide peer tutoring, and guided notes. All of these interventions have been shown to improve student engagement and reduce behavioral problems at the elementary and middle school level (Haydon, Mancil, & Van Loan, 2009; Partin, Robertson, Maggin, Oliver, & Wehby, 2010; Simonsen, Myers, & DeLuca, 2010; Sutherland, Wehby, & Yoder, 2002). Overall, OTR has been researched and reviewed as an effective practice recommended for use in all educational settings (Sutherland & Wehby, 2001). OTR research has been conducted across multiple settings including physical education, various content subject areas, self-contained classrooms, and high- and low- risk elementary schools (e.g. Burns 2007; Burns & Boice, 2009; Cautilli & Dzewolska, 2006; Haydon et al., 2010; Stichter et al., 2009; Sutherland, Wehby, & Yoder, 2002; Sutherland & Oswald, 2005; Szadokierski & Burns, 2008). Previous research has described OTR as a strategy to increase the likelihood of a student's response through an interaction between a teacher's prompt (Haydon, Mancil, & Van Loan, 2009). However, there is little research that has been conducted specifically within secondary settings on the use of various OTR strategies.

As discussed above, the specific definition of OTR was first described as a learning trial consisting of three specific terms: stimulus, response, consequent contingency sequence (Skinner, Fletcher, & Hennington, 1996). This was initially demonstrated in classrooms through choral responses whereby a teacher prompts the entire class with a question signaling students to give a specific response (i.e., hand raising) that is then reinforced by teacher attention. Haydon, et al. (2010) has demonstrated that improving the quality and increasing the quantity of learning trials

result in greater academic achievement by students. The use of OTR as an academic strategy has provided students with higher rates of AET, more correct classroom responses, and decrease disruptions (Sutherland, Adler, & Gunter, 2003).

Rate of OTR refers to the presentation speed in which students are given an academic prompt to respond (Sutherland, Adler, & Gunter, 2003). A review of increased OTR to academic requests and the academic and behavioral outcomes for students with EBD found only one study conducted with five secondary students (Sutherland and Wehby, 2001). The total synthesis of literature identified by Sutherland and Wehby (2001) only contained six studies using a traditional method of OTR such as choral responding with a combined total of 19 students with EBD. However, despite the small sample size there were significant results to support that by increasing the rate of OTR there were increases in academic outcomes, task engagement, and decreased problem behavior. In addition, it was found that the increased rates of OTR provided teachers with more opportunities to provide praise to students creating more positive interactions between students and teachers however results were not statistically significant. The praise given in the reviewed articles was primarily non-behavior specific and directly related to academic correctness (Sutherland & Wehby, 2001).

An additional study examining the rates of traditional methods of OTR (i.e. choral responding) for 9 elementary students with EBD found that OTR increases were associated with correct responses, task engagement, and decreased disruptive behavior (Sutherland, Adler, & Gunter, 2003). Similar to the results found by Sutherland and Wehby (2001), teacher praise rates had a slight increase during higher rates of OTR (Sutherland, Adler, & Gunter, 2003). These articles highlight the need for further

research related to the rate of OTR for students with EBD and the reciprocal effect on increasing the consequent-contingency component of the OTR transaction. In previous research related to OTR this portion of the transaction is often manifested as praise. However, Hirn and Scott (2012) have demonstrated that the variable of praise is minimal within secondary settings. This consequent-contingency component of the OTR may be defined and implemented differently than other settings and expand beyond the format of praise. This is an area needing further exploration within applied settings.

An analysis of the specific significance between OTR and teacher praise was conducted for students with EBD using time sequential analysis (Sutherland, Wehby, & Yoder, 2002). In this study, a significant correlation was found between praise and OTR suggesting that teachers with high rates of OTR had higher rates of praise, and teachers with lower OTR had lower rates of praise. Despite these reviews, the lack of literature suggests that more research is needed in regards to the interactions between students and teachers during academic instruction related to the rate of OTR and teacher praise, especially at the secondary level where unique obstacles exist for the implementation of interventions.

Similarly, Haydon, Mancil, and Van Loan (2009) found that as a teachers increased their rate of OTR to students there was a direct relationship to student on-task behavior, correct responses, and decreases in student's disruptive behavior. The Haydon and colleagues study replicated findings by Sutherland, Adler, & Gunter (2003) and continues to demonstrate that within a general education setting a teacher can increase OTR and these increases are associated with increases in student's appropriate behavior and their engagement with academic instruction. Increasing the rate and opportunity for

student response and engagement in instruction has shown impact on student behavior but the quality of OTR and implementation method for giving students opportunity to engage has also been explored including response cards, guided notes, and class-wide peer tutoring. Response cards are preprinted or write-on tools that teachers can use in a whole-class format to allow students to demonstrate their knowledge and provide immediate feedback. Guided notes are defined as teacher handouts that are prepared to assist students during lectures using cues and blank space provided to insert key information and facts. Class-wide Peer Tutoring engages all students in the class in instruction through tutor-tutee pairs forming teams. Tutees earn points for their team by responding to the tasks the tutors present. These variations of OTR have been minimally researched at the secondary level, rarely implemented for students with EBD, and rarely compared for different effects that may exist across OTR strategies.

Although these methods have only been limitedly implemented at the secondary level each provides a format for creating positive interactions between student and teacher with the incorporation of a format to engage with instructional content. In addition, all of the selected methods of OTR are cost effective and can be implemented within classroom settings without the need for additional tools or materials. This factors leads these interventions to be more versatile, and acceptable with the wide range of students being instructed within secondary settings. Also, within guided notes, response cards, and class-wide peer tutoring there are components of each of these interventions that embed the important characteristics and factors for successful interventions within the unique context of secondary settings described by Sprick and Borgmeier (2010) and Lane, Wehby, and Barton-Arwood (2005). Many of the OTR interventions are

implemented in a whole class format (i.e., Lambert, Cartledge, Heward, & Lo, 2006). Interventions in this whole-group format may reduce any possible stigma that could exist for accessing additional support and encourage a fast presentation of material where students can receive feedback individually, but also while all students have equal opportunity to respond (Skinner, Pappas, & Davis, 2005). Specific components of each intervention and the advantage for use with students with EBD at the secondary settings are described below.

**Response cards.** Response cards are personal white boards or pre-printed cards which student's use to answer teacher questions (Haydon, Borders, Embury, & Clarke, 2009). Out of all of the suggested OTR implementation strategies the use of response cards has been documented across the most academic subject areas (social studies, science, history, and mathematics) and with the most high school students (N=96; Randolph, 2005). Randolph analyzed 18 response card studies within a meta-analysis to determine specific effects of this OTR implementation method. It was found that response cards have a statistically significant impact on multiple outcome measures for students. These outcomes include teacher and quiz achievement, participation with academic instruction, and decreases in disruptive behavior. Out of the 18 studies reviewed only four studies directly investigated response cards within a high school setting.

Response cards can be used as an example of OTR by incorporating stimulus, response, and consequent contingency. The stimuli presented to students within the response card intervention method would be a teacher's request for students to write answers to academic information on a white board, or to show the answer to the teacher

request using a pre-printed card. The teacher verbal prompt, or question, would serve as the stimuli. The response would be the student behavior demonstrating an answer to the teacher prompt through the use of the pre-printed card or the white board. The consequent contingency would be the teacher's response to the student engaging within academic instruction. This could be done through the use of praise for presenting the correct information or any other method that would be reinforcing to a student for engaging in academic content.

**Class-wide Peer Tutoring.** Class-wide peer tutoring (CWPT) engages all students in the process through tutoring dyads. During each session, students can participate as both a tutor and tutee, or solely as a tutor or tutee (Ryan, Reid, & Epstein, 2004). In a review of 14 peer mediated intervention studies across individuals with EBD, peer mediated strategies produced overall levels of positive academic growth (Ryan et al, 2004). Bell, Young, Blair, & Nelson (1990) examined 6 students with EBD within a public school setting across 18, twenty-minute CWPT settings. Results demonstrated increased engagement with instruction. Students also reported a preference for CWPT as an instructional method.

Bell, Young, Blair, and Nelson (1990) studied the use of CWPT in a high school comparing seven students with behavioral disorders to 52 non-disabled peers. Non-disabled peers were separated within three categories of highest, middle, and lowest performing students. During baseline students with disabilities were performing over three letter grades below the non-disabled peers. However, post baseline, results shows that CWPT narrowed differences to become non-significant. This article highlights the

potential impact that CWPT can have on students with emotional and behavioral disorders within high school settings.

Bowman-Perrott (2009) compared eleven high school students with EBD between two classrooms during the CWPT intervention during a core science subject area. Results indicated higher rates of praise between peers, cooperative work, frequent use of OTR, benefits for low- and high- ability students, support from administrations, and generalization of praise during other periods of the day outside of CWPT intervention.

With the limited amount of research related to students with EBD and within secondary settings, the impact of CWPT on students with EBD cannot be established but the research that does exist demonstrates promising impact for this interventions use. Overall, peer mediated interventions have been found to be an effective tool for addressing academic engagement and decreasing problem behavior (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Since CWPT can be adapted for any curriculum and for differing ability levels in the tutoring dyads it can address specific factors that are unique to secondary settings.

Class-wide peer tutoring can be used as an OTR by having the tutor within the dyad provide the stimuli or prompt for the tutee. The tutor serves as the initiator of the OTR sequence requesting the tutee to engage in academic instruction. The tutee then responds to the tutor providing them with a verbal answer related to the stimuli of an academic question. In response to the tutee's answer the tutor then provide a consequent contingency encouraging the tutee to continue engaging with the academic instruction and the CWPT format (Bell et al., 1990).

**Guided notes.** Guided notes are teacher's handouts to the classroom or an individual student that are designed to assist a student through a lecture by using standard cues (or the stimulus), providing space for writing facts, concepts or relationships (response), and the teacher providing feedback either verbally or on the permanent product (consequent contingency sequence). This format of OTR is unique in that the product produced during OTR is more covert than the other implementation methods described. A potential advantage is that for students with anxiety or any other maintaining factors, this OTR implementation method eliminates behaviors that could be stigmatizing during overt participation (Skinner, Pappas, & Davis, 2005).

Blackwell and McLaughlin (2005) describe guided notes as an effective tool for increasing students with disabilities overall academic performances. Simonson and colleagues (2008) also consider it to be an evidence-based practice for addressing classroom management needs based on the amount and quality of research relating to the subject matter. Teachers give students direct prompts for each academic response in the notes. This provides an individualized system and structure for responding to curriculum with direct prompting. There is however a limited amount of research related to the implementation of guided notes for students with disabilities, and no research on the effect of EBD students.

Guided notes can be used as an OTR intervention method by teachers giving student a guide to engage in lecture. This guide is paired with teacher verbal prompts to serve as the stimuli and initiation for the OTR interaction. When this prompt is initiated a student response is to fill in that area of the pre-printed guide to directly engage in instruction. The consequent contingency for guided notes can be demonstrated in a

similar manner to other methods of OTR implementation where the teacher directly gives students a form of reinforcement. However, in this method an additional potential reinforcer is that students now have an accurate and informative guide to assist in reviewing instruction outside of class (Blackwell & McLaughlin, 2005).

The limited research related to guided notes has left a significant gap in the knowledge of the instructional benefit for this OTR strategy with secondary students with EBD, however the initial studies that have addressed students with mild disabilities has been promising. The investigations conducted to date have unfortunately not targeted students with behavioral issues and there is limited information on the impact of problem behavior. Having a systematic structure for delivering and implementing OTR can also affect the rate. This is a broad area that has been researched, but only minimally with this high-risk population of students.

### **Summary and Purpose Statement**

Dismal outcomes have been documented for secondary students with EBD and these must be addressed. One proposed way to address these outcomes is by creating successful educational environments where students are engaged and foster positive teacher-student interactions. OTR has been demonstrated to address both of these factors (e.g., Blackwell & McLaughlin, 2005; Randolph, 2005; Ryan, Reid, & Epstein, 2004; Sutherland & Wehby, 2001). However, there is a dearth of research on the effectiveness of OTR at the secondary level for meeting the academic and social behavior needs of students within the unique structure of secondary environments. A paucity of literature exists addressing the comparison of OTR intervention strategies and the specific complexities and differences, which may exist solely within secondary environments.

Overall, the issues that Sprick and Borgmeier (2010) describe within secondary settings must be considered as unique features to the implementation of intervention at the secondary level. Although OTR has been demonstrated as having an overall positive impact on students with EBD and those with challenging behavior, variations of OTR strategies have been minimally investigated. In addition, the comparison of multiple methods at the secondary level has not been explored. Important influences on AET, problem behavior, and the consequent contingency (e.g., teacher praise) need to be explored. The possibility of OTR as an intervention to effectively address the academic and problem behaviors that many students with EBD face is an important aspect of future research.

While the various components of OTR as well as the variations in OTR strategies have demonstrated improved academic engaged time along with correlated decreases in problem behavior among elementary aged students, there is a clear dearth of work conducted at the secondary level. To address these gaps within the current literature, this study directly investigated the secondary level for students with EBD using a variety of OTR intervention strategies. Previous literature has documented increased academic engagement for students with EBD through faster presentation rates of OTR (Sutherland, Adler, & Gunter, 2003; Sutherland & Wehby, 2001), the use of class-wide peer tutoring (Bowman-Perrott, 2009; Ryan, Reid, & Epstein, 2004), and the use of response cards (Randolph, 2007). The use of guided notes has never been researched specifically with students with EBD but has been demonstrated as a promising practice for students with mild disabilities (Mastropieri, Scruggs, Spencer, Fontana, 2003). The implementation format for OTR and the components of the stimuli, response, and consequent-

contingency also need to be specifically described and analyzed within secondary settings.

The purpose of this study was to examine the comparative impact of three advocated OTR strategies on the academic engaged time of high school students with EBD. Specifically, the following research questions were addressed through the use of an alternating treatment design across teacher-student dyads in math class:

*Primary Research Question One:* Within a core instructional subject area of mathematics, what are the effects of differing types of OTR (guided notes, class-wide peer tutoring, and response cards) on student disruptive behavior and academic engagement?

*Sub Aim 1:* When OTR is implemented for students with EBD at the secondary level using different implementation methods (guided notes, class-wide peer tutoring, and response cards,) what is the rate of OTR provided to students within each method?

*Sub Aim 2:* When OTR is implemented for students with EBD at the secondary level, what is the effect of differing rates of OTR on student disruptive behavior and academic engagement?

*Secondary Research Question:* When OTR intervention methods are implemented for students with EBD at the secondary level, what is the effect on academic performance (i.e., classwork, homework, quiz and test scores)?

*Sub Aim 1:* When OTR intervention methods are implemented for students with EBD at the secondary level, what type of consequent contingency is provided to students for participation in OTR (i.e., increase in general

praise statements, increases in behavior specific praise, pace of instruction, other reinforcement, negative reinforcement)?

*Sub Aim 2:* When OTR intervention methods are implemented for students with EBD at the secondary level, does student academic achievement level effect classroom performance and student engagement rates?

