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Use of empirically-based reading interventions to address the academic skills deficits and escape-maintained target behaviors exhibited by elementary school students

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USE OF EMPIRICALLY-BASED READING INTERVENTIONS TO ADDRESS THE ACADEMIC SKILLS DEFICITS AND ESCAPE-MAINTAINED TARGET BEHAVIORS EXHIBITED BY ELEMENTARY SCHOOL STUDENTS

By

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The participants in this study were referred by the teacher or the teacher support team for a functional behavioral assessment (FBA) and development of a positive behavior support plan to address disruptive behavior and academic skills deficits. Therefore, the purpose of Experiment I was to examine the ability of FBA procedures to identify students with reading difficulty who demonstrated problem behavior potentially maintained by escape from academic demands. Each environmental variable introduced during the brief functional analysis was manipulated via a multiple element design (Cooper, Wacker, Sasso, Reimers, & Donn, 1990; Derby et al., 1992; Northup et al., 1991).

Experiment II sought to empirically evaluate the effectiveness of the *Reading to Read* (RTR) intervention package in addressing the oral reading fluency and comprehension deficits of referred elementary students. Experiment II also examined the

generalized effects of the reading intervention on reducing the identified escape-maintained problem behaviors (i.e., off-task) during the reading class. For Experiment II, a multiple baseline (MBL) across participants design was used to evaluate the impact of the RTR intervention on addressing both academic and problem behaviors (e.g., identified on the *FAIR-T*).

Results from descriptive and functional analysis procedures in Experiment I revealed that all of the participants were performing at least one grade level below expectations in regarding to reading fluency. In addition, all of the participants exhibited more off-task behavior during the difficult task demand versus the easy task demand conditions of the brief functional analysis. The participants also obtained lower scores on comprehension questions during the difficult task demand versus the easy task demand conditions. This pattern of responding suggested the off-task behavior was potentially maintained by escape from academic demands in reading.

Results from Experiment II revealed that all participants increased their oral reading fluency levels on intervention probes in comparison to the baseline levels. In addition to the increase in oral reading fluency, there was an increase in their percentage of correct responses in reading comprehension when compared to baseline data. In regards to generalization reading probes, all of the participants evidenced overall increases in their reading skills in comparison to baseline data. In fact, all of the participants increased from frustrational to near mastery levels. Finally, results from Experiment II revealed that all participants' experienced reduction in their off-task

behavior while partaking in the RTR intervention in comparison to baseline levels. This notable decrease extended throughout the study for all participants.

Overall, the present results revealed that the RTR intervention was effective in addressing the reading fluency and comprehension deficits of identified students. In addition, remediation of reading skills appeared to have assisted in the reduction of social problem behavior performed during reading instruction in the general education classroom. Important implications for practice and inclusion of the procedures used in this study within applied settings are discussed. In addition, important limitations and considerations for future research are outlined.

DEDICATION

I am pleased and honored to dedicate this research to my parents, John and Susan Anderson, and my sisters, Tina Gatwood and Kristi Hinton. Without their love and support, this incredible endeavor would not have been possible.

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CHAPTER I

INTRODUCTION AND LITERATURE REVIEW

According to Zabel and Zabel (2002), behaviors including disrespect, noncompliance, tardiness, and truancy are still concerns for teachers today. Elam, Rose, and Gallup (1996) added that other frequent behavioral concerns include teasing, talking without permission, getting out of one's seat, and bullying. Elam et al. (1996) continued by stating that behavioral concerns are emerging. These more serious concerns include drug abuse and violence, fighting, and gang related behaviors. Due to the ever increasing behavior challenges facing schools, many schools have chosen to utilize zero tolerance and strict disciplinary policies to address disruptive student behavior (Lewis & Sugai, 1999). These policies often result in out-of-school placement for offenders. However, researchers have indicated that some techniques (i.e., suspensions and expulsions) may actually negatively reinforce these challenging behaviors by allowing students to escape nonpreferred academic demands by placing them out of school for displaying problem behaviors (Lewis & Garrison-Harrell, 1999). With these challenging behaviors demonstrated by students, the learning environments are no longer considered stable, positive, or productive (Sugai et al., 2000).

After a long history of school personnel applying simple and general solutions to complex student behavior problems that have been unable to evoke a sustained change in problem behaviors, tremendous stress is evident among educators. Often school

personnel do not invest the resources, time or expertise to effectively solve problems (Walker & Horner, 1996). For example, Dyfoos (1990) reported that counseling is considered one of the most popular intervention options among teachers; however, this indirect approach used alone is rarely sufficient without adequate programming of generalization to the classroom environment. In relation, Lipsey (1992) found that the least successful treatment approaches appear to be traditional counseling, psychotherapy, or case work. Also, some deterrence programs have actually increased delinquency. Lipsey continued by reporting that similar attempts to "get tough" on criminals have failed to lower the crime rate.

The failures of indirect interventions have led to the overuse of punishments and exclusion as interventions of choice to eliminate the problem behaviors. Exclusion, suspension, expulsion, verbal reprimands, and detention are typical reactive responses to inappropriate behavior in the school setting. It is important to note that punishment consequences provide an immediate, reduction from the problem, but positive long-term behavior change is not frequently achieved. Research has indicated that interventions (i.e., punishment) for students with serious anti-social and violent behavior usually result in an increase in the problem behavior (Mayer & Sulzer-Azaroff, 1990). Azrin, Hake, Holz, and Hutchinson (1965) indicated that punishment or aversive environments are considered establishing operations for future displays of aggression, violence, vandalism, and escape.

MacMillian, Gresham, and Forness (1996) reported that most schools utilize punishment, exclusion, and suspensions for dealing with students who display undesired

behaviors. Unfortunately, these strategies often lead to students to disengage in learning opportunities within the education setting and even forcing them, in essence, to drop out of school. Those students who engage in problem behaviors find themselves in environments that lead to serious risk for a plethora of crime-related outcomes (Bostic, 1994). MacMillian et al. (1996) stated that effective alternative programs and options that do not isolate students from appropriate instruction need to be developed for this population that keep them academically engaged and provides them with appropriate coping strategies. Walker and Horner (1996) reported that school personnel can perform a significant role in addressing the rise of at-risk students exhibiting antisocial, aggressive behavior patterns by teaching students proactive skills for addressing their social and academic needs. In fact, Elam et al. (1996) reported that 98% of the American public believe that public schools' primary goal is to prepare students to become responsible citizens.