## **CHAPTER II**

### **METHOD**

#### **Overview**

A single subject alternating treatment design across teacher-student dyads was used to investigate the comparative impact on student academic engaged time (AET) of three opportunities to respond (OTR) interventions; a) guided notes, b) class-wide peer tutoring, and c) response cards. In addition, teacher implementation rate of the three OTR conditions and student behavioral disruptions and week-by-week classroom academic performance were also measured. Student academic achievement levels, the various consequent-contingency components of OTR, feasibility and acceptability were also examined.

#### **General Procedures**

All students selected were recruited through the procedures established by the Center for Adolescent Research in Schools (CARS) project. A school liaison met with schools and provided them with an outline of specific student inclusion and exclusion criteria.

Criterion included:

1. Students must exhibit at least one problem with basic school functioning such as (a) absences greater than 10% from previous school year, (b) four or more office referrals for behavior infractions in the current or previous semester, two or more suspensions (in school or out of school) in current academic year, and (c) one or more “F’s” or two or more “D’s” in one of two most recent grading periods.
2. Students also had to have an Intelligence Quotient at or above 70 as measured by the Wechsler Intelligence Scale for Children-III (WISC-III; Wechsler, 1991),

Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999), Wechsler Intelligence Scale for Children-IV (WISC-IV; Wechsler, 2004), Wechsler Adult Intelligence Scale-IV (WAIS; Wechsler & Bellevue, 2008), or the Stanford Binet Intelligence Scale (SB, Stanford & Binet, 2003).

3. Students were in 10<sup>th</sup>-12<sup>th</sup> grade within the 2012-2013 school year.
4. Student's primary language was English.
5. Students who had a diagnosis of mental retardation/mentally handicapped, pervasive developmental disorder, or autism spectrum disorder were excluded from the study.
6. Students included were considered EBD if (a) identified as having EBD by the school system, or (b) identified as having EBD by teacher perception scores on a standardized behavior rating scale and indicated a clinically significant level of impairment.
7. Students included received services based on an Individualized Education Plan or 504 Plan if the student met all of the above criteria.

School personnel were asked to generate a list of students who met the general inclusion and exclusion criteria. From the generated list school personnel contacted possible eligible students' families to secure consent/assent. If both parents and students agreed to participate, an initial assessment to determine specific emotional and behavioral functioning was completed by CARS staff. Additional inclusion criteria to participate in the CARS project included a clinically at-risk or significant subtest scores on the parent, teacher, or child version of the Behavior Assessment System for Children-2 (BASC-2; Reynolds, & Kamphaus, 2004). If students were found eligible, a battery of assessments

was completed including parent, teacher, and student measures of social/emotional concerns as well as academic achievement. Specific to academic achievement, a Woodcock-Johnson (III) was administered for each subject. The outcome of the achievement assessment did not factor into eligibility criteria, but provided a baseline level of the students' achievement level.

Participants were selected from a public high school located in the Midwest. The targeted high school was selected among schools currently participating in a national randomized control trial examining the effectiveness of a range of interventions with secondary aged students with significant behavioral challenges. Parental and teacher consent along with student assent had been obtained through the larger research study.

Participating classrooms were selected based on the following criteria: a) an eligible student was enrolled in a core subject area classroom (either English or Math), b) the target student had documented behavioral concerns within the classroom, c) parent consent and student assent was secured as part of the larger project, and d) one possible indicated strategy based on a classroom assessment was increasing the OTR during instruction.

Teachers were contacted to participate in the present study when students met eligibility within any core content academic subject. After written consent was secured, teacher demographic data were collected including race, gender, age, years of experience, highest degree earned, areas of certification, and subject areas taught. The investigator met with interested teachers and discussed the specifics of the study and what would be required of them.

An initial requirement to determine what interventions were indicated was teacher participation in a standardized classroom assessment. The classroom assessment focused on the implementation of use of rules, routines, providing accommodations, and opportunities to respond. A direct observation piece is also included to determine rates of teacher-student praise, and student engagement. As part of the classroom assessment, teachers were observed during teacher-led instruction for a minimum of 3 days and frequency and duration data were collected on teacher and student behaviors. Based on all gathered information and conversations with the teacher interventions were recommended. Feasibility and acceptability of all indicated interventions was then discussed. Teachers were to rank order interventions based on their perceptions of priority, feasibility, and acceptability.

### **Subjects**

A total of five teacher-student dyads were initially selected for inclusion within the study. Eligible student schedules were collected and core subject area classroom teachers were interviewed to determine interest in participating in the study. Classrooms invited to participate in the study met inclusion factors outlined above (i.e., students receiving a failing grade or showing signs of failing and/or documented behavioral problems).

**Teachers.** Five teacher-student dyads were identified for participation. All teachers (4) were invited to participate based on their low rates of verbal, physical, or written OTR (less than 4 times per minute) and no observance of a specific OTR implementation strategy as recoded from the classroom assessment. All teachers provided limited opportunities for student active engagement during teacher-led

instruction. During this period of observation as part of the classroom assessment if a consequent-contingency was observed as part of an OTR sequences that did exist, the consequent-contingency was recorded. It was noted that all teachers demonstrated two types of consequent-contingencies during initial observation: instructional pace and praise.

Out of the five student-teacher dyads indicated, only two of the teacher-dyads a) ranked Opportunities to Respond as a number one priority, b) indicated they thought the intervention would be feasible and acceptable, and c) indicated a willingness to implement multiple methods of OTR during a single class period for the duration of the study. The teachers also agreed to allow direct observation for the duration of the study to determine impact of change on teacher and student behaviors. Two classrooms, with three teacher-student dyads qualified for inclusion within the study. All included teacher dyads were mathematics core content area teachers.

The two student-teacher dyads who were not selected for inclusion were English core content area teachers. These teachers co-taught their English classrooms with History teachers and had a class size that was double that of other instructional settings within the school. Both of the teachers ranked OTR as not feasible at the time and listed curriculum constraints as the primary reason. Additionally, one teacher did not feel that this intervention was acceptable either given the amount of curriculum that had to be embedded within the classroom period.

Teacher One was a twenty-two year old Caucasian female with a Bachelor's Degree within the area of mathematics. This was her first year teaching and she reported having only worked with two students with emotional and behavioral disorders over the

course of her career. Teacher One currently taught grades ten, eleven, and twelve as a general education mathematics teacher and had certification only within secondary mathematics grades nine through twelve.

Teacher Two was a twenty-eight year old Caucasian male with a Master's Degree. This was his first year teaching and he reported having never worked with any students with emotional and behavioral disorders in the past. Teacher Two currently taught grades ten, eleven, and twelve as a general education mathematics teacher and had certification only within secondary mathematics grades nine through twelve.

**Students.** Student One was a 16 year old African American/ Caucasian male in the eleventh grade enrolled in Teacher One's general education Algebra course. Student One was on a 504 plan for a medical diagnosis of Attention Deficit Hyperactive Disorder, Mood Disorder, and Oppositional Defiant Disorder. An intelligence quotient (IQ) of 123 was recorded within a previous evaluation placing him in the high average range. Data from the Behavior Assessment System for Children, Second Edition (BASC-2) self-report showed significant impact within the inattention/hyperactivity category with clinically significant classifications in the hyperactivity category and at-risk classification for attention problems. Teacher rating scales of the BASC-2 demonstrated clinically significant classification within externalizing problems, internalizing problems, school problems, behavioral symptoms index, and adaptive skills. Parent rating scales of the BASC-2 data found clinically significant classifications within externalizing problems and adaptive skills. At-risk classification was reported by Student One's parents within internalizing problems and behavioral symptoms index. On the Woodcock Johnson-3, Student One's standardized scores were all within the average range for reading and math

subtests (letter-word identification, reading fluency, calculation, math fluency, passage comprehension, and applied problems) ranging from 98 to 114 and had a standardized score of 105 in broad reading and a 109 within broad math.

For Student One, academic achievement and behavioral data from the previous year were recorded to show this student as receiving a failing grade within his Algebra class from the previous year. This course was his only failing grade from the previous school year. Student One had also received a total of 16 office referrals during the previous school year and had a total of 6 days of in-school suspensions.

Student Two was a 16 year old Caucasian male in the eleventh grade within Teacher One's Algebra course. Student Two had a special education diagnosis of Other Health Impairment due to a medical diagnosis of Attention Deficit Hyperactive Disorder. An IQ score of 112 was recorded within his special education evaluation placing his general intelligence within the high average range. Data from the BASC-2 self report demonstrated no areas of impairment. However, teacher reports from the BASC-2 demonstrated clinically significant classifications with the area of externalizing problems and at-risk levels within school problems, behavioral symptoms index, and adaptive skills. Parent reports from the BASC-2 reported at-risk levels within externalizing problems, behavioral symptoms index and adaptive skills. On the Woodcock Johnson-3 Student Two scored in the average range on four subtests: letter-word identification, calculation, math fluency, and applied problems ranging from 86 to 111. Below average scores were found within the subtest of reading fluency and passage comprehension ranging from 78 to 79. In the areas of broad reading and math, average scores were obtained. Academic achievement and behavioral data for Student Two from the previous

year showed five office referrals and a total of four failing grades across all core academic subject areas.

Student Three was a 15 year old Caucasian male in the tenth grade within Teacher Two's Algebra course. Student Three had a special education diagnosis of Other Health Impairment due to a medical diagnosis of Attention Deficit Hyperactive Disorder. An IQ was complemented as part of a special education evaluation for a standard score of 93 placing Student Three within the average range. Self-report data from the BASC-2 demonstrated at-risk classifications within internalizing problems, inattention/hyperactivity, and personal adjustment. Teacher reports showed at-risk classification of externalizing problems, school problems, behavioral symptoms index, and adaptive skills. Parent reports on the BASC-2 for Student Three show clinically significant classifications within the areas of externalizing problems, internalizing problems, behavioral symptoms index, and adaptive skills. Achievement scores for Student Three were all within the average to below average range. An average standardized score was received on the passage comprehension, letter-word identification, and applied problems subtests ranging from 88 to 95. A low average score of 77 was received on the reading fluency subtest. Below average scores were received on two math subtests of calculation and math fluency ranging from 52 to 63. A broad reading score of 85 was recorded a broad math score of 64 was recording placing Student Three in the below average and low average range for achievement.

Academic achievement and behavioral data for Student Three showed a total of three office referrals from the previous year. Student Three also had the highest number of failing grades from the previous year, having failed nine classes. These classes

included all core subject area classes and electives. Student Three had only passed one elective course, taking the course pass/fail, during the previous school year and had received no credit towards graduation during the entire school year.

### **Interventions**

Each targeted classroom implemented three OTR strategies, a) guided notes, b) response cards, and c) class-wide peer tutoring in a randomized order within a single 90 minute class period. These instructional strategies were selected based on their requirements for no additional tools or materials outside of what existed naturally within the classroom environment. Classroom teachers were trained to implement each of the three using the *Center for Adolescent Research in Schools Manual* (2012; See Appendix A). This manual provides a brief overview of each of the instructional strategy and contains an instructional planning guide for incorporating strategies within the classroom context. The investigator met with each of the teachers to train on key components, demonstrate what the OTR strategy looked like, and planned on how each of the three could be embedded in the current class curriculum. In addition, the investigator reviewed with the classroom teacher how to introduce each strategy and teach the appropriate student action for each. First, the investigator outlined for the teachers the importance of providing opportunities to respond in general during classroom instruction and gave specific examples on when and how to use. Next each OTR intervention was outlined and taught to teachers.

Guided notes were explained to teachers as a method for organizing curriculum for students and providing a method to accurately capture information from instruction and lectures. Possible positive outcomes of this intervention were also shared with teachers

and included increased retention of content by students, higher rates of active responding, and a student product for test preparation. Teachers were shown an example of a guided notes lesson and practiced talking through a piece of lecture cueing the investigator on when a guided notes interaction should be initiated. The teachers were also instructed to provide behavior reinforcement at the end of each guided notes OTR interaction. The teacher then practiced incorporating reinforcement as a consequence-contingency during the OTR interaction, after presenting the investigator with the guided notes cue.

Once teachers felt they understood guided notes and demonstrated mastery through practice, response card training took place. The investigator demonstrated two types of response cards, “pre-printed” and “write on.” While demonstrating how response cards could be used within a classroom the benefits of this intervention were outlined to the teacher by explaining that this form of OTR can be used as a formative assessment to help guide instruction and check for student understanding. After demonstrating response cards with the classroom teacher the roles were reversed and the classroom teacher practiced using the response cards with the investigator.

Following mastery of response cards, training in class-wide peer tutoring was introduced to the classroom teachers. Specific benefits of class-wide peer tutoring were described for the teachers including outcomes such as tutors gaining a broader understanding of concepts by teaching them and a sense of responsibility, enhanced self-esteem and self-confidence that can promote pro-social behaviors. A video from YouTube was shown to teachers where a contrived class-wide peer tutoring setup was shown with all of the core procedures: Review and introduction of material, partner pairing strategies, reciprocal roles, teams competing for highest point total, contingent

individual tutee points for correct responses, tutors providing immediate error correction, public posting of team scores, and social rewards for winning. Role-play practice between the teacher and investigator took place on what the pairing should look like with the investigator cueing core procedures from a provided checklist.

After explanation and practice of all components of each of the three interventions, a conversation between the investigator and teacher occurred about the materials that were needed for each and a plan to create the needed materials was developed. In addition, a specific plan for teaching each of the strategies to the students was developed and any potential barriers to fidelity of implementation were discussed. This information was recorded for the teacher to use within the Opportunities to Respond Worksheet (See Appendix A) that was used to help guide implementation. The researcher provided ongoing technical assistance to the classroom teacher during the intervention phase of the study. Prior to implementation, a decision rule to provide training booster sessions was set if integrity fell below 80% for any of the OTR intervention strategies. The booster sessions were designed to review the specific components required of the OTR intervention. Instructional pace and planning were also reviewed if the three implementation OTR strategies were not conducted within a single class session. Booster sessions also included role-plays of scenarios using the specific OTR intervention and brainstorming of solutions to individual problems by the researcher and teacher should unique situations arise. OTR integrity was measured separately for each individual OTR intervention strategy.

## **Experimental Procedures**

An alternating treatment design (Gast, 2010) was used to compare the three OTR procedures; guided notes, class-wide peer tutoring, and response cards. The effect of these interventions on student and teacher behavior in high school settings was measured through direct observation and archival data. This design allowed for investigation and comparison of varying types of OTR interventions against one another using the primary dependent variable of AET. This design also allows one to see the distinct functional relationship that potentially exists between teacher instructional presentation and student engagement rates.

Information on classroom performance was collected on a week-by-week basis to provide an overall measure of student academic performance. Consequent-contingency components were also recorded to determine the nature, type, and rate of reinforcement within secondary settings. Finally, feasibility and acceptability data were recorded across both students and teacher to determine the suitability of each OTR intervention within these general education classrooms. Data from these variables were analyzed through descriptive statistics and correlations specifically related to the sub aims of each research question.