Relationship Between Academic Variables and Display of Problem Behavior

A number of environmental factors that influence problem behavior have been identified by researchers. The impact of academic variables on student performance has been closely examined (Cooper, Peck, Wacker, & Mallard, 1993). A variety of variables have been identified as possible antecedents for problem behavior. According to Singer, Singer, and Horner (1987), the type of instructions utilized may elicit problem behavior. In addition, the length of the task/activity (Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991) may contribute to problem behavior being displayed. Also, choice making (Dunlap

et al., 1994) as well as preference for tasks (Newton, Ard, & Homer, 1993) may elicit the demonstration or avoidance of problem behavior. Gunter, Denny, Jack, Shores, and Nelson (1993) reported that task difficulty is one of the primary curricular variables that can serve as a setting event for problem behaviors in the classroom. The researchers continued by explaining that task difficulty is viewed as aversive. With this in mind, students react to these aversive tasks by demonstrating escape-motivated problem behaviors. Ultimately, differences in a student's ability to respond to the task and the level of difficulty of the task may result in problem behaviors.

Umbreit, Lane, and Dejud (2004) also reported findings of consistent relationships between student performance and level of task difficulty. Specifically, Umbreit et al. found that tasks that are either too difficult or too easy evoke off-task behaviors. Therefore, a highly effective means of increasing on-task behaviors is by altering the level of the task difficulty. Even though off-task behaviors are not perceived as a serious problem, teachers and practitioners fear that, over time, the off-task behavior could evolve into a plethora of issues (e.g., disruptive behavior, reduced learning opportunity, poor student/teacher relationships).

Given the aforementioned findings from single-subject design studies, it appears that academic failure may serve as a setting event for demonstration of antisocial behavior. Other group design research has also supported these findings. Greenberg (1974) found a powerful correlation between misbehavior and reading skills. Center, Deitz, and Kaufman (1982) reported that academic tasks at the frustrational level resulted in significant increases in inappropriate behaviors, thus it is important that student

assignments are at appropriate student functioning level. DeBayshe, Patterson, and Capaldi (1993) reported that poor school achievement is interconnected with poor outcomes after school (e.g., unemployment, incarceration, etc). Specifically, Berlin and Sum (1988) reported that in 69% of all those arrested, 79% of welfare dependents, 85% of dropouts, and 72% of the unemployed poor basic skills are evident.

Witt and Robbins (1985) reported that there are no simple or easy solutions to eliminating and reducing antisocial behavior problems. School personnel have the decision to address the problem or invest in strategies to improve the problem in a socially acceptable manner. Walker and Horner (1996) reported that in order to produce consistent, socially acceptable behavior changes, intervention must be direct and comprehensive across all school settings in which the problem behaviors occur. This approach must be fully integrated and must incorporate primary, secondary, and tertiary prevention goals and correlated interventions. Sustaining student's engagement with learning as long as possible is considered one of the greatest factors to help students. This allows student's to further develop skills, lead them in positive directions, and prevent future involvement with disruptive peer groups. Lipsey (1992) stated that structured and precise approaches that have shown promise in preventing and treating antisocial behavior. In relation, teachers have displayed a strong desire for the development and implementation of effective school-based interventions to lower rates of disruptive behaviors using a structured, proactive, and systematic process. As such, researchers have suggested that school-wide Positive Behavior Intervention and Support (PBIS)

procedures may be an effective preventative approach to attend to the increasing disruptive behaviors across schools (McCurdy, Mannella, & Eldrige, 2003).

Rationale for Current Study

Based on research (Greenberg, 1974; Center et al., 1982; DeBayshe et al., 1993), it appears that academic difficulty may indeed operate as a setting event for various disruptive behaviors within the classroom setting as an attempt to escape nonpreferred or difficult task demands. With this in mind, the current study will review PBIS, specifically the individual system designed to address the social and academic needs of the referred student. Within the individual system of PBIS, functional behavioral assessments have been heavily utilized in order to develop function-based interventions. The development of a function-based interventions based on the functional behavioral assessment may be considered as a tier three level intervention of the response to intervention model. Ultimately, the tier three level of response to intervention and PBIS are considered the same because they both target the same population (i.e., those needing intensive and individualized interventions). One example of a tier three intervention is the Reading to Read (RTR) intervention package to address academic concerns. However, the potential improvement effects of the RTR intervention package on target behaviors in the classroom have not been examined. Therefore, the purpose of the current study is to empirically evaluate the effectiveness of the RTR intervention package in addressing the oral reading fluency and comprehension difficulties of elementary students, while examining the effects of the reading intervention on the identified escape-maintained

problem behaviors (i.e., noncompliance, out-of-seat, talking out) during the student's reading class. Specific research questions will address the ability of FBA procedures to identify student behavior maintained by escape, (b) effectiveness of the RTR intervention package in improving the number of words correct per minute on curriculum-based measurement probes beyond baseline levels for identified elementary school students (i.e., fluency), (c) ability of RTR intervention package in improving the literal comprehension beyond baseline levels for each participant, (d) ability of the RTR intervention package to assist students in reading on grade level, (e) ability to improve students oral reading fluency and comprehension on grade level probes over a 9-week period, and (f) ability for escape maintained behaviors to decrease over time as students instructional levels approximate grade level. The following sections will provide an overview of PBIS, functional behavioral assessment (FBA), and response to intervention (RTI). Additionally, the purpose of the current study and specific research questions will be further outlined.

Positive Behavioral Interventions and Supports

In an attempt to identify an effective system to prevent problem behaviors, major focus has been directed toward PBIS strategies (Sugai & Horner, 2002). The demand for schools to provide effective and efficient interventions that create environments that encourage prosocial behaviors is a leading factor into the search for a more effective discipline system (Sugai et al., 2000). PBIS is described as a broad range of systemic and individualized strategies utilized to develop important social and learning outcomes while

preventing problem behaviors for all students (Warren et al., 2003). PBIS procedures include a systematic team-based approach to problem solving and planning (Lewis & Sugai, 1999). According to Sugai et al., (2000), PBIS is not a newly developed intervention system. In fact, PBIS is a "conglomeration" of behaviorally sound systems organized to develop environments that reduce the effectiveness of problem behaviors allowing desired behaviors to become more functional and adaptive. PBIS is the incorporation of behavioral science, practical interventions, social values, and systems perspective (Sugai et al., 2000). McCurdy et al., (2003) reported that PBIS was originally utilized to target individuals with severe disabilities. Recently, research indicates that PBIS is successful with students of average intellectual functioning experiencing academic and behavioral difficulties in the general education setting (Broussard & Northup, 1995).

PBIS has several different goals. Turnbull et al. (2002) reported that a major focus of PBIS is to create a responsive environment that evokes appropriate student behaviors. PBIS incorporates a variety of assessment and support procedures implemented by teachers and others to emphasize a proactive lifestyle change. The ultimate goal of PBIS is to assist schools abilities in effectively and efficiently addressing the behavioral support needs of all students and staff (Lewis & Sugai, 1999).