Baseline data were collected until a clear trend or level was established. While traditionally not required in an alternating treatment design (Kazdin, 1982), baseline provided additional information on current use and rate of teacher led OTR and student level of AET. Baseline data were collected on student engagement and student disruptions during teacher led activities. Baseline data on student AET were collected until a consistent pattern emerged. Patterns were determined based on level, trend, and

variability. Specifically, trend was determined using a split middle design, level using a percentage of non-overlapping data points, and variability using a 15% range from the mean (Tawney & Gast, 1984). OTR implementation data were only collected during teacher led instructional activities. Teacher-led instruction includes any content that involves a didactical relationship of gaining information between teacher and student. This format includes class time related to academic content, the introduction of material, or reviewing previously learned material. Excluded instructional activities were independent classroom work or any instruction that was not related to academic instruction.

Following the establishment of a stable baseline, each OTR strategy was introduced daily within the class period through a randomly established order. After baseline, OTR strategy variations were introduced within the intervention phase. Interventions were done using a randomized rotation across the three OTR strategies (e.g., ABC, BCA, CAB, ACB, BAC, CBA). This method of presentation potentially controls for the possibility of carryover and sequencing effects across class periods (Gast, 2010). All three of the OTR intervention strategies were measured during each session. Each session consisted of a ninety-minute instructional class period. Each OTR instructional strategy was observed and recorded during the first ten minutes of implementation. Recording of teacher and student behaviors began after the first prompt to use the instructional strategy has been given by the classroom teacher (e.g., “please get your white boards out and ready” or “please take out your note outline and get ready to record responses as I review the material”). This distinct discriminative stimulus

preceding each treatment was given to make it clear to students which OTR condition was in effect.

Once a differentiated pattern of responding across the three OTR strategies was established, the most effective OTR was implemented in isolation during the final phase of the design to confirm the initial findings. A final phase of the design was implemented where the most effective or best treatment, of the intervention was continued. This decision was based on the level, trend, and variability of the primary independent variable, AET across the three strategies. Phase change decisions were made using visual analysis of level, trend, and variability of AET. The primary decision rule in selecting the best treatment was based on the overall level of data compared to baseline and other treatment conditions. Trendline and variance were also considered. Finally, if a clear determination of best treatment was not readily apparent, mean rate of student disruptions were also considered. This allowed for a replication of the most effective strategy and a solo demonstration of the impact of the best OTR intervention on student AET..

Observations were conducted across all phases of the design using a frequency and duration observational system that recorded both student and teacher behaviors. The use of an alternating treatment design allowed for the researcher to demonstrate the comparison of three OTR intervention strategies, a phase of the best treatment, and the functional relation of these strategies.

**Dependent Variables.** The primary measure across the study was direct observation of student academic engaged time using duration recording. Other measured variables included pre-assessment measures of emotional and behavioral concerns and

overall level of academic achievement, student demographics, teacher demographics, student classroom performance, and OTR strategy integrity checks and social validity assessments completed by both teachers and students. Academic engaged time was collected using the Multi-Option Observation System for Experimental Studies (MOOSSES; Tapp, Wehby, & Ellis, 1995) software. All observations were ten minutes in length during teacher-directed activities across baseline, intervention and replication phases.

In addition to duration of AET, the frequency of student disruptive behaviors was also measured. AET duration recording used mutually exclusive definitions of academic engaged time, active engagement and off-task. A student was considered academically engaged if they were actively or passively engaged with the academic instruction and not exhibiting any of a range of “off-task” behaviors (see Appendix B for operational definition). Student and teacher behavior was collected simultaneously.

Duration of AET served as the primary dependent variable to ascertain possible functional relationships between teacher use of OTR strategies and student behavior (adapted from the Center for Adolescent Research in Schools: M.O.O.S.E.S. Data Collector Coding Manual and Training Procedures, 2012). In addition, this observational system allowed the investigator to determine individualized rates of OTR use for each of the selected teacher-student dyads. It also provided information on additional contextual variables that may have affected the OTR intervention strategies. A simple frequency recording documented any type of consequent-contingency that was given to students during and OTR interaction.

Four data collectors were trained across a minimum of four training sessions. First, data collectors were trained on collecting frequency and duration data using paper and pencil methods of collection using videos of classroom problem behaviors. At this time, individuals learned specific observational codes in addition to both examples and non-examples of the recorded teacher and student behaviors (See Appendix B). Once data collectors achieved at least 80% reliability with the trainer on the video observations of problem behaviors they were given personal handheld electronic devices (PDA) with the MOOSES program to record observational data. Data collectors were then required to achieve an inter-observer agreement (IOA) of at least 80% during in-vivo coding of non-research classrooms with using the PDAs.

Once observers reached 80% or better during in-vivo practice, data collection in the target classroom began. IOA rates were collected in at least 30% of the total number of observations within target classrooms. If at any time data collectors inter-observer agreement (IOA) fell below 80%, they were retrained using the above procedures until appropriate percentage was met.

Key teacher behaviors related to OTR were measured to insure correct implementation and to potentially account for variation across dyads. The frequencies of the following variables were coded: a) opportunities to respond-group, b) opportunities to respond-individuals, c) praise, d) correction, and e) negative feedback, and any additional consequent-contingencies. Each of these variables is an essential component step in OTRs. Measurement of individual and group OTR provides a rate for presentations across target and all students. Teacher feedback (e.g., praise, correction, and negative feedback, and any additional consequent-contingencies) provides a rate and descriptive

method for exploration of the OTR consequent-contingency differences that may exist at the secondary level in comparison to past research conducted at the elementary level.

**Treatment Integrity.** All treatment integrity forms were developed as part of the *Center for Adolescent Research in Schools* (2012) and adapted for use within this project (See Appendix C). Specifically, integrity forms for the present study were broken into individual measures for each intervention method. Integrity checks were given on the first three days of OTR implementation and used a combination of direct observation data during OTR implementation and a checklist of critical components of each OTR intervention. If an OTR intervention was not demonstrated during one of the first sessions an integrity score of 0% was given and a booster session was conducted with the individual teacher. After an 80% established integrity level was met, OTR integrity was measured once a week for all three intervention methods during the remainder of the intervention phase. During the replication phase additional integrity data were collected. If at any time an individual teacher fell below the required 80% integrity rate, a booster session was conducted.

**Social Validity.** All teachers completed a 25 question acceptability measure which included 4 optional open ended questions at the conclusion of the intervention phase (See Appendix D). This component was implemented before the replication phase to eliminate potential bias once data were shared on the most effective strategy. Each of the 21 Likert scale questions was rated on a scale from one to seven and addressed areas of: a) training, b) acceptability, c) impact, d) cost, e) barrier to implementation, and f) maintenance. The final four questions were optional open ended questions asking teachers to report any specific changes in student/classroom performance, components of

the intervention they found to be most effective, components of the intervention that were not effective, and any potential barriers that existed with the implementation of the OTR intervention. In addition, students also completed a 6 question acceptability measure (See Appendix E). Each of the questions was rated on a Likert scale from one to seven. These questions addressed two areas of student perception: acceptability and effectiveness.

## CHAPTER III

### RESULTS

Direct observation data were collected and plotted for visual analysis across three student-teacher dyads. Using an alternating treatment design, visual analysis and related descriptive data comparison were examined to answer each research question. Both teacher and student behavioral data was collected for each session and plotted across three phases: baseline, alternating interventions, and then the best treatment. Level, trend, and variability were visually analyzed for comparisons across phases and between OTR strategies. Overall, two functional relationships were noted; a) there was a clear level change for all OTR strategies over baseline and b) response cards emerged as the most efficacious (see Figures 1 to 3). Other analyses include descriptive comparisons of week-by-week classroom performance, feasibility and acceptability reports, academic achievement, classroom behaviors and teacher use of consequent contingency. Results are further discussed by research question.

#### **Research Question One**

*Within a core instructional subject area of mathematics, what are the effects of differing types of OTR (guided notes, class-wide peer tutoring, and response cards) on student disruptive behavior and academic engagement?*

AET data were collected and visually analyzed across the three phases of the alternating treatment design, baseline, intervention and best treatment replication, and plotted into individual teacher-student dyad graphs (Tawney & Gast, 1984). Clear trend and level changes existed for all three participants. Although data variability was observed for all three students during both baseline and intervention phases, when best

treatment was provided alone a reduction in variability was observed. During the baseline phase all three students demonstrated significantly low levels of AET with moderate levels of disruption. Once the three different types of OTR were introduced (guided notes, class-wide peer tutoring, and response cards) all three students demonstrated overall higher percentages of AET. While the comparison across OTR strategies did not produce a clear superior treatment, overall, response card conditions had higher levels of AET. During the best treatment phase there was a lower level of variability within the data for all three students and AET occurred at a higher mean level in comparison to the alternating treatment condition confirming response cards as the most efficacious intervention. Individual student data are reported in more detail below.

**Student One.** During baseline, Student One displayed low levels of AET averaging less than 30% (mean = 23.3%) during all observed sessions. Visual analysis shows an overall slight increasing trend during the baseline phase with some variability but at a significantly low level. Disruption rates during baseline for Student One ranged from 0.26 to 1.2 per minute during with an average of 0.58 per minute. This rate indicates that on average during the baseline phase Student One disrupted the learning of others about once every two minutes. While there was a slight increasing trend during baseline, the decision to intervene was made for Student One because of the overall low rate of AET. In addition, student disruptions were occurring at a high level.

During the guided notes (GN) intervention condition of OTR, Student One displayed higher rates of AET than baseline with a mean of 46.61% of time (range 22.4% to 73.9%). Data values represented 50% of the observations of AET were not within the recommendation level of 80-90% for stability, indicating a high level of variability

(Tawney & Gast, 1984). AET during the guided notes intervention had the largest amount of variability across the three OTR methods. Visual analysis shows that during the guided notes condition an overall flat trend with a gradual increase toward the end of the phase. Mean AET represented an overall increase of 23.3% from the baseline condition. Student One's disruptions during guided notes ranged from 0.0 to 0.6 per minute with an average rate 0.22 per minutes (see Table 1), or an average of about once every five minutes.

Student One had a range of AET from 15.0% to 77.9% during CWPT with an average of 60.31%. Furthermore, 83.0% of the data values fell within the 15% mean range recommended by Tawney & Gast (1984) as evidence of stability. Visual analysis shows that the percentage of AET during this condition was at a higher level during this method of implementation than what had been observed within the guided notes, included less variability, and had an increasing trend. An overall mean increase of 37.0% of AET existed during the CWPT condition over baseline.

Student One's disruptions during CWPT ranged from 0.0 to 0.5 per minute with an average rate of 0.28 per minute. This average rate is slightly higher than within the guided notes intervention condition but with less variability. Similarly to guided notes, disruptions showed at an increasing rate during alternating intervention conditions. During CWPT, student disruptions decreased from baseline rates by 0.3 per minute.

During the response card intervention condition for Student One, a range of AET existed from 62.1% to 100% with an average of 76.06%. All AET data values (100%) existed within a 15% range from the mean performance level which surpassed the Tawney and Gast (1984) 80-90% recommendation of stability. Visual analysis shows

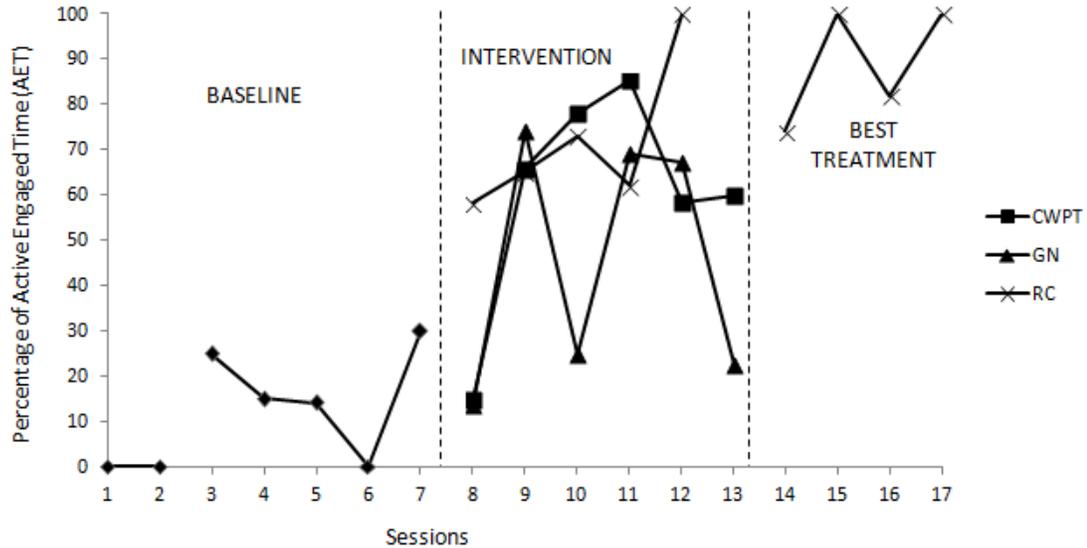
that during the response card condition AET was at a higher level than guided notes or CWPT and included the least amount of variability and an increasing trend. The mean level of AET during the response card condition was 52.76% higher than baseline. There was one less data point for response card intervention than the other intervention conditions due to the target student being called out of the classroom during the instructional period to meet with a school counselor related to a personal issue regarding his family.

Student One disruptions during the response card strategy was at a rate of 0.22 with a range of 0.0 to 0.6 per minute. This was a decrease of 0.36 per minute from baseline and occurred at a stable rate.

The response card intervention was determined the best condition for Student One because this condition demonstrated a high level with the greatest increasing trend of AET and the least amount of variability. In addition, the rate of student disruptions was the lowest during the response card condition and occurred at a stable rate. The best treatment condition of response cards demonstrated a mean AET of 88.8% with a range of 73.9% to 100%. All data values (100%) exist within the stability recommendation by Tawney and Gast (1984) of a 15% point range from the mean performance level. Visual analysis shows that the level for the best treatment was higher than any of the levels during the alternating intervention phase and demonstrated a slightly increasing trend. Student mean disruption rates were also at 0.07 per minute with a range of 0.0 to 0.2 per minute, or a mean disruption frequency of seven times out of every 100 minutes. This rate was lower than any condition and demonstrated a decreasing trend.

**Figure 1**

*Percentage of Time Student One was Academically Engaged During 10-Minute Observations of Mathematics Instruction Before, Throughout Three Different OTR Intervention Conditions, and During the Best Treatment*



**Student Two.** Student Two had seven sessions of baseline data collection.

Student Two's AET had a mean percentage of 16.98% (range of 0% to 36.8%). Two of the observation periods demonstrated rates of no AET, and one session with just 2.1% of engaged time. Visual analysis shows that when student percentages did increase to the highest observed level there was very little variability indicating two distinct levels within the baseline phase of low AET or no AET. AET engagement percentages for Student Two were low but did demonstrate variability outside of the stability recommendation by Tawney and Gast (1984). All data values during baseline existed around two distinct low levels with an overall gradually increasing trend.

Disruption rates for Student Two during the baseline condition ranged from 0 to 1.53 per minute during observations with an average of 0.46 per minute, or a disruption frequency of once every two minutes. This rate indicates that on average during the

baseline phase Student Two disrupted the learning of others a little less than once every two minutes. Similar to Student One, across baseline a decreasing trend of student disruptions existed with significant variability, but at an overall high level.

During the guided notes intervention condition Student Two demonstrated AET percentages with a range of 0.0% to 89.9% of time with and an average mean of 33.8%. Only 57% of observations were recorded within the stability criteria outlined by Tawney and Gast (1984) indicating a high rate of variability. Data also showed a decreasing trend at an overall low level. However, during the guided notes intervention condition for Student Two there was an increase in AET by 16.82%.

Disruption rates for Student Two during the guided notes intervention condition averaged 0.46 per minute (range 0.0 to 1.5). This rate is very similar to the baseline phase of student disruptions once every two minutes and included similar variability, but demonstrated a decreasing rate.

During the CWPT Student Two's average AET was 52.5% (range 26.5% to 89.6%). Seventy percent of the observations fell outside of the stability criteria of 15% from the mean for AET indicating significant variability during observations. However, the average AET percent of time was 35.52% higher than the baseline, at a median level with a decreasing trend. CWPT demonstrated higher average rates of AET than guided notes.

Student disruption rates during the CWPT intervention occurred on average 0.36 (range of 0.0 to 1.5), or a frequency disruption of once every three minutes. This was a decrease from baseline by 0.1 disruptions per minute. Student disruptions occurred during CWPT at a high rate with significant variability and at an increasing trend.

Student disruptions rates during CWPT were less than both guided notes and baseline conditions.

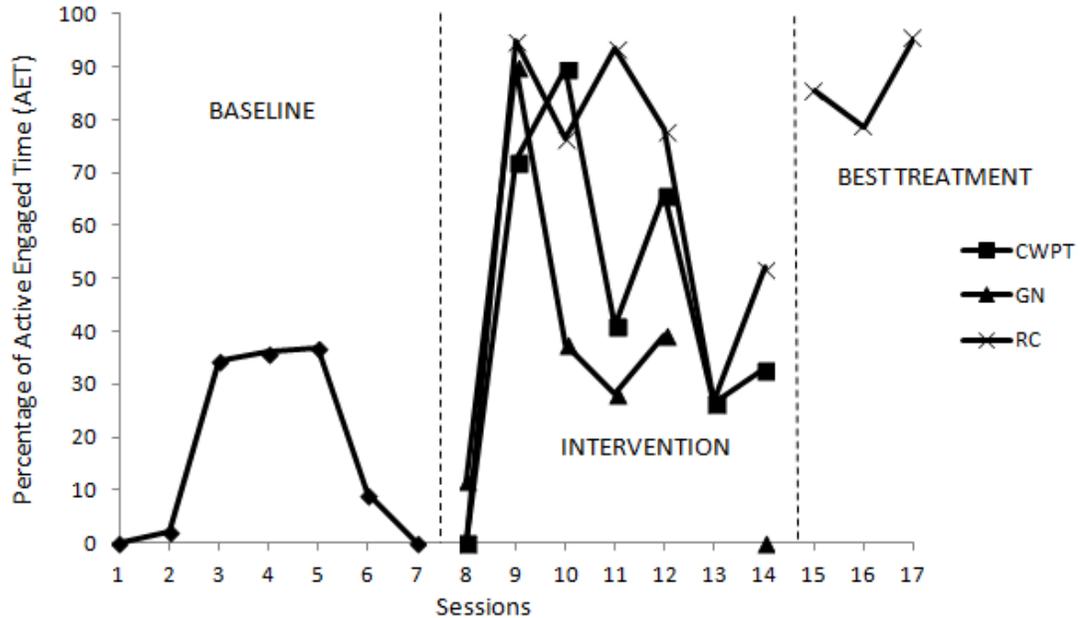
During the response card condition rates of AET were between 0.1% and 94.9% of time with an average rate of 60.37%. Although the data values were highly variable and unstable according to Tawney and Gast (1984), only one data point occurred at a rate less than the mean baseline AET. During the response card condition, the AET mean rate was 43.39% higher than the baseline condition and also 24.78% higher than the CWPT condition. AET data demonstrated a flat trend across the phase.

Student disruption rates during the response card condition occurred at a mean of 0.42 per minute with a range of 0.06 to 1.0, with a mean frequency of less than once every two minutes. Although this range is less than the guided notes and CWPT condition it still occurred at a similar rate to baseline. Student disruptions also showed an increasing trend across the response card condition.

The best treatment condition for Student Two was the response card condition based on the highest overall level of AET. An average rate of AET during the best treatment condition was 90.93% of time with a range of 81.8% to 95.8% of time. The mean level of engagement was higher than any of conditions during the alternating treatment design and 100% of observations were within the stable range recommended by Tawney and Gast (1984) as 15% from the mean level. Visual analysis showed AET rates were also stable and demonstrated a marked difference from baseline. Disruption rates were also at an average mean rate per minute of 0.2 with a range of 0.1 to 0.3 per minute with a slight increasing trend with a mean frequency of about once every five minutes.

**Figure 2**

*Percentage of Time Student Two was Academically Engaged During 10-Minute Observations of Mathematics Instruction Before, Throughout Three Different OTR Intervention Conditions, and During the Best Treatment*



**Student Three.** Student Three’s mean percentage of AET during baseline was 20.05% (range 0.0% to 50.6%). This student had 6 sessions of baseline data collection. One day of data collection was missed because of student truancy. Three days of data collection during baseline recorded 0% AET. Student Three demonstrated the highest rate of variability across the three subjects with a decreasing trend of AET during the baseline condition.

Disruption rates for Student Three averaged 0.60 per minute with a range of 0.26 to 0.93 during baseline, or a mean frequency of about twice every three minutes. The average rate indicates that this student disrupted the learning of others almost twice every three minutes. In contrast to the first two students, this student also demonstrated the highest average rate of disruptive behavior. Student Three also had lower rates of variability and an increasing trend of disruptions.

The decision to intervene the alternating OTR conditions was made because even though variability existed the highest percentage of AET was still low and was occurring at a decreasing trend. Student disruptions during this time were happening at a high rate with an increasing trend.

During the guided notes intervention condition, Student Three had an average AET of 54.78% (range 17.3-100%). AET percentages also indicated high levels of variability for data values outside of the standard recommendation by Tawney and Gast (1894). Guided notes data showed a gradually increasing trend with a median level of AET. Overall mean percentage of AET for Student Three during the guided notes intervention condition was 9.98% higher than baseline.

Student disruptions during the guided notes condition existed at a mean rate of 0.29 per minute and ranged from 0.0 to 0.7 per minute, or a mean frequency of once every three minutes. Student disruptions had significant variability during this condition but occurred at less than half the rate from the baseline condition, 0.60 to 0.29 per minute, of from twice every three minutes to once every three minutes. Student disruptions still occurred at a high rate during the guided notes condition and with an increasing trend.

During the CWPT intervention four sessions of this condition were observed for Student Three. The student's AET mean during CWPT was 60.35% of time with a range of 0% to 100% of time. Only 25% of the data values were within the stability recommendations by Tawney and Gast (1984), and displayed a decreasing trend. However, despite the variability and decreasing trend there is a mean AET percentage increase over baseline of 15.55%.

Student Three's disruption mean rate during CWPT was 0.3 per minute ranging from 0.0 to 0.5 per minute, or a disruption frequency of once every three minutes. This range is less than baseline and guided notes. The mean student disruption rate is also half of what it was during the baseline condition and very similar in rate to the guided notes condition.

The response card intervention condition had the highest mean percentage of AET at 78.8% of time with a range of 64.7% to 100%. Of the data values 75% of the data points are within a 15% range of the mean. The one data point that was not was at 100% of time. Visual analysis showed that this intervention condition demonstrated the highest level of AET with an increasing trend, and the most stability over baseline, guided notes, and CWPT.

However, student disruption rates for response cards were the highest of any of the intervention conditions, but still below the baseline level. A mean rate of student disruptions during the response card intervention was 0.42 per minute and ranged from 0.18 to 1.0 per minute, or a frequency of a little less than once every two minutes. Despite the disruption rate being greater than guided notes and CWPT, there is still a 0.18 per minute decrease from baseline.

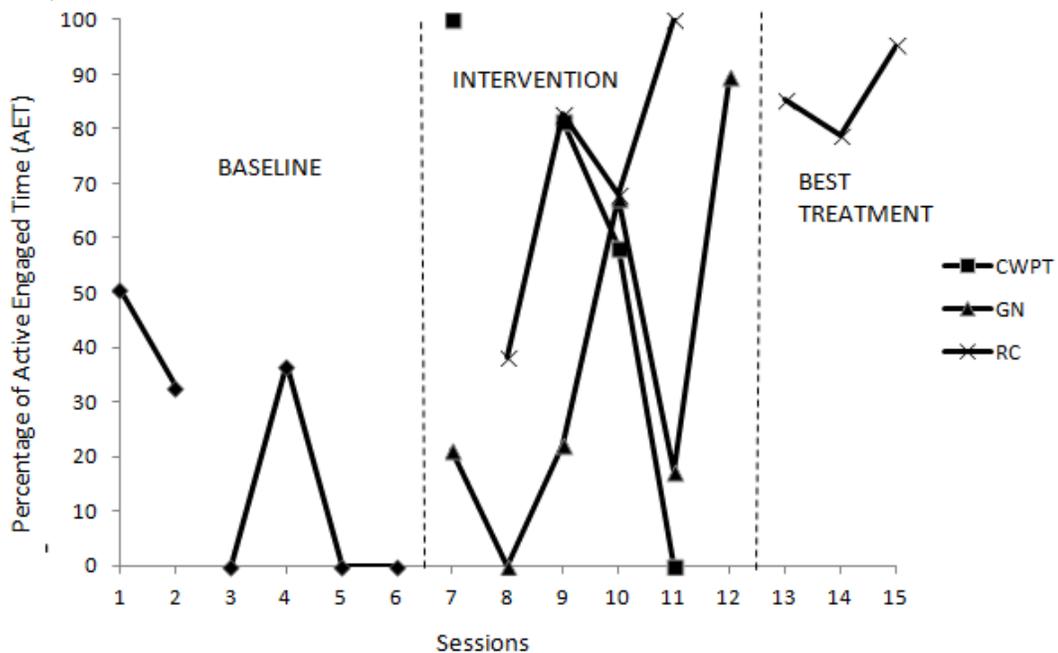
Student Three's data showed clear and marked changes during the intervention phase. AET percentages were largest during the response card intervention and demonstrated a higher level of performance than the other two intervention methods. Similar to Students One and Two, the decision for best treatment was made because of a high level and had a greater increasing trend of AET than the two other intervention

conditions and Student Three’s mean disruption rate was still below the mean rate during baseline.

During the best treatment phase average AET was 86.4% of time with a range from 78.7% to 95.3%. All of the data values were within 15% from the mean, the stability recommendation by Tawney and Gast (1984). Visual analysis showed AET data had an increasing trend with a higher level than any of the conditions within the intervention phase. Student disruptions were also occurring at a lower rate compared to any of the intervention conditions at 0.13 with a range of 0.0 to 0.3.

**Figure 3**

*Percentage of Time Student Two was Academically Engaged During 10-Minute Observations of Mathematics Instruction Before, Throughout Three Different OTR Intervention Conditions, and During the Best Treatment*



**Table 1***Mean Student Disruption Rates Across Each Phase and Condition*

		Student One	Student Two	Student Three
Baseline		0.58 (0.26 - 1.20)	0.46 (0.00 - 1.53)	0.60 (0.26 - 0.93)
Alternating Treatment Phase	Guided Notes	0.22 (0.00 - 0.60)	0.46 (0.00 - 1.50)	0.29 (0.00 - 0.70)
	Class wide Peer Tutoring	0.28 (0.00 - 0.50)	0.36 (0.00 - 1.50)	0.30 (0.00 - 0.50)
	Response Cards	0.22 (0.00 - 0.60)	0.42 (0.06 - 1.00)	0.42 (0.18 - 1.00)
Best Treatment		0.07 (0.00 - 0.20)	0.20 (0.10 - 0.30)	0.13 (0.00 - 0.30)

**Research Question One, Sub Aim 1**

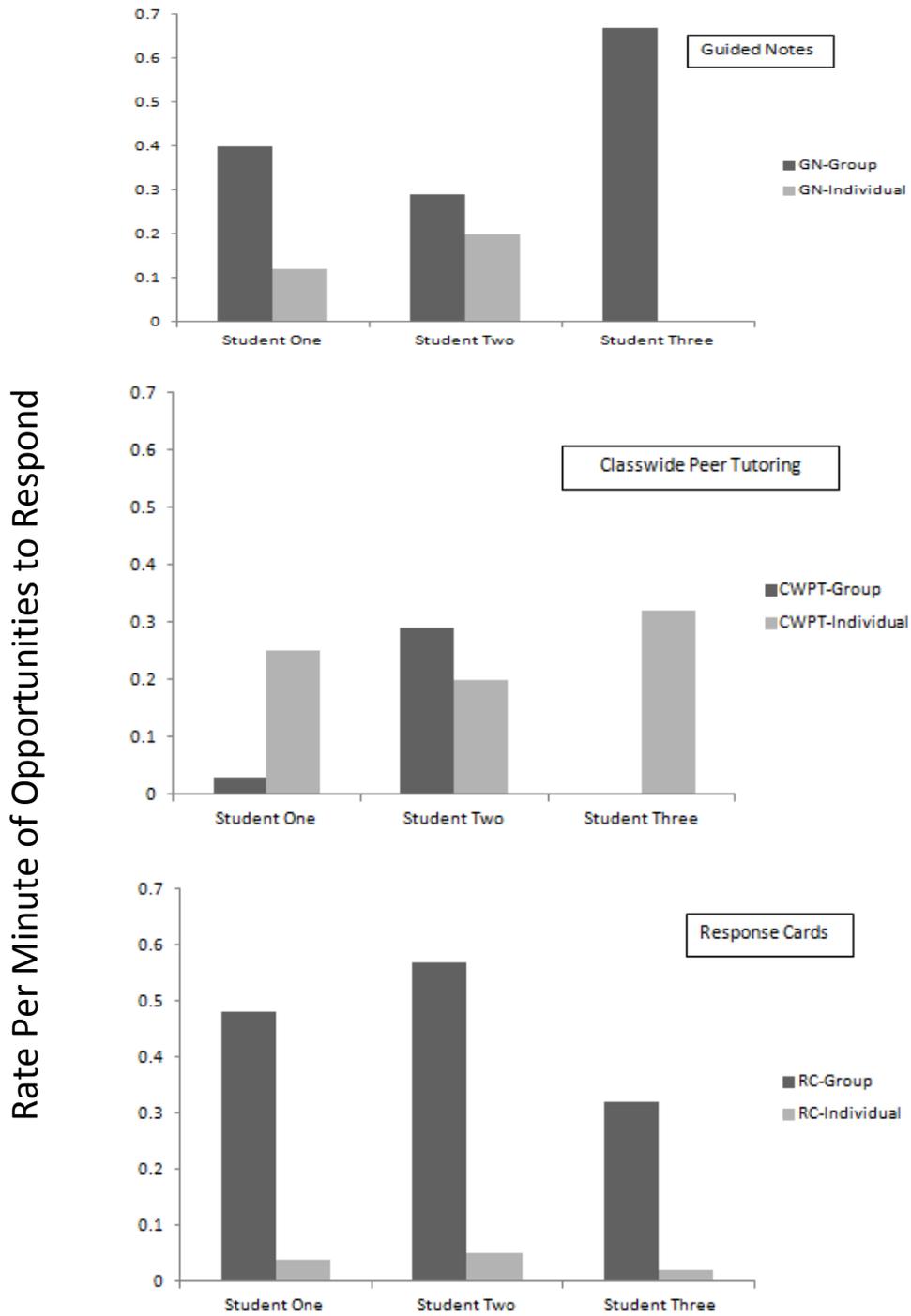
*When OTR is implemented for students with EBD at the secondary level using different implementation methods (guided notes, class-wide peer tutoring, and response cards) what is the rate of OTR provided to students within each method?*

Across students the highest rates of group opportunities to respond existed during the guided notes intervention method with an average rate per minute of group OTR of 0.48 per minute and a range of 0.36 to 0.67 per minute (see Figure 4). A close second for rate of group OTR was during response cards with a mean rate of 0.46 per minute and a range of 0.32 to 0.57 per minute. The lowest rates of group OTR was observed during class-wide peer tutoring with a mean rate of 0.10 per minute and a range of 0.0 to 0.29 per minute.