PBIS consists of three levels of interventions: primary, secondary, and tertiary. PBIS also incorporates four systems: school-wide, classroom, specific setting, and individual (Warren et al., 2003). The first level is the primary prevention which encompasses the school-wide system, non-classroom setting, and the classroom setting.

At the primary level, universal school-wide management techniques are used to decrease problem behaviors and teach prosocial skills to all students (McCurdy et al., 2003). This primary level of intervention will address success with approximately 85-90% of the school's student population.

The school-wide level of implementation focuses mainly on monitoring and preventing behavior problems for all students across the entire school (Scott, 2003). Colvin, Sugai, Good, and Lee (1997) explained that school-wide PBIS can assist in maintaining students with special needs in the general education settings. Ultimately, school-wide PBIS involves assessment and re-designing the entire school environment to proactively encourage student success (McCurdy et al., 2003). Within the school-wide system, approaches change from punitive to positive in nature (Scott, 2003). Also, this is the level in which a PBIS committee is formed; school-wide expectations are established; behavior expectations are taught to the students; systems level acknowledgment appropriate behaviors (e.g., behavior celebrations) and addressing problem behaviors are developed; and scheduled appointments to review data in order to evaluate progress are established (Turnbull et al., 2002; Warren et al., 2003).

There are a total of six components that are critical to the development of the school-wide system. Those six components include the development of a statement of purpose, school-wide expectations, procedures for teaching school-wide expectations, a continuum of procedures for encouraging school-wide expectations, a continuum of procedures for discouraging problem behaviors, and procedures for monitoring the effects of the school-wide implementation (Lewis & Sugai, 1999).

The statement of purpose should be a positive, brief statement about the approaches to teaching and learning that involves all students, staff, and settings and considering both academic and behavioral outcomes. The school-wide expectations are a grouping of three to five replacement behaviors that are stated in positive and observable terms that will serve as a common means of communication across schools. The procedures for teaching school-wide expectations are encouraged to utilize direct instruction methodologies. In essence, the schools should develop and implement practices that clearly explain to the students what is expected, demonstrate to them what the skill looks like, allow practice of the skills through role plays, and provide feedback. The continuum of procedures for encouraging school-wide expectations should consist of the creation of an incentive program by school personnel. A crucial component of any incentive program involves the social acknowledgement and interaction between the student and the school. In regards to the continuum of procedures for discouraging problem behavior, schools should develop clearly defined examples of each rule-violating behavior and specific decision rules for determining which consequence should be assigned to which problem behavior event. The procedures for monitoring the effects of school-wide implementation should include regular analysis of office referrals over time to identify patterns in order to guide schools in modifying their school-wide system and to make instructional decisions (Lewis & Sugai, 1999).

Non-classroom settings (e.g., restrooms, cafeteria, and hallways) are considered extensions of the school-wide system. Colvin et al., (1997) reported that non-classroom settings are often identified as major problem areas by schools. In fact, many times the

problem behaviors initiated in the non-classroom setting will carry over into the classroom, which is a growing concern for educators.

According to Lewis and Sugai (1999), the procedures for the non-classroom setting differ from the school-wide procedures to accommodate the specific setting (e.g., cafeteria, bathrooms, bus, and hallways). This difference is related to the fact that the non-classroom setting involves greater numbers of students and geared to supervision versus academic instruction. It is vital to take note of the physical features of the environment, establish predictable routine, teach appropriate behaviors to the students, and engage staff in the use of active supervision.

Classroom settings are another component of the primary intervention. The intent of the classroom settings is also to extend the school wide system. The development of classroom management systems are a product by the individual classroom teacher. In developing a classroom management system, teachers may benefit from considering how to relate to the school-wide expectations and how to enhance student success (Lewis & Sugai, 1999). Lewis and Sugai offer recommendations in classroom management techniques such as precorrection, reminders of appropriate behaviors to be displayed. Another recommendation is to keep students engaged by asking questions often or assign a specific task during instruction. It is considered crucial for the teacher to provide a positive focus, thus, there needs to be a higher rate of positive reinforcement than reprimands.

The secondary level of intervention includes individual systems for students identified as “at-risk.” The secondary level of intervention accounts for approximately

10% of the schools' population. This level of intervention directs focus toward students that the primary intervention has been unsuccessful. Interventions may include specific skills training, practice of school expectations, development and modification of group contingencies (Scott, 2003; Warren et al., 2003). This level of intervention is "stepped up" to a more intense degree.

The tertiary level of intervention includes the individual system for the student with chronic academic or behavior concerns. This level of intervention is initiated when the primary and secondary levels have been ineffective. This tertiary level of intervention accounts for approximately 5% of the schools population. The goal of this level is to decrease the problem behavior and improve the quality of the student's life. When general interventions are considered ineffective, a more detailed assessment is required. Specifically, a functional behavioral assessment (FBA) is required at this level of intervention. An FBA is utilized to operationally define and identify the target behavior, antecedents and consequences associated with the occurrence of that behavior. From the information obtained through the FBA, a behavioral support plan can be developed based on the identified function of the target behavior (Lewis & Sugai, 1999).

As mentioned above, FBA has an important role within the PBIS system and is of central importance to this research project given that the students included in this study were recruited from referrals based on the display of significant behavior and academic concerns in general education settings. The primary goal of FBA is to identify the specific environmental events associated with the performance of problem behavior in order to enhance the probability of treatment effectiveness (Iwata, Dorsey, Slifer,

Bauman, & Richman, 1994). Thus, FBAs lead to proactive programming that may involve environmental modifications, skill building (academic and behavioral) and other positive support techniques rather than just reducing the occurrence of problem behavior (Drasgow & Yell, 2001). Given the importance of this level in the PBIS model, the following sections will discuss functions of behavior, phases of FBA, and brief experimental analysis in greater detail.

Functions of Behavior

According to Carr (1994), function of behavior refers to the purpose that the behavior serves for the individual. Behavioral functions are generally separated into five distinct categories: (a) social attention (positive social reinforcement); (b) access to tangibles or preferred activities; (c) escape, delay, reduction, or avoidance of aversive tasks or activities (negative reinforcement); (d) escape or avoidance of individuals (negative social reinforcement); and (e) internal stimulation (automatic or sensory stimulation). From these potential functions, the most common functions for engaging in disruptive behavior in general education classroom settings include escaping instructional demands and obtaining social attention from teachers and peers (Vollmer & Northup, 1996). Identifying the function of target behavior(s) through FBA is important in the selection of an appropriate treatment (Doggett, Sheperis, & Butler, 2004). Without appropriate identification of the target behavior(s) function may lead to ineffective interventions or even the inadvertent strengthening of the problem behavior.