For individual rates of OTR, class-wide peer tutoring was the highest with an average rate of 0.26 per minute with a range of 0.2 to 0.32 (see Figure 4). Both guided notes and response cards demonstrated much lower rates of individual OTR. Guided notes had a mean rate of individual OTR of 0.07 per minute with a range of 0.0 to 0.12 per minute, and response cards had an average rate of 0.04 per minute with a range of 0.3 to 0.05 per minute.

**Figure 4**

*Teacher Rates of Individual Student and Group OTR for Each Intervention Condition*



### **Research Question One Sub Aim 2**

*When OTR is implemented for students with EBD at the secondary level, what is the effect of differing rates of OTR on student disruptive behavior and academic engagement?*

A two-tailed correlation design was analyzed across 81 observations to determine if a relationship existed between disruptive behavior, academic engagement, and the rate of OTR. The analysis indicated the only significant finding was within the relationship between percent of academic engagement and rate of disruptive behavior. These two variables were negatively correlated ( $r = -.365$ ) at a significance level of 0.01. No other variables were significant when correlated with one another.

### **Research Question Two**

*When OTR intervention methods are implemented for students with EBD at the secondary level, what is the effect on academic performance (i.e., classwork, homework, quiz and test scores)?*

All students demonstrated variance across each performance criterion. However, the greatest academic performance gains were demonstrated across all three students within the classwork criterion. Individual student average percentages for each week of the studies implementation are described below.

For Student One homework completion increased during the alternating treatment design condition by an average percentage of 28.33 but decreased during the best treatment phase (see Table 2). The mean percentage score for classwork for Student One continued to rise from baseline to the best treatment phase. Overall the percentage gain across the study during all phases was 90%. Quiz percentage of correct response

increased by 31.65% from baseline during the intervention phase, but fell 2.2% during the best treatment condition. Finally, for Student One, his test average decreased during the intervention phase, but increased over baseline percentage during the best treatment, resulting in an overall 4.15% gain. Student One showed the most gain within classwork increasing at over 90%.

**Table 2**

*Student One's Weekly Classroom Performance Percentage Average as Recorded in the Teacher's Gradebook*

<b>Design Week</b>	<b>Homework</b>	<b>Classwork</b>	<b>Quiz</b>	<b>Test</b>
Baseline Week 1	80.83	0	43.33	90.95
Baseline Week 2	96.68	0	46.82	-
Baseline Week 3	0	0	0	57.95
<i>Baseline Mean</i>	<i>59.17</i>	<i>0</i>	<i>30.05</i>	<i>74.45</i>
Intervention Week 1	100	66.67	54	69.29
Intervention Week 2	100	75	-	-
Intervention Week 3	50	75	-	-
Intervention Week 4	100	100	89.4	-
<i>Intervention Mean</i>	<i>87.5</i>	<i>79.17</i>	<i>71.7</i>	<i>69.29</i>
Best Treatment Week 1	00	100	65	78.6
Best Treatment Week 2	84	80	74	-
<i>Best Treatment Mean</i>	<i>42</i>	<i>90</i>	<i>69.5</i>	<i>78.6</i>

Note: (-) indicates that no academic performance criterion was recorded during the designated week.

Student Two had homework means higher than baseline during both the alternating intervention phase and during the best treatment phase. However, both gains were only slightly above baseline levels. For classwork the mean percentage performance for the alternating intervention phase and best treatment phase raised over 30% and stayed fairly stable. Quiz scores and test scores both decreased for Student Two from baseline during the alternating intervention and best treatment phases. Similar to

Student One, Student Two showed the largest gain of classroom performance during the classwork criterion.

**Table 3**

*Student Two's Weekly Classroom Performance Average as Recorded in the Teacher's Gradebook*

<b>Design Week</b>	<b>Homework</b>	<b>Classwork</b>	<b>Quiz</b>	<b>Test</b>
Baseline Week 1	83.33	75	73.21	-
Baseline Week 2	0	54	95.25	89.17
Baseline Week 3	65	25	81.25	-
<i>Baseline Mean</i>	<i>74.17</i>	<i>51.33</i>	<i>83.24</i>	<i>89.17</i>
Intervention Week 1	100	-	76.19	65.91
Intervention Week 2	81	100	-	-
Intervention Week 3	78.33	80	-	-
Intervention Week 4	100	66.7	68.05	-
<i>Intervention Mean</i>	<i>89.83</i>	<i>82.2</i>	<i>72.12</i>	<i>65.91</i>
Best Treatment Week 1	80	80	56.67	72.14
Best Treatment Week 2	-	85	-	-
<i>Best Treatment Mean</i>	<i>80</i>	<i>82.5</i>	<i>56.67</i>	<i>72.14</i>

Note: (-) indicates that no academic performance criterion was recorded during the designated week.

Student Three demonstrated a decline in homework mean percentage scores during the alternating treatment condition, but increased during the best treatment condition as compared to baseline. Classwork also declined during the alternating treatment condition, but raised by 32.57% during the best treatment phase, the largest increase of performance percentage. In quiz scores, the mean performance kept at a similar level ranging from 80% to 96% across the entire study. Finally, test scores were only recorded for two of the intervention phases, baseline and intervention, and showed a decrease from baseline during the intervention phase by 17.12%.

**Table 4**

*Student Three's Weekly Classroom Performance Percentage Average as Recorded in the Teacher's Gradebook*

<b>Design Week</b>	<b>Homework</b>	<b>Classwork</b>	<b>Quiz</b>	<b>Test</b>
Baseline Week 1	100	73.3	87.5	68.8
Baseline Week 2	100	55.66	-	70.59
Baseline Week 3	90	43.33	-	60.0
<i>Baseline Mean</i>	<i>96.6</i>	<i>57.43</i>	<i>87.5</i>	<i>66.46</i>
Intervention Week 1	80	6.66	80	43.88
Intervention Week 2	100	60	-	-
Intervention Week 3	20	80	80	43.87
Intervention Week 4	0	52	80	-
<i>Intervention Mean</i>	<i>50</i>	<i>49.65</i>	<i>80</i>	<i>49.34</i>
Best Treatment Week 1	100	80	80	-
Best Treatment Week 2	100	100	96	-
<i>Best Treatment Mean</i>	<i>100</i>	<i>90</i>	<i>88</i>	<i>-</i>

Note: (-) indicates that no academic performance criterion was recorded during the designated week.

### **Research Question Two Sub Aim 1**

*When OTR intervention methods are implemented for students with EBD at the secondary level, what are the types of consequent contingency provided to students for participation in OTR (i.e., increases in praise, pace of instruction, other reinforcement, tangible)?*

Throughout all 81 observation points, a total of 378 consequent contingency components of the OTR interactions were observed. During an average 10 minute observation a mean rate of 4.6 full OTR interactions were initiated by the teacher. During OTR only 4 types of consequent contingencies were provide: 1) praise, 2) pace of instruction, 3) reinforcement with extra credit point or grades, and 4) tangible reinforcers such as candy.

The use of praise was only given by teachers 73 times or a total of 19.3% of the possible opportunities for the component of consequent contingencies. The most often used consequent contingency was pace of instruction. This was used a total of 255 times or a total of 67.5% of all OTR interactions. Giving a naturally occurring reinforcer within the classroom, such as a credit towards in-class participation or even extra credit, was used 43 times or 11.4%. The lowest rate of consequent contingency used was a tangible reward and this was done only 8 times or 2.1% of the opportunities.

### **Research Question Two Sub Aim 2**

*When OTR intervention methods are implemented for students with EBD at the secondary level, does student academic achievement level effect student engagement rates and academic performance?*

All students' standardized subtest scores on the Woodcock Johnson-3 and broad reading scores were correlated against mean student engagement rates for each type of OTR intervention strategy and academic performance across each phase of study. There were only two significant correlations between any of the factors on the two-tailed Pearson correlation. The first significant correlation was between classroom performance and a student's standardized score on the applied problems subtest within the Woodcock Johnson-3. This was positively correlated at a level of 0.999 at the 0.05 significance level. The other significant correlation was a positive correlation between student engagement during baseline and passage comprehension. This was also positively correlated at a level of 0.999 at the 0.05 significance level. Student's individual scores on each of the Woodcock Johnson-3 subtests are reported below.

### **Inter-Observer Agreement**

Across all observations, 30.09% of the total included a second observer to measure reliability through inter-observer agreement (IOA). IOA was checked frequently across the study and agreement was high across all conditions of the study with a mean of 95.8% agreement. During baseline, rates ranged from 86% to 100% of agreement with an average rate of 93.3% agreement. The alternating treatment condition had a total of 12 observations and ranged from 88% to 100% with an average IOA of 96.2%. Finally, during the best treatment intervention three observations were recorded for IOA with a total average rate of 97.9%.

### **Social Validity**

Teacher perception data were taken across four areas for analysis: Acceptability, effectiveness, disruptiveness, and cost (see Table 5). Teachers were given a social validity survey for each of the OTR components. Students were only given one social validity questionnaire to record overall perceptions. Across both teachers, response cards was found to be the OTR intervention which was rated the most acceptable and the most effective and scored the same as guided notes with respect to disruptiveness to the classroom routine (5.8) and cost of implementation (6.75). Overall, Teacher One rated OTR implementation methods more positively than Teacher Two. Scores from both teachers demonstrated effectiveness and acceptability as a strength of the best treatment condition.

**Table 5***Social Validity Ratings of Teacher Perceptions for Opportunities to Respond Instructional Interventions*

Social Validity Category	Ratings	Guided Notes			Classwide Peer Tutoring			Response Cards		
		Teacher1	Teacher2	Mean	Teacher1	Teacher2	Mean	Teacher1	Teacher2	Mean
Acceptability	N	10	9*		10	9*		10	9*	
	Mean	7	4.8		5.4	3		6.6	5.6	
	Range	(7-7)	(2-7)	5.9	(2-7)	(2-7)	4.2	(6-7)	(4-7)	6.1
Effectiveness	N	4	4		4	4		4	4	
	Mean	4	3		4.25	2.0		4.75	4.25	
	Range	(3-5)	(2-4)	3.5	(3-5)	(2-4)	4.125	(4-5)	(3-6)	4.5
Least Disruptive	N	3	3		3	3		3	3	
	Mean	6	5.6		5.6	5.9		5.6	6.0	
	Range	(4-7)	(5-6)	5.8	(4-7)	(4-6)	5.3	(5-6)	(5-7)	5.8
Least Costly	N	2	2		2	2		2	2	
	Mean	7	6.5		6.5	5.5		7	6.5	
	Range	(7-7)	(6-7)	6.75	(6-7)	(4-7)	6	(7-7)	(6-7)	6.75

Note: \*Teacher 2 refrained from answering question 15. *How willing were other staff members to carry out this intervention?*

Student social validity data were collected across two categories: Acceptability and effectiveness using a 7 point Likert scale. The Acceptability category contained a total of six questions. Effectiveness on changing behavior was only addressed through one question within the survey. Students rated all Opportunities to respond implementation methods on one form. Student One rated the acceptability of OTR as a 7.0 the highest rating it could receive. He also thought that the effectiveness of the intervention helped him to improve in school. Student Two found the acceptability of OTR to have a mean score of 6.2 with a range of 6 to 7 across the 6 questions within the acceptability category. For the effectiveness category Student Two believe that this intervention helped him at a level of 5.0. Student Three rated the acceptability of OTR at 4.2 citing a lowest score of 3.0 on a question that asked if there were things that he did not like about the intervention package. He did think that OTR interventions helped him some (4.0) to improve in school.

## **Intervention Fidelity**

Intervention fidelity data were collected during the first three days of intervention conditions for each OTR intervention. All teachers scored 100%, meeting each of the check listed intervention components. Data indicate that both teachers were able to implement each of the three instructional approaches of implementing OTR (guided notes, class-wide peer tutoring, and response cards) at a high level.

## **CHAPTER IV**

### **DISCUSSION**

Students who display emotional and behavioral disorders (EBD) are increasingly educated within general education environments and less frequently in pull out or self-contained classrooms (Trout et al., 2003). The defining characteristics of this population reflect the struggles that these students have to achieve in any environment. Academic and behavioral success is a critical component for effectively addressing students with EBD's educational needs. However, most of the educators that are providing instruction to these students are those with minimal training in behavior and classroom management (Reschly & Christenson, 2006). Educating students to insure academic growth, post secondary education, and limit problem behavior has been an issue which has plagued educators for decades (Trout et al., 2003; Wagner, 1992).

Results of this study extend the literature base in several ways. Previous literature using an alternating treatment design have been focused on comparing one intervention strategy, or a mixed responding method to a traditional method of response such as choral responding (e.g. Blackwell & McLaughlin, 2005; Haydon, Conroy, Scott, Sindelar, Barber, & Orlando, 2010). Although, using a design incorporating a traditional method as compassion has shown favorable outcomes for increasing academic engaged time, the literature suggests more research studies focus on the comparison of multiple methods of implementation compared to the natural teaching environment (Haydon, Mancil, & Van Loan, 2009). The current study is the first of its kind to compare the selected types of OTR strategies: a) guided notes, b) class-wide peer tutoring, and c) response cards.

Investigating each of these strategies at the same time provides comparison and

insight into the specific relationship of each method on teacher and student behavior. Although all strategies were shown to be effective on increasing the rate of AET for students, the response cards condition had the greatest impact. In addition, asking teachers to implement all three intervention methods during one instructional period gave teachers and students the opportunity to make direct comparisons on the acceptability, feasibility, and effectiveness of each OTR method (Haydon, Mancil, & Van Loan, 2009; Hayling, Cook, Gresham, State, & Kern, 2008). One explanation for the increase of students' AET during the intervention condition is that the essential components of the intervention required teachers to change their traditional instructional format by eliciting much higher rates of responding for all students in the classroom.

Much of the current research base around creating effect environments to support student academic and behavioral needs has been within elementary settings. There are limited amounts of research within secondary settings and the unique characteristics which may impact the effectiveness and feasibility of implementing OTR strategies within these settings. Immediacy exists to support investigation into effective supports at secondary levels. Numerous negative educational academic and behavioral factors have created secondary settings where students have low school engagement, poor attendance, low academic achievement, conflicts with adults and peers, disruptive behavior, mental health issues, failing grades, high dropout rates, and school suspension (Lane et al., 2006, Merrell & Walker, 2004; US Department of Education, 2008). This study is one of a handful of other studies that look at addressing universal OTR strategies within the high school setting. A larger comparison across multiple settings, instructional areas, and

teacher-student dyads is needed to increase the generalization of these OTR strategies for implementation within secondary settings.

The current study expanded the current literature base for OTR by directly examining the specific components of the OTR interaction: stimuli, response, and consequent-contingency. The nature of high school classrooms has been shown to be unique from other educational settings and even more unique within each individual school subject areas (Grossman & Stodolsky, 1995). Specifically examining the reinforcement provided by teachers during the consequent-contingency component outside of praise has been recommended within research on OTR (Skinner, Pappas, & Davis, 2005) but has not been specifically examined. In previous research implementing OTR strategies, a consequent-contingency component of praise was required by definition of the OTR interaction. Allowing teachers to not have constraint on the type of consequent-contingency provided gave specific insight into acceptable reinforcers and the natural preference of teachers within secondary setting. The consequent-contingency component should be analyzed more extensively to determine if these results are generalizable across multiple instructional contexts and student-teacher dyads.

This study also looked at the rate of OTR within secondary settings. Different from previous research, increased OTR rates did not show any relationship to academic and behavioral outcomes. Previous reviews of literature have shown that increased academic and behavioral outcomes for students with EBD are directly related to increases in the rate of OTR (Sutherland & Wehby, 2001). However, with the limited amount of literature that exists within these reviews in high school settings, this conclusion may not be true within secondary students.

Implementation of universal interventions to meet students' with EBD needs is critical for ensuring academic and social success. Opportunities to Respond (OTR) has been researched at the secondary level but within limited environments and using limited implementation strategies. Thus, the purpose of this study was to extend the existing research base by examining the effects of three OTR intervention strategies within secondary settings for students with emotional and behavioral disorders. In addition, week-by-week classroom performance, student academic achievement, social validity, and the use of various consequent contingencies were also explored.

Presented below are explanations of major findings from the current investigation. Outcomes of each research question and sub aim are discussed in relation to previous OTR research, expansion of the known knowledgebase, and limitations of the present study. Implications for both research and practice are discussed.

### **Major Findings**

*Research Question One: Within a core instructional subject area of mathematics, what are the effects of differing types of OTR (guided notes, class-wide peer tutoring, and response cards) on student disruptive behavior and academic engagement?*

In the current study all students showed higher rates of AET from baseline when any of the OTR intervention strategies were implemented. Through direct observation, levels of AET were at a higher level than during baseline for all students across all interventions. Previous research has demonstrated changes from baseline comparing OTR methods (e.g., Sutherland, Adler, & Gunter, 2003). However, the conditions measured have been primarily within a reversal design comparing a single condition to baseline. In addition, when comparing multiple conditions, the conditions typically only

used one of the OTR intervention strategies and a more traditional strategy of increasing OTR, such as choral response (e.g., Hayden, Conroy, Scott, Sindelar, Barber, & Orlando, 2010). Student disruptive behavior also showed a decrease from baseline by comparing the mean disruption rate during intervention conditions. Further investigation into the rate and type of student disruptions during each of the intervention strategies may provide insight within the maintenance of high rate of disruptive behavior for students during the intervention strategies.

When only the best treatment was implemented, which was the response card strategy for all students, an even higher level of student AET was observed. Since the highest level of AET and lowest levels of behavioral disruptions existed during the best treatment phase of response cards. There may have been an additive effect that existed when multiple methods were previously presented.

Within all OTR intervention strategies there was a significant amount of variability. During the alternating intervention condition only Student One had strategies which fell within the Tawney and Gast (1984) recommendations for stability. Those interventions which were considered stable were class-wide peer tutoring and response cards. However, all three students did meet the stability criteria during the best treatment phase when just the response card OTR intervention strategy was implemented. This conclusion may show that implementing only one OTR intervention strategy at a time is more conducive to improving student AET and reducing student disruptions.

*Research Question One Sub Aim One: When OTR is implemented for students with EBD at the secondary level using different implementation methods (guided notes, class-wide*

*peer tutoring, and response cards) what is the rate of OTR provided to students within each method?*

Implementation of OTR occurred at the highest rate for all students during the guided notes intervention method with an average rate per minute of group OTR (0.48), followed by response cards (0.46) and finally class-wide peer tutoring (0.10). However, average individual OTR rates during the guided notes strategy (0.07) and response card (0.04) were much lower.

If group and individual OTR were combined together to represent the most possibility for engagement, guided notes had the highest amount of response opportunities possible with an average rate of 0.55 per minute, followed by response cards at 0.50 per minute, and then class-wide peer tutoring at 0.36 per minute. Within a previous article examining rate of OTR by Sutherland, Adler and Gunter (2003) focusing solely on increasing teacher use of OTR without incorporating a specific strategy, results indicated rates of up to 3.52 per minute were optimal to demonstrate improved student responding. While focused on OTR rates within elementary schools the Sutherland et al. article demonstrated that OTR rates by teachers can increase to a rate per minute similar to that suggested by the Council of Exception Children (1987). All of these suggested rates have been considered from literature primarily at the elementary level. Even the highest rates of OTR implementation at the secondary level observed within the present study did not come close to the recommended rates. Given the present study did improve student performance similar to past research conducted at the elementary level, further research at the secondary level is clearly needed to determine optimal rates appropriate for high school instruction.

*Research Question One Sub Aim Two: When OTR is implemented for students with EBD at the secondary level, what is the effect of differing rates of OTR on student disruptive behavior and academic engagement?*

No correlation was found when examining the relationship of student factors on differing rates of OTR, but between the factors of disruptive behavior and academic engagement a relationship did exist. One factor which was unable to be measured but may have a potential impact on rate of OTR, academic engagement, and disruptive behavior is the difficulty of the OTR response. Responses to OTR ranged from one word answers to complex responses requiring the synthesis and analysis of multi-step problems and situations. The amount of time required to answer the difficulty range of possible OTR questions directly impacts rate. In addition, if OTR are presented at a slower rate, it has been found in previous research to increase student disruptions (Haydon et. al., 2010). Additionally, students are less likely to disrupt when they are engaged with OTR (Sutherland, Wehby, & Yoder, 2002). All of these factors together may be why no correlation existed. In addition, since much of this research has been done at the elementary level, this conclusion may not be true for secondary settings.

Using a correlation design a significant negative relationship was found ( $r = -0.365$ ) when comparing a student's AET and disruptive behavior. This finding is similar to previous research that academic engagement is an incompatible variable with student disruptions (Deno, 1998). Since student AET rates were based on the implementation of OTR and much variability existed within AET, it is important to investigate other factors that may have influenced these results. In addition, AET was analyzed as a combined variable across all intervention methods. There may have been more impact related to

one OTR implementation method over another. Also, student data showed increases in AET towards the end of the alternating treatment intervention phase. This increase may be because student AET did not immediately respond to environmental changes or that it took environmental changes to be in place across consistent days before a stable change in student behavior existed. During the best treatment phase, student AET increased to an even higher level. This increase may be based on response to a specific intervention and actually improved when there was not a combination of multiple interventions.

*Research Question Two: When OTR intervention methods are implemented for students with EBD at the secondary level, what is the effect on academic performance (i.e., classwork, homework, quiz and test scores)?*

Overall, the greatest gain across all students existed within the classwork criterion for student engagement. Across all three students the gain was close to a 30% increase in academic performance. A consistent measure did not exist for each of the criteria within academic performance. Student academic performance was only measured when a permanent product was created that was kept for a grade. Given the lack of a consistent measure, results should be interpreted with caution. However, even the measure of recorded grades provides promise on the relationship of academic performance to OTR but a more systematic measure would have to be used to clearly understand the relationship between OTR and academic performance, but would require further investigation.

In previous research a consistent record of academic performance has been analyzed through the measurement and accuracy of responses during the OTR interaction (e.g., Lambert, Cartledge, Heward, & Lo, 2006; Sutherland, Alder, & Gunter,

2003). A higher rate of accuracy has also been demonstrated to relate to higher presentation rates of OTR (Sutherland & Wehby, 2001). Increasing rates to an optimal level in a classroom could produce significant long-term impact in influencing course grades. However, the specific rate needed within high school settings has not yet been established.

*Research Question Two Sub Aim One: When OTR intervention methods are implemented for students with EBD at the secondary level, what are the types of consequent contingency provided to students for participation in OTR (i.e., increases in praise, pace of instruction, other reinforcement, tangible)?*

Much of the previous research within the area of OTR has defined the consequent-contingency portion of the sequence. This has been defined as teacher praise (i.e., Simonsen, Myers, & DeLuca, 2010). However, given the significant low rates of praise at the secondary level it was important to examine the exact manifestation of the consequent contingency. Atypical reinforcers outside of the traditional method of praise have been demonstrated to be effective for changing student behavior within previous research (Skinner, 2002; Skinner, Papas, & Davis, 2005). Data demonstrated that instructional pace (67.5%) was actually the highest method of consequent-contingency provided. This rate of the consequent-contingency component of the OTR interaction reflects on the nature of secondary settings and possibly the transactional model discussed in Chapter One. Also, the consequent-contingency of praise was considered a specific variable of the CWPT intervention strategy. Therefore, the rate of praise given as a consequent-contingency also takes this specific step as part of the reported percentage and may be inflated.

Teacher and student interactions are influenced by one another within the classroom (Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008). Within the transactional model, a student and teacher as members of the same environment effect each other's behavior. Teachers that require and prompt academic engagement from students can have an adverse effect on both individual's behavior. This interaction can escalate student problem behavior making the prompt itself aversive and in return the escalation of student problem behavior creates a pattern of negative reinforcement where teachers no longer attempt to engage students to reduce the likelihood of student problem behavior (Partin, Robertson, Maggin, Oliver, & Wehby, 2010). In addition students may be reinforced for demonstrating problem behavior by the removal of the teacher's expectation for academic engagement. However, this pattern of reinforcement can also be demonstrated by the encouragement of positive behavior. With the implementation of the selected OTR strategies an individual student is not singled out for a required response, and the use of peers to gain answers and information is even encouraged. Using these supports, a prompt becomes less intrusive for students and may lessen the aversion of engaging with instruction and responding to academic prompts. Additionally, teachers within the current study used a similar form of reinforcement for appropriate behavior (pace of instruction—or removing the academic prompt) as they had for negative behavior. The process of moving on and continuing instruction serves as a motivator for students. The same motivation occurs in both situations of eliciting engagement. However, with the use of OTR strategies, the prompt for a student engaging with instruction may be less aversive for the student and teacher by students giving appropriate responses and the teacher responding with a similar consequent-contingency.

Engagement rates for the target student increased just by the teacher receiving an appropriate response. This outcome supports an area that needs additional research and investigation. The interaction between teachers and students may similarly exist for student's demonstration of both positive and negative behaviors. Exploring this relationship between teacher and student behavior would be an expansion of previous literature that has demonstrated teacher engagement of students solely based on the child's ability (Good, 1970).

*Research Question Two Sub Aim Two: When OTR intervention methods are implemented for students with EBD at the secondary level, does student academic achievement level effect student engagement rates and academic performance?*

Student academic achievement was an interesting variable that was explored in relation to OTR. Only two areas were found to be significantly significant and existed at a level which at a level which is highly indicative of a Type 1 error, and should be interpreted with caution. The first correlation was between student's classroom performance and a student's scores on the applied problems subset of the Woodcock Johnson-3. This finding may have been significant simply based on a student's mathematical abilities in applying math calculations to problems. Many of the responses required during the OTR interaction were directly related to this skill because of the core targeted academic subject.

The second achievement finding was a significant positive correlation between student engagement during the baseline condition and passage comprehension. This relationship may also simply relate back to when students are first developing skills

within the early elementary grades and the relationship that has been established within research to poor academic growth (Hinshaw, 1992).

Both of these findings should be acknowledged as descriptive patterns within the data. There is a high possibility of a Type 1 error with the small sample size that was analyzed to answer the research questions, and the correlation effect size. Although, these results should be interpreted with caution as it does create questions about the existence of a relationship between AET and academic achievement.

Individual student academic performance must also be considered and investigated further related to specific OTR intervention strategies. It is possible that specific academic performance issues may impact the ability to engage with an OTR intervention. An example of this would be the necessity of written language skills and abilities within the guided notes intervention. Given that guided notes responses ranged from a simple one word answer to complex sentences and reflection, there is a wide variance of prerequisite skills that are needed to be able to effectively respond and engage with the specific intervention.

### *Social Validity*

Teacher rates of acceptability and feasibility were similar, but Teacher One rated all of the intervention more favorably. However, both Teacher One and Teacher Two found response cards to be the most acceptable intervention followed closely behind by guided notes, and finally class-wide peer tutoring. Although class-wide peer tutoring was found to be more effective by the mean combined score, it was also rated as more costly and disruptive, and therefore least acceptable. Within the open-ended responses questions as part of the social validity measure Teacher One reported that:

The peer tutoring did not provide desirable results. Part of the issue was the timing. Students had already fit in to my normal pattern and the amount of training was more burdensome than helpful thus performance really made no change.

The social validity component of implementation of these intervention strategies is especially important within secondary settings given secondary teachers typically have had minimal classroom and behavior management training (Reschly & Christenson, 2006). The ease and acceptability is a significant factor for consideration on the sustainability of incorporating these interventions within general education settings to meet the needs of diverse learners.

#### *Intervention Fidelity*

The strong fidelity outcomes are especially encouraging. Given a minimal amount of training and technical assistance, both of the teachers were able to incorporate all three interventions within their existing structures and curriculums. The strong fidelity of implementation provides support for being able to implement multiple OTR interventions within the complex nature and diverse settings that are found at the high school level.