Phases of FBA

In conducting FBAs, differing opinions exists on the precise procedures that should be utilized (Cone, 1997). However, a four-phase process has been considered to be best practice in conducting FBA (Sterling-Turner, Robinson, & Wilczynski, 2001). The four-phase process for FBA includes a description phase, an interpretation phase, a verification phase, and an intervention, implementation, and monitoring phase. A description of each phase will be provided below.

Descriptive phase. The FBA begins with the descriptive phase which includes both indirect and direct methods and is used to develop hypothesis regarding the function of the problem behavior. The indirect assessment components may include record reviews (e.g., discipline records, grades), rating scales (e.g., problem behavior questionnaire), and interviews (e.g., teacher and student). The *Functional Assessment Informant Record for Teachers* (FAIR-T*;* Edwards, 2002) will be used to obtain information to develop potential hypotheses regarding the function of problem behavior being displayed in the general education classrooms that led to a referral by the classroom teacher or TST. The FAIR-T consists of four sections: general referral information, problem behaviors, antecedents, and consequences. The general referral information section includes basic student demographic data, description of problem behavior, previous intervention strategies, provides information identifying problem behaviors associated with academics, medical problems and current medications. The problem behavior section provides descriptive information about the student's three most serious

problem behaviors. The teacher checks the manageability, level of disruption, and the frequency, and duration of the problem behaviors. The antecedent section is completed for each of the behavior(s) listed by the teacher. There are five antecedent variables examined. Those variables include tasks, preceding activities, presence or absence of specific individuals, child and teacher behaviors prior to the problem behavior, and situations in which the behavior is more likely to occur. The consequent section is also completed for each individual problem behavior. The teacher checks the consequences that apply. Some of the consequences on the *FAIR-T* include removal of difficult or non-preferred tasks (i.e., escape or avoidance of demands), provision of social attention for problem behavior (i.e., teacher or peer attention), provision of tangible items and preferred activities for the display of problem behaviors, provision of positive consequences for desirable behaviors, and identification of additional behaviors that may follow the primary behavior of concern.

The direct assessment involves direct observations of the target behavior and the environment. Various direct observations techniques exist. Those direct observations techniques include narrative recording, event recording, and time-sampling procedures (e.g., whole interval, partial interval, or momentary time sampling). Curriculum-based assessment may also need to be conducted if academic or curricular variables are possibly impacting the target behavior(s) (Sterling-Turner et al., 2001).

Interpretive phase. Next in an FBA is the interpretation phase during which the data collected in the descriptive phase is closely examined for patterns or functional

relationships between behavior and environmental events. During this phase, hypotheses are developed regarding the temporal relationships between antecedents, behaviors, and consequences. However, Doggett et al. (2004) indicated that only informed suggestions about the possible relationships between the environmental events and problem behaviors can be made at this phase of the FBA. In other words, only correlational relationships are identified at this stage. No conclusions about causal relationships can be made at this stage because systematic changes to the environment have not been implemented to examine the changes in behavior as a function of these programmed changes in the environment.

Verification phase. This phase of the FBA occurs through the use of brief experimental or functional analysis or a function based intervention (Doggett et al., 2004; Sterling-Turner et al., 2001). Brief experimental analysis (BEA) is a brief experimental alteration of environmental variables under controlled conditions in order to identify those environmental factors of target behaviors (Iwata et al., 1994). In conducting the BEA, there are several of issues to carefully consider. First, school personnel should determine whether the BEA should occur in an analogue setting (i.e., a contrived setting) or in the natural environment (i.e., actual classroom). Another issue to be considered is the type of experimental procedure to employ, in other words school personnel must determine whether the conditions should be consequence, antecedent, or hypothesis-driven.

Again, the four-phase FBA process is considered as best practice. Initially, information is gathered from teacher interview, record review, and direct observations. Based on the information, hypotheses are developed. Next, either an analysis can be conducted or implementation of an intervention. This decision is made by school personnel and the degree/intensity of the behavior

Theoretical Approaches to Brief Functional Analysis in the Classroom.

Consequent conditions. According to Broussard and Northup (1995), systematic manipulations of naturally occurring classroom events may be useful as an assessment procedure which subsequently provides a direct basis for intervention development and selection. In utilizing consequence functional analysis, conditions are developed and the consequences related to the behavior are manipulated. Broussard and Northup utilized six conditions: contingent teacher attention, noncontingent teacher attention, peer attention, no peer attention, escape from academic task demand, and a contingency reversal. During the contingent teacher attention condition, the teacher provided disapproving statements after each occurrence of the target behavior. During the noncontingent teacher attention, the teacher provided approving comments at set time intervals while ignoring target behavior. During the no peer attention condition peers are absent from the classroom. The contingent peer attention condition included only two students who were likely to respond to the target behavior. In the escape from task demand condition, the teacher issued task instruction until work or target behavior occurred. In the contingency reversal

condition, differential reinforcement for appropriate alternative behavior was used and inappropriate behavior was ignored. The contingency reversal provided confirmation of the functional analysis results and to evaluate potential treatment recommendations. Broussard and Northup conducted these conditions with three separate students and found differentiated responding for all three students under the different conditions. Specifically, one student's behavior was maintained by teacher attention, one student's behavior was maintained by peer attention, and the other student's behavior was maintained by escape. The behavior of each student looked similar topographically, however, the BEA provided suggestions for individualized intervention development based on the function rather than the form of the behavior increasing the likely hood of an effective outcome in addressing the student's problem behavior (Iwata, 1994).

Antecedent conditions. Even though specific antecedent conditions precede and can be associated with a behavior, they do not describe the function of behavior (Catania, 1998). Antecedent events can have a substantial influence on behavior. Antecedent events may be classified as either discriminative stimuli, establishing operations, or setting event. Discriminative stimulus is an antecedent event that is associated with or otherwise signals that a response will be reinforced (Watson, Gresham, & Skinner, 2001). An establishing operation is a variable that alters the effectiveness of a reinforcer for behavior by either increasing the momentary saliency of reinforcer or increasing the probability of behaviors associated with contacting that stimulus (Michael, 2000). Setting

events are antecedents that are removed in time and place from the occurrence of behavior, but are functionally related to that behavior (Bijou & Baer, 1961).

Taylor and Carr (1992) reported that manipulation of antecedents has been useful in discriminating between problem behaviors associated with difficult tasks and those associated with high levels of adult attention. Moore, Edwards, Wilczynski, and Olmi (2001) demonstrated that antecedent functional assessment could differentiate between social attention and task demands as antecedents for the problem behavior of children. Moore et al. (2001) continued by reporting an attention condition was alternated with a demand condition to serve as a control and to rule out possible maintenance by positive reinforcement. Also, findings indicated that some forms of teacher attention functioned as aversive stimulus (e.g., reprimands) and other forms functioned as a reinforcing stimulus (e.g., praise).