#### **Limitations**

There are some specific aspects of the present study that must be taken into account when interpreting the results. Since this study was conducted within a larger study, it is unknown the impact that additional intervention may have had on student and teacher behaviors. Increased support existed within the school setting and the target student each had an adult within the school as a mentor within an intervention package. Students were also receiving social skill instruction as part of the larger project. All of these interventions may have directly affected increased academic performance or student

classroom behaviors. Implementing this intervention in the future without the potential additive effect of the larger study would provide information on the specific effectiveness of these interventions.

Both of the teachers who participated within this study were first year teachers. The individual teacher's willingness to implement and adapt instruction may be a direct reflection of lack of established teaching style. In addition, low baseline rates may also be influenced by the teacher's unfamiliarity with teaching. Impact and the improvement of student behavior may also have been influenced by other environmental components of instruction that were extraneous to the researched variables and interventions. Also, teachers who consented to participate were only within one core subject area. Therefore, generalization to secondary settings as a whole is unclear. Future research should address replication to other academic subject areas (i.e. English, History, and Science), settings, gender, and grades.

Classroom performance measures were also used based on the recording of assignments within the teacher's gradebook. Although, this is a permanent product that is commonly used to analyze a student's performance within education, there were many weeks where no performance measure within the specific category was recorded. Therefore, there was a small sample of classroom performance pieces and the overall performance increases must be interpreted with hesitation. Also, the nature of the design chosen does not allow for determination about the specific intervention, or combination of interventions that lead to the overall improved classroom performance outcome. Implementing each strategy in isolation for an extended period of time would allow for analysis of the direct impact of each intervention on classroom performance.

## **Implications for Practice**

All OTR intervention methods demonstrated positive impact on student's academic and social behavior and teacher rates of effective practice. A systematic approach for teaching secondary general education teachers, who are the primary instructors of most students with EBD, is needed to promote awareness and implementation of these methods. Although research is still minimal within the secondary level, results from past research and the present study are encouraging and combined with the work to date at the elementary level indicate OTR as a promising practice in high school. Incorporating these OTR methods, in particular response cards, within high school settings may lead to more positive outcomes for students and to help break some of negative interactions that currently take place between high-risk students and teachers.

Creating systems and supports within schools and districts where these strategies can be incorporated within existing curriculum is crucial. Schools and teachers need to have access to the materials to implement each of these interventions. Also, to help address the cost of implementation of these interventions, creating materials, which could be shared across multiple teachers who teach similar courses, is suggested. Schools that create these established systems will create a natural environment that encourages use of promising practices and has the potential to create collaborative teams for implementing these practices.

While not explored in the present study, the use of performance feedback directed to the students based on daily observations may also have helped to increase student engagement and decrease disruptions (Simonson, Myers, & DeLuca, 2010). Students

were unaware during this research study about what variables were being measured and what levels they had achieved beyond standard feedback given by the teacher (e.g., grades). Teacher performance feedback related to student behavior may also impact outcomes implementation of the consequent-contingency of praise and increasing the rate of OTR (Partin et. al., 2010).

### **Implications for Research**

The positive outcomes for each of the studied OTR intervention strategies warrant further investigation individually, collectively, and comparatively. Comparison of these interventions across more student-teacher dyads and across classrooms will help to provide a larger evidence-base on the impact of these interventions on student and teacher behaviors. All of the student-dyads which elected to participate contained students without an IDEA diagnosis of EBD, but displayed high levels of clinically significant problem behavior. Also, all three students had a medical diagnosis of Attention Deficit Hyperactive Disorder (ADHD). This homogeneity of the sample may indicate that these intervention methods are more acceptable for teachers that have this population of students. Research related to OTR and ADHD is significantly limited and has been only minimally investigated using traditional methods of choral response (Skinner & Shapiro, 1989) or within a broad category of mild disabilities.

Further areas for exploration are the direct effect of these strategies on teacher rates, the effect on long-term classroom performance, and additional study of the range of consequent-contingencies used. Knowledge of the most beneficial rate of implementation is another critical component that has yet to be definitively determined

for secondary settings, and is crucial to developing knowledge for both researchers and practitioners of the acceptable dosage of this intervention.

Additionally, a more consistent measure of classroom performance would allow for there to be a direct cost benefit analysis of the impact that these interventions could make across a student's secondary educational career. Since passing grades within credit courses are of primary importance in secondary schools (Wagner, 1996), additional research on OTR and other related strategies to promote AET and academic outcomes is needed.

This study demonstrated positive outcomes in increasing student and teacher engagement. However, teachers were not required to maintain the best treatment phase after a stable rate was established. Similar to previous research, both teachers did not seem to be reinforced by the increased rates of student engagement and seemed more comfortable with a traditional lecture instruction (Armendariz & Umbreit, 1999). It is unknown if the teachers continued to implement any of the OTR strategies after the conclusion of the study. Future research should investigate the maintenance of incorporating intervention strategies for the remainder of the school year, within other class periods, or during the next school year.

Finally, since this study only addressed one core subject area it is important for investigation across multiple core subject areas to determine if similar results exist. Each academic area within a secondary school serves as a separate instructional context (Grossman & Stodolsky, 1995). Knowledge of the differences within the instructional areas could serve to define this intervention as a universal effective practice within secondary environments.

## **Conclusion**

The purpose of this study was to investigate the effects of three opportunities to respond (OTR) intervention strategies on student and teacher behaviors. In addition, feasibility and acceptability was studied, the influence of student academic achievement, and the specific use of the consequent-contingency component of OTR. The present study contributes to the evidence-base to support the use of OTR interventions for students with emotional and behavioral disorders. In particular, the use of response cards lead to the highest rates of AET. Although the results are encouraging, additional replication of the present study as well as expansion within high school settings is clearly needed.

## VITA

Reesha Adamson received a Bachelor of Arts degree and Master of Arts and Education degree from Truman State University in Kirksville, Missouri. Reesha started her career as a special education teacher for students with Emotional and Behavioral Disorders at the elementary level. Additional experience included instructing within a Juvenile Justice Facility and serving as a school district's Behavior Support Specialist. Her current areas of interest for students with Emotional and Behavioral Disorders include implementing evidence-based practices within secondary settings and the use of incorporating behavior management strategies within general education environments.

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Appendix A

*Opportunities to Respond Intervention Manual*

Adapted from Center for Adolescent Research in Schools. (2012, August). *Classroom Procedures Manual*. Bethlehem, PA: Lehigh University.

**Implementation Procedures**

**Opportunities to Respond (OTR)**

Opportunities to respond are a collection of instructional strategies which improve student engagement and classroom behavior by maximizing the effectiveness of teachers' instruction. Opportunities to respond are designed to engage students in academic content through planned instructional activities which elicit participation from all students simultaneously. Rather than simply asking more questions of individuals, opportunities to respond set the occasion for all students to provide an answer.

Research has shown that these strategies increase students' active engagement and improve academic outcomes. In addition, opportunities to respond are associated with students who receive more positive reinforcement for appropriate behavior, and have fewer opportunities to engage in inappropriate behavior. The strategies and their associated improvements in classroom functioning ultimately result in more efficient use of instructional time. Teachers should be encouraged to incorporate this intervention into their lesson planning at least weekly.

A collection of instructional strategies comprise the "Opportunities to Respond" intervention, each with different amounts of preparation time and required materials. Use the Worksheet to guide the teacher toward an option with which will he or she will find initial success before trying more resource-intensive strategies:

- Guided Notes
- Response Cards
- Peer Tutoring-Classwide Peer Tutoring

**Materials**

Opportunities to Respond Teacher Handout  
Opportunities to Respond Worksheet  
*Intervention Training and Implementation Form*  
*School Intervention Rating Form (SIRF) -- Teacher*  
*School Intervention Rating Form (SIRF) -- Student*

Procedure
<ol style="list-style-type: none"> <li>1. Provide teacher with Opportunities to Respond Teacher Handout</li> <li>2. Use the Worksheet to select a strategy that will be successful in the classroom</li> <li>3. Help the teacher develop a lesson to introduce the procedures to the class</li> <li>4. Determine a date to introduce and implement the strategy and plan to observe</li> <li>5. Follow the <i>Intervention Training and Implementation Form</i></li> <li>6. Administer the <i>SIRF</i> to both teacher and student</li> </ol>

students with a means of actively participating during a lecture. Guided notes are teacher-prepared handouts that provide an outline of the lecture, which students complete during class by writing key facts, concepts, and/or relationships. Advantages to consider include the following:

- Improved retention of course content
- Active responding and interaction with lesson content by students
- Allows students to self-monitor their understanding of material by highlighting the key concepts, facts, and relationships. As a result, students are more likely to ask the teacher for clarification of key points
- A standard set of accurate notes for later study is the end result
- Better lessons are prepared with consideration for students' comprehension
- Help teachers stay on task with the lesson

### **Response Cards**

Response cards are cards, signs, or items simultaneously held up by all students to display their responses to a question or problem presented by the teacher. Response cards are an easy-to-implement alternative to the traditional method of choosing individual students to answer questions posed by the teacher.

There are two basic types of response cards: preprinted and write-on. When using preprinted cards, each student selects from a personal set of cards the one with the answer he wishes to display. Examples include yes/true and no/false cards, molecular structures, parts of speech, constitutional amendments, and formulas. A single preprinted card with multiple answers can also be given to each student (e.g. a card with clearly marked sections identified as igneous, metamorphic, and sedimentary). The student responds by holding up the card with his/her fingers pinching the part displaying the answer. Colored clothespins can also be used to indicate the answer.

When using write-on response cards, students mark their answers on blank cards that are erased between learning trials. Personal dry erase boards—sometimes available at dollar stores—provide a fairly inexpensive, re-usable option. To make your own dry

erase boards, purchase a sheet of laminated bathroom board (available at builders' supply stores). A set of 40 durable write-on response cards can be made from a 4 by 8 foot sheet of board. Ask the builders supply store to cut the sheet into 9 x 12 inch response cards. Distribute dry-erase markers for students to write their answers.

Suggestions for implementation:

- Model several question and answer trials and give students practice on how to use response cards.
- Maintain a lively pace throughout the lesson; keep intervals between trials short.
- Give clear cues when students are to hold up and put down their cards.
- Students can learn from watching others; do not let them think it is cheating to look at classmates' cards.
- For preprinted response cards:
  - design cards to be easy to see
  - make cards easy for student to manipulate and display
  - begin instruction on new content with a small set of fact/concept cards, gradually adding additional cards as students' skills improve.

## Peer Tutoring

Peer tutoring represents a class of practices and strategies that employ peers as one-on-one teachers to provide individualized instruction, practice, repetition, and clarification of concepts. These approaches have been shown to increase engagement, but also have a variety of benefits for both peer tutors and peer tutees:

- Tutors gain a deeper understanding of the material by having to teach it
- Learning strategies may generalize to other academic tasks
- Tutors may experience increased sense of responsibility and concern
- Tutors may experience enhanced self-esteem and self-confidence
- Tutoring may promote pro-social behaviors among students.

### Classwide Peer Tutoring (CWPT)

During CWPT sessions, all students are paired with a partner and each person is assigned to one of two competing teams. Tutor and tutee roles are reciprocal in that halfway through a session, tutors become tutees and vice versa. The teacher's role during these sessions is to supervise and monitor students' responding. Teachers are concerned with the quality of tutoring, and they award bonus points to tutors for using correct teaching behaviors. The teachers are concerned that the tutees are working quickly and receive immediate feedback on the accuracy of their responses. Because of these components, CWPT is a system that engages the active academic responding of students focused on a specific subject matter lesson.

Students commonly spend 60% to 80% of a session engaged in reading, writing, and talking about the subject matter. At the secondary level, CWPT is focused on practice, skill building, and review of subject matter.

CWPT reorganizes individual class members into tutor-tutee pairs working together on two competing teams. Tutees earn points for their team by responding to the tasks their tutors present. Tutors earn points from the teacher according to their implementation of the tutoring role.

The core procedures include:

- Review and introduction of new materials to be learned
- Unit content materials to be tutored
- New partners each week
- Partner pairing strategies
- Reciprocal roles in each session
- Teams competing for the highest team point total
- Contingent individual tutee points for correct responses
- Tutors providing immediate error correction
- Public posting of individual and team scores
- Social reward for the winning team

Added to these core procedures are subject matter specific procedures that accommodate peer teaching. For example, when applied to passage reading, tutees read brief passages from the curriculum to their tutor. The tutor provides points for correctly read sentences (2 points per sentence) and error correction (1 point per accurate correction). When applied to reading comprehension, the tutee responds to who, what, when, where, and why questions provided by the tutor concerning the passage. The tutor corrects these responses, awards points, and gives feedback. Similar variations are applied to vocabulary, mathematics, and silent reading, as well as seatwork activities.

CWPT lends itself to both teacher-prepared and standard commercial curriculum materials. At the end of the two tutoring sessions, students report their point totals to the teacher, who records them on their team chart. The totals are compared and both teams are applauded—the winning team for winning and the losing team for an excellent effort. Following this are transitional activities to the next lesson to be taught.

Research on CWPT has shown that students at-risk and with mild disabilities acquire literacy skills at a faster rate, retain more of what they learn, and make greater advances in social competence when using CWPT compared to conventional instructional methods.

## Opportunities to Respond Worksheet

Use the following questions to guide your discussion with the teacher when determining which OTR strategy to use. Leave a photocopy of your notes on this worksheet to as a record of your discussion and the next action steps.

A. What topic or subject area is most problematic for student engagement or retention of material?

--

B. What resources are available (teacher time, paraprofessional time, whiteboards, computer software)?

--

C. To what formats are students most likely to respond well? Not so well?

(e.g., Team vs. Partner vs. Individual; Teacher vs. Student-Directed; Points vs. No Points)

--

D. Which OTR Strategy will you use?

--

E. What materials need to be acquired?

--

F. How will you introduce the strategy to the students?

--

G. When will you introduce and use the strategy with your class?

--

## SAMPLE WORKSHEET

### Opportunities to Respond Worksheet

Use the following questions to guide your discussion with the teacher when determining which OTR strategy to use. Leave a photocopy of your notes on this worksheet to as a record of your discussion and the next action steps.