Noell and Witt (1999) have suggested that CBM reading probes should be utilized to determine if a student's reading deficit is a performance or a skill deficit. More specifically, two conditions should be utilized. The first condition should be standardized with no reinforcement available. The second condition should have preferred reinforcers accessible contingent on reading criteria. Ultimately, if the reinforcers do not create significant difference, then it can be assumed that the reading deficit is a skill deficit. If the reinforcers create a significant difference, then the reading deficit may be described as a performance deficit.

Hypothesis-driven conditions. Current research suggests that hypothesis-driven approach to functional assessment should be used in applied settings (Doggett, Edwards, Moore, Tingstrom, & Wilczynski, 2001). When the hypothesis-driven approach is utilized, the descriptive assessment (i.e., interviews, observations) is conducted in order to develop hypotheses regarding the maintaining variable(s). These hypotheses are verified through the immediate implementation of function-based interventions (Doggett, Mueller, & Moore, 2002). Moore, Doggett, Edwards, and Olmi (1999) concluded that the hypothesis-driven approach is indeed beneficial in developing effective function based interventions. Due to the success of the function based interventions, the descriptive assessment procedures were validated. Additionally, Doggett et al., (2002) reported that the use of indirect descriptive assessment procedures have been effective in the development of hypotheses regarding functional relationships and leading to the development of effective instructions for students displaying problem behavior in the general education setting.

All three methods of BEA have strong theoretical support and have been empirically validated; however practical considerations may influence the choice of procedures utilized. For example, practitioners are heavily ladened due to the lack of resources and the incredible demands to solve problems quickly. The use of extended functional analysis to identify the function of problem behavior is impractical in most public school settings. A more efficient and effective approach is the utilization of brief hypothesis-driven functional analysis conditions developed based on the descriptive assessment (Doggett et al., 2001).

Treatment monitoring and integrity. The final phase of FBA is the treatment development, implementation and monitoring. Based on the results of the FBA, a positive behavior support plan will be developed. The positive behavior support plan will incorporate both antecedent- and consequent-based strategies that will cause the target behavior to be less effective and the replacement behaviors to be more effective for the student (Doggett et al., 2004; Horner, Sugai, Todd, & Lewis-Palmer, 1999/2000). Federal law requires an FBA for students identified with disabilities and recommend one for children who are non-disabled who display problem behaviors at school. Federal law also requires the development of a positive behavior support plan (Individuals with Disabilities Education Act Amendment of 1997, PL 105-17).

In addition to the legal requirements, some very practical concerns support the use of a function-based process. Vollmer and Northup (1996) discussed four problems that can arise when interventions are selected without consideration for behavioral function: (a) the intervention may strengthen the problem behavior by positive reinforcement, (b) the intervention may strengthen the problem behavior by negative reinforcement, (c) the intervention may be functionally irrelevant to a problem behavior, and (d) the intervention may not provide alternative sources of reinforcement for more desirable behavior.

According to Sterling-Turner et al., (2001), the intervention should be modeled for the teacher by the practitioner. Also, the teacher should be allowed to practice implementation of the intervention and feedback should be provided. Sterling-Turner, Watson, and Moore (2000) reported proper training for intervention implementation is

vital and cannot be overstated. Direct instruction on implementation of interventions has resulted in high degree of treatment integrity.

Monitoring of the intervention implementation is final the component of the last phase of FBA. According to Horner et al., (1999/2000), individuals implementing an intervention have an obligation to monitor the effects of the positive behavior support plan. The observable outcomes are used to determine the effectiveness of the positive behavior support plan. Also, data decision rules should be established to indicate that the plan may need to be reexamined.

The value of functional assessment rests on the idea that treatment effectiveness increases if the treatment matches the function of the target behavior. In essence, FBA leads to comprehensive interventions that are effective, individualized, and appropriate (Karsh, Repp, Dahlquist, & Monk, 1995). Vollmer and Northup (1996) reiterated that an FBA allows the consultant to select an appropriate intervention based on the environmental variables maintaining the disruptive behavior that were identified. Sterling-Turner et al., (2001) added that FBAs may require more time in determining the factors maintaining problem behaviors; however, it allows consultants to make more efficient use of proven practice.

Response to Intervention

Richman, Stevenson, and Graham (1982) reported that almost 11% of the population has been described as a challenge for parents to control. According to the parents, by age 8, 62% of the reading problems persisted. Teachers reported more

persistent problems in children at the age of 8 who were identified as problematic in preschool. Campbell (1995) reported that behavior problems appear to be related to academic difficulties, externalizing problems, or even a combination. In addition, the learning disability category now accounts for 52% of all students with disabilities receiving special education services (Gresham, 2002). The U.S. Department of Education (1998) reported that the number of students served as learning disabled has had a 283% increase from 1976-77 to 1996-97. Algozzine and Ysseldyke (1986) reported that the large number of students diagnosed as having a learning disability has elicited criticism from researchers who feel that the definition and diagnostic criteria has led to the overdiagnosis of this disorder. Lyon (1996) reported findings over the past 15 years have indicated inconsistency with the identification of learning disabled students.

Given these findings, Response to Intervention (RTI) has been identified as an alternative to the discrepancy approach that is part of the reauthorization of the IDEA. The RTI approach to determining eligibility for a learning disability is based on a student's inadequate responsiveness to an evidence-based intervention rather than IQ-achievement discrepancy approach. RTI is not specifically a special education eligibility tool rather it is a data-based decision-making system that can be used for all students within the school. Part of the appeal of the RTI approach as a decision-making tool is that it allows one to rule out inadequate instruction as a cause of insufficient academic achievement and follows for decision-making with in an educational setting (Gresham, VanDerHeyden, & Witt, 2005).

The current special education decision making process has been plagued with several problems (Barnett, Lentz, & Macmann, 2000). The pinnacle of the plague is the failure of traditional methods to be directly linked to effective, ongoing intervention planning, and to positive outcomes for children (Gresham & Witt, 1997). The current model employed by many states is the IQ-achievement discrepancy approach which is considered by many to be a "wait to fail" approach due to the fact that students must perform poorly for years before the discrepancy between IQ and achievement scores occurs (Fuchs, Mock, Morgan, & Young, 2003). Another negative aspect of the discrepancy model is related to the ever increasing numbers of students being identified with a learning disability, thus creating escalating special education costs (Fuchs et al., 2003). IDEA 2004 gives states the choice to switch from the discrepancy based model to the response-to-intervention or problem solving model.