A. What topic or subject area is most problematic for student engagement or retention of material?

*English - vocabulary and comprehension*

B. What resources are available (teacher time, paraprofessional time, whiteboards, computer software)?

*Para has time available for prep 3<sup>rd</sup> period*

*Teacher has time available for prep 7<sup>th</sup> period*

*No computer access; No whiteboards; Dry erase markers can be acquired*

C. To what formats are students most likely to respond well? Not so well?

**(e.g., Team vs. Partner vs. Individual; Teacher vs. Student-Directed; Points vs. No Points)**

*School policy discourages students from earning points for classwork*

*Students would be fine with any format*

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<b>D. Which OTR Strategy will you use?</b>
<i>Response Cards</i>
<b>E. What materials need to be acquired?</b>
<i>Photocopy vocabulary words onto index cards; 1 set for each student</i>
<b>F. How will you introduce the strategy to the students?</b>
<i>I will take 5 minutes to explain the task and expectations for use of the response cards; students will be able to ask questions and then we will begin a review.</i>
<b>G. When will you introduce and use the strategy with your class?</b>
<i>Monday, December 6</i>

## Appendix B

### Operational Definitions of Teacher and Student Behaviors

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Teacher Behaviors	Operational Definitions
Opportunity to Respond-Group	<p>Teacher asks a question to the entire group, including our target student, related to the academic or behavioral curriculum, or asks the group to demonstrate a skill or understanding of material. The required response to questions can be verbal or gestural – and skills may be demonstrated by doing or showing completed task. All OTRs must be related to the academic or behavioral curriculum. Wait until teacher completes request before you code as OTR. Rhetorical questions that are not meant to solicit a student response are not OTR's.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"><li>• <i>Teacher asks questions addressed to all students and looks for volunteers to answer, e.g. “Who can list three events that took place just prior to the invasion of Normandy?” “Is Sudan a landlocked country?” “I am thinking of two specific precious metals that are found in this area, who can help me find an answer?”</i></li><li>• <i>Teacher asks the class to give a thumbs up if they agree with a problem worked on the board.</i></li><li>• <i>Teachers is asking the class to name three expectations for working in groups.</i></li><li>• <i>Teacher asks all students to hold up their finished products.</i></li></ul> <p><u>Non-examples:</u></p> <ul style="list-style-type: none"><li>• <i>Teacher is asking rhetorical questions, not really expecting students to answer (e.g., “Does everyone understand?”).</i></li><li>• <i>Teacher is giving a specific direction/ command (e.g., “Now complete the worksheet by yourself.”, “Try the next problem on your own.”)</i></li><li>• <i>Teacher is asking the class a question but immediately picks a student to answer (e.g., “Is Denmark a country? Chelsea, is Denmark a country?”).</i></li><li>• <i>Teacher asks questions (provides supports in the form of verbal questions or visual aids) to help students complete guided notes during lecture. (i.e., This is a prompt, not an OTR because there is no opportunity to demonstrate a response directly to the teacher).</i></li></ul>
Opportunity to Respond-Individual	<p>Teacher asks a <u>question</u> related to the lesson, or asks the group to demonstrate a skill or understanding of material directed at the target student. The required response to questions can be verbal or gestural – and</p>

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skills may be demonstrated by doing or showing completed task. All OTRs must be related to the academic or behavioral curriculum. Wait until teacher completes request before you code as OTR.

Examples:

- *“Lyle, explain the difference between a sedimentary and an igneous rock.”*
- *“Mike, show us all how to work this algebra problem.”*
- *“Ian, what branch of government is responsible for making laws?”*
- *“Please explain further your rationale, Grace.”*
- *“Bill, please share with the class what we need to do when working in groups.”*
- *Teacher asks questions to the whole class and looks for volunteer to answer, naming our target student: e.g. “Who can list three events that took place just prior to the invasion of Normandy? Bill?” (e.g., code question as OTR group and if our target student is named code as OTR individual).*

Non-examples:

- *Teacher is providing a direction: “Tamara, take your notebook out.”*
- *Teacher is providing negative feedback on behavior performance: “Is that what you should be doing now, Jimmy?”*

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Praise	<p>Teacher gives the group including target student or individually to the target student feedback on an academic or social behavior that indicates the behavior/response is correct. If the teacher is providing positive feedback in a sequence (makes several positive statements in a row, about the same behavior), code the sequence as one occurrence. Code new occurrence when teacher delivers feedback for a different behavior or when instructional context changes (e.g., whole class is praised, then individual target student is praised). Feedback can be <u>verbal</u> (e.g., “Good work!”) or <u>nonverbal</u> (e.g., teacher shows thumbs up to class).</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> <li>• <i>“Students who are copying down the objective and outline are showing they know how to get the task started, I respect their independence.”</i></li> <li>• <i>“Thanks for submitting the assignment; I’m pleased to see it.”</i></li> <li>• <i>“Everyone was in their seat and working on the warm-up problem when the bell rang, I appreciate your responsible self-management.”</i></li> <li>• <i>“Thanks for raising your hand first.”</i></li> <li>• <i>“Thumbs Up”, Yes!“, “That’s right!”, “Correct!”, “Perfect!”</i></li> </ul> <p><u>Non-example:</u></p> <ul style="list-style-type: none"> <li>• <i>“Johnny, pick up your pencil off the floor. Please.”</i></li> </ul>
Negative Feedback	<p>Teacher informs the group including target student or individually the target student that behavior/response is incorrect, but does not provide corrective feedback (e.g., “no” “stop that” “turn around” “quiet”).</p>

If a teacher gives negative feedbacks in a sequence (multiple sentences related to the same behavior), code it as one instance. Code as new occurrence of negative feedback when teacher delivers negative feedback for a different behavior or when instructional context changes (e.g., whole class is admonished, then individual target student is admonished). Feedback can be verbal (e.g., “That’s wrong!”) or nonverbal (e.g., teacher shows thumbs down to class).

Examples:

- “Sam, quit wasting time and get back to work.”
- “You need to pay attention or you won’t know what to do.”
- “Stop bothering Kim.”
- “I told you to sit down.”
- Teacher raises her finger to her mouth to gesture students to be quiet.
- Teacher asks Jane to “have a seat” when Jane gets out of her seat during independent seatwork.
- “Are you awake, let’s get to work?”
- Teacher takes pencil/iPod/cell phone away from student who is playing with it and not following instructions.
- “Elliot, when I asked you to stop talking, I meant that under no circumstance should you talk unless you need to ask me a question about the quiz.”
- “Ella, I told you twice to open that book already!!!!”
- “Christian, your language wasn’t so great today, so you only get 1 point for language.”

Non-examples:

- “Try harder on your math worksheet; I know you can do better.”
- Students come in to class after fire drill and teacher asks them to “take a seat.”
- “I want everyone’s attention while I go over this example.”

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Correction

Teacher informs the group including target student or individually the target student why behavior/response is not correct **and** re-teaches correct behavior/response.

Examples:

- Bradley, while I am lecturing all students should be in their seat and listening. A more appropriate time to throw your paper away would be during independent practice.”
- “Barbara, I see that you are texting on your cell phone; the school policy on cell phone use is clear. The phone should only be out at lunch and after 2:30.”
- “Shalita, you know that sleeping is not acceptable in my class, therefore what I would like to see you do if you have a question is ask me or a peer that you’re working with for the answer.”
- “Victor, you know that we don’t use those words in this class. A more appropriate response to get my attention would be to raise your hand

*or say Mrs. Smith, can you help me with this problem I am having difficulty with.”*

- *“Do not throw your garbage away from across the room. If you need to throw something away while I am lecturing feel free to get up and walk over to the waste basket.”*

Non-examples:

- *“You know better than that.”*
- *“Turn around and get busy.”*
- *“Be quiet.”*

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Student Behaviors	Operational Definitions
Academic Engaged Time	<p>Target student is engaged with instructional content via choral response, raising hand, responding to teacher instruction, writing, reading, or otherwise <u>actively</u> completing an assigned task (e.g., typing on computer, manipulating assigned materials). Target student is passively attending to instruction by orientation to teacher, peer, or materials if appropriate but is not required to do anything other than listening or observing</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"><li>• <i>Target student is writing on an assigned worksheet page.</i></li><li>• <i>Target student is taking notes.</i></li><li>• <i>Target student is reading as directed (silently or out loud), following along with finger or eyes in text.</i></li><li>• <i>Target student is working on the computer assigned task from the teacher.</i></li><li>• <i>Target student is working in assigned group helping to complete a task by actively speaking or writing.</i></li><li>• <i>Target student raises hand to participate in class lesson or to ask a question will be counted immediately as AE.</i></li><li>• <i>Student is sitting quietly at desk while teacher is instructing; he is looking within assigned work area.</i></li><li>• <i>Student is sitting quietly with collaborative work group but is not actively speaking, writing, or otherwise working on an activity.</i></li></ul> <p><u>Non-examples:</u></p> <ul style="list-style-type: none"><li>• <i>Student is working on an assignment from another class without teacher permission (e.g., off-task).</i></li><li>• <i>Student is on wrong page in book while teacher is instructing (if the observer can see the textbook).(off task)</i></li><li>• <i>Student is looking in purse/book bag while teacher is instructing.(off task)</i></li><li>• <i>Student is watching a peer performing an off task activity (e.g., texting,</i></li></ul>

*talking with a peer, etc.). (off task )*

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Off-task	<p>Target student is engaged in activity that is incompatible with assigned task. Target student is neither actively engaged nor looking at the teacher or assigned work. Target student may or may not be disrupting the class in any way.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"><li>• <i>Target student is out of seat without permission but not bothering anyone else (If student is also bothering a peer, code as disruptive as well).</i></li><li>• <i>Target student looking away from the teacher or instructional materials and directing attention toward something else.</i></li><li>• <i>Target student has head down on desk with eyes closed.</i></li><li>• <i>Target student is texting a friend.</i></li><li>• <i>Target student is yelling across the classroom loudly (would also be coded as disruptive).</i></li><li>• <i>Target student is turning towards a peer and starts chatting, ignoring teacher instruction.</i></li></ul> <p><u>Non-examples:</u></p> <ul style="list-style-type: none"><li>• <i>Student is sitting quietly at desk, apparently looking at his book or worksheet.(passive engagement)</i></li><li>• <i>Student is playing with pencil while listening to the teacher's lecture.(passive engagement)</i></li><li>• <i>Student is doodling on a paper while listening to the teacher's lecture as indicated by regular eye contact.(passive engagement)</i></li></ul>
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Disruption	<p>Target student displays behavior that does or potentially could interrupt the lesson in such a way that it distracts the teacher and/or other students (e.g., out of seat, makes noises, talks to peer, makes loud comments, and makes derogatory comments). Behaviors can range from low intensity (distracting another student by whispering something to him/her) to high intensity (making threatening statements or destroying property). Disruption can be identified by volume, threatening words, derogatory (cursing, loudly complaining about lesson or assignment), or physical disruption (throwing things, getting out of seat to intimidate a peer, pushing chair or desk, etc.).</p> <p>Code disruptive behaviors even when students are in downtime. There are still classroom behavioral expectations in place for that time.</p> <p>If behavior happens in sequence, code new disruption when topography or dialogue changes. If a student yells a loud complaint to teacher, code Disruptive. Then, if he keeps complaining do not code anything else until there is a break from teacher (e.g., teacher says "Be quiet"). Code the teacher's behavior (negative feedback if teacher says "Stop complaining") and if the student complains again after the teacher's reprimand, code again as new disruption. If the student is involved in a "back and forth" dialogue with the peer, code as one disruption, unless the other student or the teacher</p>
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is asking our target student to stop and he continues.

Examples:

- *Target student is out of seat without permission and talking to peer.*
- *Target student is ripping or crumpling paper in loud way to draw attention from teacher and/or peers.*
- *Target student is making covert noise to draw attention from teacher and/or peers.*
- *Target student curses teacher or peers.*
- *Target student makes threatening comments to teacher or peers.*
- *Target student verbally refuses to complete assignment or comply with directions.*
- *Target student yells out responses to teacher OTR's when the expectation is to raise hand before answering. (If student is yelling a response, also code this as response to question).*

Non-examples:

- *Target student is texting while class is watching a movie. (off task)*
- *Target student is sleeping while class is working on assigned task. (off task)*
- *Target student is looking out the window instead of completing task. (off task)*

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*Note.* Adapted from “Center for Adolescent Research in Schools: M.O.O.S.E.S. Data Collector Coding Manual and Training Procedures,” by the Center for Adolescent Research in Schools, 2012.

*Appendix C*

*Opportunities to Respond Treatment Integrity*



Appendix D

School Intervention Rating Form – Teacher



Please complete the following questionnaire. For each item, please bubble the number that best indicates your feelings about the selected intervention and the results of the intervention on your student(s) behavior. Please answer the open-ended questions at the end of this form in detail.

1. How clear is your understanding of the intervention after having used with your student/s?

<input type="radio"/>						
1.	2.	3.	4.	5.	6.	7.
Not at all clear			Somewhat clear			Very clear

2. How acceptable did you find this intervention to be regarding your concerns about your student/classroom?

<input type="radio"/>						
1.	2.	3.	4.	5.	6.	7.
Not at all acceptable			Somewhat acceptable			Very acceptable

3. How willing were you to carry out this intervention?

<input type="radio"/>						
1.	2.	3.	4.	5.	6.	7.
Not at all willing			Somewhat willing			Very willing

4. Given your student's behavioral problems, how reasonable did you find the intervention to be?

<input type="radio"/>						
1.	2.	3.	4.	5.	6.	7.
Not at all reasonable			Somewhat reasonable			Very reasonable

5. How costly was it to carry out this intervention?

<input type="radio"/>						
1.	2.	3.	4.	5.	6.	7.
Not at all costly			Somewhat costly			Very costly

6. To what extent were there disadvantages in implementing this intervention?

<input type="radio"/>						
1.	2.	3.	4.	5.	6.	7.
Not at all			Some			Many





14. How much did you like the procedures used in the intervention?

- 1.
  - 2.
  - 3.
  - 4.
  - 5.
  - 6.
  - 7.
- Not at all
Somewhat
Very much

15. How willing were other staff members to carry out this intervention?

- 1.
  - 2.
  - 3.
  - 4.
  - 5.
  - 6.
  - 7.
- Not at all willing
Somewhat willing
Very willing

16. To what extent did undesirable side-effects occur as a result of this intervention?

- 1.
  - 2.
  - 3.
  - 4.
  - 5.
  - 6.
  - 7.
- Not at all likely
Somewhat likely
Very likely

17. How much discomfort did your student experience during the course of this intervention?

- 1.
  - 2.
  - 3.
  - 4.
  - 5.
  - 6.
  - 7.
- No discomfort
Some discomfort
Very much discomfort

18. How severe are your student's behavioral difficulties now?

- 1.
  - 2.
  - 3.
  - 4.
  - 5.
  - 6.
  - 7.
- Not at all severe
Somewhat severe
Very severe

19. How willing were you to change your routine to carry out this intervention?

- 1.
  - 2.
  - 3.
  - 4.
  - 5.
  - 6.
  - 7.
- Not at all willing
Somewhat willing
Very willing

20. How well did carrying out this intervention fit into your routine?

- 1.
  - 2.
  - 3.
  - 4.
  - 5.
  - 6.
  - 7.
- Not at all well
Somewhat well
Very well



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21. To what degree are your student's behavioral problems of concern to you?

- 1.  
No concern  
at all
- 2.
- 3.
- 4.  
Somewhat  
concerning
- 5.
- 6.
- 7.  
Great  
concern

22. What changes have you noticed in the student/classroom performance?

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23. What components of the intervention have you found to be most effective?

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24. What components of the Intervention were not effective?

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25. What were some of the barriers to Implementation?

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