The RTI model requires that students undergo effective instruction and progress monitoring before entering special education. A key aspect of the development of any response-to-intervention model is the need for high-quality evaluation designs for decision making (Barnett, Daly, Jones, & Lentz, 2004). Gresham (1991) defines RTI as change in behavior performance as a function of an intervention that utilizes the discrepancy between pre- and post-intervention levels of performance. The RTI model has three strategic elements. Those elements include providing meaningful services prior to special education, employing systematic decision making, and demonstrating that special education would be necessary for further progress (Fuchs & Fuchs, 1998). RTI is

considered by many to be the front-running alternative method of learning disability identification (Fuchs et al., 2003).

Fuchs et al. (2003) reported that supporters of RTI claim that it solves many problems associated with the discrepancy model. Supporters claim that RTI provides help to struggling students more immediately, individualized and intensive instruction, distinction between true learning disabilities and "false" positives, and services are not contingent upon intelligence testing.

Fuchs et al. (2003) reported that the premise of RTI is to provide instructional support in a timely manner, and to identify students in need of special education services. Unfortunately, insufficient evidence exists to support the effectiveness of RTI approaches which are utilized in Ohio due to the lack of consistent or lower than preferred levels of fidelity. This type of experience highlights the difficultly of reliable implementation of the problem-solving approach. RTI approaches utilized in Minneapolis and Pennsylvania appear insufficient due to a lack of documented evidence. Based on this lack of evidence, the statement that RTI provides feasible, timely, and effective interventions is weakened.

Major concerns surrounding RTI do exist. Those concerns include reliance on general education to implement empirical interventions, progress monitoring across time and students, movement to a non-categorical approach, and specifics regarding RTI approach (Mellard, Byrd, Johnson, Tollefson, & Boesche, 2004).

Wedl (2005) reported that the results of implementing an RTI model will not only reduce paperwork and assist IEP's to be more focused on the attainment of learning standards, but it also provides a new focus on improving student performance. The RTI

model is a useful approach to providing data-based decision-making for any students who may be in need of extra interventions for improving their performance. The RTI model would be designed to ensure that children who are indicating a likelihood of failing in the early grades receive scientifically based instruction as soon as possible. This alternative approach focuses on evaluating how well a student responds to the instruction offered in their education setting.

The progress monitoring required by RTI cannot be fulfilled by norm-referenced tests, but CBM appears to be the measurement model that can provide a means of evaluating effectiveness of instruction. Many studies have documented the validity of the measures, their reliability, and their utility in evaluating student growth and making instruction changes, setting goals for students and predicting performance on high stakes tests. Important elements of CBM approach to progress evaluation are the setting of the student goals, graphing student data, and reviewing progress toward student's goals.

Models of RTI

Globally, the PBIS and RTI models have some similarities. RTI methods are conducted by multidisciplinary teams which are not limited to but may include principal, school psychologist, special education teacher, and classroom teacher (Telzrow, McNamara, & Hollinger, 2000). The PBIS model is composed of similar individuals. Also, RTI utilizes assessment techniques that allow the student's problem to be described in measurable terms. Then a goal is established and an intervention plan is developed (Conway & Kovaleski, 1998). The PBIS model is similar to RTI in this concept because

they use data (e.g., office referrals) to assess the impact of school-wide implementation and examine if changes in actions plans need refinement and to what degree. In essence both the PBIS model and RTI are data driven. PBIS has primarily focused on social behaviors, whereas RTI is designed to focus on academic targets. Specific models will be discussed in the following section.

According to Gresham (2002), there are several models of intervention when the decision to implement the RTI method of identifying learning disabilities. The models available include: (a) the predictor-criterion model that use and teach skills that best predict reading competency, (b) the dual-discrepancy model is based on the student's failure to respond to well-planned and implemented interventions, and (c) the applied behavior analytic model focuses on the manipulation of antecedent and consequent environmental events to improve reading abilities.

Predictor-criterion Model

The predictor-criterion model is the least used by systems and is the least researched model. The predictor-criterion model focuses on using and teaching skills that best predict reading competency. It has been suggested that the best predictors of reading are oral language skills (i.e., phonemic awareness, phonetic segmentation) and orthographic skills (i.e., letter coding, reading rate, and reading comprehension) (Berninger & Abbott, 1994). The areas of reading accuracy, reading rate, and reading comprehension are part of evaluating reading competency. Torgenson et al. (2001)

reported that reading programs focusing on phonetic awareness and phonemic decoding have strong effects.

Dual-discrepancy Model

The dual-discrepancy model is based on the student's failure to respond to well-planned and implemented general education interventions. The dual-discrepancy model utilizes a two-stage approach to determine eligibility. The two-stage approach includes problem identification and problem certification. The problem identification phase determines if the student's academic performance is deficient to an extent requiring further evaluation. Problem certification phase determines if the deficiencies are at a level of severity that justifies the need for special education services.

In using the dual-discrepancy model, a student is considered for special education eligibility when he/she performs at a lower level than those peers and demonstrates a rate of learning significantly lower than classroom peers. The use of curriculum-based measurement has been noted as a means of providing empirical support for the dual-discrepancy approach in special education decision making. Fuchs and Fuchs (1998) describe the use of curriculum-based measurement as a means of measuring a student's degree of responsiveness to an intervention. Jenkins, Deno, and Mirkin (1979) determined that CBM measures are considered desirable for monitoring student progress because short duration for frequent administrations by teachers/assistants, tied to student curricula, capable of having many multiple forms, inexpensive to produce (i.e., time and financial), and sensitive to small changes across time. The progress monitoring required

by RTI cannot be fulfilled by norm-referenced tests, but CBM appears to be the model that can provide a means of evaluating responsiveness to intervention.

Pennsylvania's Instructional Support Teams (ISTs) are comprised of the student's teacher, a principal, and specialist as needed. The IST uses curriculum-based assessment and behavioral assessment to describe students' problems in measurable terms. The IST established goals, develop and implement interventions. (Kovaleski, Gickling, Morrow, & Swank, 1999). The teacher is responsible for continuously monitoring the student's progress. The IST reviewed the student's progress and determined the need for further evaluation (Conway & Kovaleski, 1998). Hartman and Fay (1996) reported the use of ISTs led to fewer special education referrals, a decrease in special education placements, and reduction in grade retentions.

Applied Behavior Analytic Model

The applied behavior analytic model examines the student's academic performance to the antecedents and consequences within the environment. Ultimately, the factors that may be associated with poor academic performance should be analyzed, thus leading to an instructional intervention to improve academic responding. Several reasons have been identified in why students fail. According to Daly et al., (1997), students tend to fail due to performance deficits, skill deficits, lack of practice and feedback, lack of fluency, and an insufficient amount of instructional demands resulting in lack of mastery. The interventionist should identify the factors contributing to poor academic performance and create an instructional intervention based on those findings (Fuchs & Fuchs, 1998).

In the functional approach, the instructional hierarchy (i.e., acquisition, fluency, generalization, and adaptation) is the pinnacle to remediating academic difficulties (Harington et al., 1978). Strategies such as modeling, prompting, error correction, reinforcement, and practice are anticipated to increase fluency. Swanson and Sachs-Lee (2000) reported that a combination of direct instruction and strategy training are proven as highly effective remediation strategies for academic deficits particularly with students who have lower intelligence scores. As discussed in the dual-discrepancy model, CBM has been noted as a means of providing a technique of measuring a student's degree of responsiveness to an intervention in the applied behavior analytic model.

Tiers of Intervention in RTI

A Three-Tier RTI intervention model was developed so that instruction is layered overtime in response to students increasing needs. The Three-Tier Reading Model is designed to meet the instructional needs of all young readers, including those who are slow starters and those who continue to struggle in early elementary grades. The Three-Tier Reading Model is a prevention model that is aimed at catching students early—before they fall significantly behind and providing the supports they need throughout the first four years of schooling. For students whose response to the first and second tiers of intervention is not adequate, the third tier provides ongoing intervention tailored to meet their specific instructional needs (Vaughn, 2003).

Tier One. This tier is designed to provide for the majority of students' instructional needs and is comprised of three elements: (a) research based core reading program, (b) benchmark testing of students to determine instructional needs at least at least three times a year, and (c) ongoing professional development (Vaughn, 2003).

T*ier Two*. Intervention in Tier Two is for students who are falling behind on benchmark skills and require additional intervention to achieve grade level expectations. Tier two is small-group (i.e., 1:3, 1:4, or 1:5) supplemental instruction in addition to the time allotted for core reading instruction. After approximately 10 to 12 weeks, a decision should be made about the student's instructional needs (Vaughn, 2003). This tier level of intervention may include differential instruction. Chapman and King (2003) describe differentiated instruction as a means to plan for a student's unique learning style. Differentiated instruction is not a single strategy; in fact, it incorporates a variety of strategies. Ultimately, a differentiated classroom allows for choices and matches tasks that are suited with an individual student's learning needs and ability. There are three areas of differentiation: content (options for taking in information), process (options of making sense of the ideas), and product (options of expressing what they know).

Tier Three. This tier of intervention is intensive, strategic, supplemental and often considerably longer in duration than the 10-20 weeks of supplemental instruction provided in Tier Two. Tier Three is specifically designed and customized small-group reading instruction that is extended beyond the time allocated for Tiers One and Two.

Tier Three provides increased time for instruction even smaller group size intervention, ongoing adjustment of instruction, and duration of instruction may be increased to months or years. Again, differentiated instruction is part of this level of intervention due to the individualized planning for educational remediation.

Tier Three of both RTI and PBIS are virtually the same in that both target the top percent of the school's population that previous lower levels of intervention have been ineffective. The students who reach Tier Three level of intervention are considered "chronic" and are in need of individualized, intense interventions.

Reading to Read

As mentioned previously, Cooper et al. (1993) have identified a number of environmental factors that influence problem behavior. Those environmental factors include the effect of academic variables on student performance (i.e., task requirements, instructions issued, task difficulty). Center et al. (1982) and Meyer (1999) reported finding that a relationship between difficulty level of academic tasks and off-task classroom behavior. Nelson, Roberts, and Smith (1998) reported that escape and/or avoidance responses may be increased due to presentation of difficult academic tasks. A study by Roberts, Marshall, Nelson, and Albers (2001) revealed that assigned academic tasks which were too difficult relative to the student's skill level led to an increase in off-task classroom behavior. Thus, the assessment and remediation of off-task behaviors should incorporate examination of both academic and behavior problems within the classroom. According to Kovaleski and Prasse (2004), students who continue to display

poor RTI after Tier Two intervention will begin Tier Three intervention which is more intense level of intervention.

Reading to Read (RTR; Edwards, Tingstrom, & Cottingham, 1993) is a remedial reading program designed to address fluency and comprehension through direct instruction methodology. The program begins at the student's instructional level and ends at the student's grade level. Students' beginning instructional levels are determined prior to intervention by means of administration of curriculum-based assessment. This packaged reading intervention program is considered as a RTI Tier Three intervention because it is strategic, intensive, supplemental, and the duration of implementation is longer. RTR is considered as a level three intervention and approved by the Mississippi Department of Education.

According to Tingstrom, Edwards, and Olmi (1995), Reading to Read (RTR) is a reading intervention program that was developed to increase oral reading fluency. RTR is considered a variant of repeated readings (Tingstrom et al., 1995), Carver and Hoffman (1981) stated that repeated readings are considered as one method to improve oral reading fluency. Tingstrom et al. (1995) described the RTR intervention as a package of procedural modifications used to enhance the effectiveness of repeated readings. Basically, components of RTR are derived from applied behavior analysis, curriculum based assessment, and basic learning theory. The components of RTR include the basic repeated reading along with immediate corrective feedback of reading errors, performance feedback after completion of each passage, verbal reinforcement from

interventionist, charting of progress across time by the student, and progression based on relevant and sensitive mastery criteria.

Components of Reading to Read

RTR includes listening passage previewing, repeated reading, immediate corrective feedback, self-charting, and verbal reinforcement. Passage previewing involved the intervention agent reading the passage to be mastered aloud while the student followed along silently. Eckert, Ardoin, Daly, and Martens (2002) identified repeated readings as a proven effective antecedent intervention to increase reading accuracy, fluency, and comprehension. In the repeated reading intervention method, the student is required to read a passage until the established criteria is met (e.g., fluency). While the student is reading each passage aloud the examiner follows along marking the words in error and giving immediate corrective feedback. Errors are defined as (a) mispronounced words, (b) words omitted, (c) words added, (d) words substituted (e.g., mom for mother), and (e) lines omitted. Kastelen, Nickel, and McLaughlin (1984) reported that providing students (i.e., elementary, secondary, and special education) with information regarding their reading behavior has been effective in improving both academic and behavioral functioning. Immediately after each one-minute reading trial the examiner completes and informs the student of his or her correct words per minute (CWPM) for the trial. The examiner also offers ample verbal praise to the student for his or her performance. The student completes a self-monitoring chart at the end of each one-minute reading trial to visually display his or her ongoing performance. In using

curriculum-based assessment (CBA), the interventionist is able to determine the student's instructional level, therefore identifying the starting level for intervention. The use of CBA allows the interventionist to periodically monitor progress throughout the intervention. Ultimately, CBM is a set of methods for indexing academic competence and growth.

Reading to Read Research

In a series of preliminary studies (e.g., theses, dissertations) conducted at the University of Southern Mississippi, RTR was evaluated as an intervention of oral reading fluency and comprehension implemented by various personnel (e.g., researchers, teachers, teacher assistants).

Previous research has found RTR to be more effective in increasing oral-reading fluency than the traditional repeated readings (Boyer, 1992/1993). Tingstrom et al. (1995) found that RTR lead to increases in both fluency and comprehension, along with a reduction in reading errors for all three elementary students. Also, two of the three students benefited from the addition of listening previewing. For the student to maximize the listening previewing component, the student must be able to attend and focus. The one student who appeared not to benefit from the listening previewing demonstrated significant difficulty in attending and staying on task. Frederick (1995) examined the use of RTR with and without combination of listening previewing with students who were described as experiencing attention difficulties. Frederick's findings indicated that RTR in combination with listening previewing were generally more effective than RTR

without listening previewing. Also, the students who did not exhibit attention problems made greater advances than those students who exhibited attention problems. RTR has been identified to be an effective intervention to increase oral-reading fluency of a variety of students including those identified as typical reading-impaired students (Boyer, 1992/1993), special-education students (Bolton, 1991/1992), and RTR combined with listening previewing, students demonstrating problems with attention (Frederick, 1995).

Boyer (1991) used a multiple baseline design to examine the effects of the RTR intervention with four low achieving second graders. Two subjects received RTR as an intervention and two subjects received either one or two placebo interventions. The placebo interventions included repeated readings of criterion-level passages with and without corrective feedback. Results revealed that each subject experienced significant improvements in overall reading fluency. Also, the results revealed that subjects in the RTR intervention experienced very pronounced gains in instructional level in comparison to the placebo conditions.

Boyer (1992/1993) investigated the usefulness of RTR in improving reading comprehension and generalization of reading skills to unfamiliar passages. The participants included four first-grade and four second-grade students who were identified as having significant reading difficulties. This study examined students' performance using both the RTR intervention procedures and a standard repeated reading procedure with corrective feedback. The results of this study indicated that both interventions were effective, however, the RTR intervention data revealed greater gains in overall reading fluency rates, passage mastery rates, and overall literal comprehension. Also, the results

revealed that the reading gains appeared to generalize better to unrelated passages during the RTR condition.

Friedberg (1993/1994) examined the relationship of increases in oral reading fluency and ensuing increases in reading comprehension skills. The study also investigated the generalizability of the reading fluency to similar reading passages. The participants were eight second-grade African-American males who had been identified as at-risk for reading failure. A crossover design was implemented in order to control for treatment carryover effects. Group One received treatment via RTR for 2 weeks; no treatment for 2 weeks; and RTR intervention for 2 more weeks. Group Two received no treatment for 2 weeks then followed by 4 weeks of RTR intervention. The results of this study indicated overall improvements during the RTR condition. Also, significant improvements in reading comprehension as well as generalization passages were noted.

Gillespie (1992) investigated the impact of immediate and delayed corrective feedback on the reading performance of three third-graders who had been identified as being very poor readers by their teacher. An alternating treatment design was utilized to examine the effects of the two different word correction conditions during intervention. The first condition was the immediate corrective feedback. The second condition was the delayed corrective feedback. The results of this study indicated that all of the participants made significant improvements in oral reading fluency. The results revealed no evident differences between the two intervention conditions.

A study by Cottingham (1993) examined the effectiveness of corrective feedback using five third-graders. An alternate treatment design was utilized in this study. The

conditions alternated were immediate feedback and no feedback. The results revealed that all participants experienced gains in their oral reading fluency; however, there were no apparent differences in rates of improvement in either the immediate feedback condition or the no feedback condition. The author reported that some of the participants appeared less frustrated and even more motivated to perform during the immediate feedback condition.

A study by Frederick (1995) indicated the generalization of reading skills was greatest during the listening previewing condition. RTR has been shown to improve comprehension due to enhancement in reading fluency, however, it has yet to be determined if improvement in behavioral targets in the classroom would be evident.

Overall, research conducted on the impacts of RTR on oral reading fluency and comprehension have indicated increases in both oral reading fluency and comprehension. Also, the increase in oral reading fluency has been found to generalize. The RTR intervention package has proven effective with students who exhibit ADHD symptomology, special education students, and at-risk for a learning disability in reading.

Utilization of Medical Intervention and Reading to Read to Improve Oral Reading Fluency and Comprehension.

Recently, Kastner, Tingstrom, and Edwards (2000) found that RTR can be utilized to improve oral-reading fluency with children identified as Attention-Deficit Hyperactivity Disorder—Combined typed (ADHD-CT) and reading disordered. The participants in this study included two male fifth-graders and four male fourth-graders

identified as one to two grade levels behind in their reading curriculum and at least one and a half grade levels behind grade placement according to CBA. An alternating treatment design was utilized in this study in order to effectively evaluate the scheduling of intervention in regards to methylphenidate ingestion (optimal versus nonoptimal conditions). Each of the participants had been prescribed methylphenidate and continued medication compliance throughout the entire investigation. The researchers found that RTR was most effective when used approximately 45 minutes to 1 hour after ingestion of methylphenidate (optimal) versus 3-4 hours after ingestion of methylphenidate (nonoptimal). Results revealed that students' mastered passages more quickly, had higher rates of CWPM and fewer errors during the optimal methylphenidate condition. Thus, RTR has been identified as a beneficial intervention for students with ADHD and reading disability.

Utilization of Behavior Intervention to Improve Oral Reading Fluency and Comprehension.

Moore et al. (2003) found that the use of RTR combined with differential reinforcement of low rates of behavior positively impacted the reading ability of a third-grade student diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) and learning disabled in the areas of reading and math. It is important to note that this student was non-medicated for ADHD. After 3 weeks of intervention, the teacher reported little improvement with the student's oral reading fluency. During intervention sessions, the interventionist noticed limited on-task behaviors. The interventionist took data on the

student's on-task behavior which revealed low rates of 29% of the time on-task. The interventionist added rules to the RTR treatment package. These rules included keeping eyes on passage while interventionist reads the passage and stay seated unless given permission otherwise. The combination of RTR and the rules raised on-task behaviors to 58%. Next, differential reinforcement was added to the RTR and the rules. The participant was allowed to choose a baseball card if he was seen looking away from the passage less than five times. When differential reinforcement was added as an additional treatment component to the RTR and the rules, the student demonstrated higher rates of on-task behavior (94%) as well as a decrease in the number of trials to reach mastery. By increasing on-task behavior during previewing, the student's CWPM improved dramatically. This increase of on-task behavior leads to more time engaged reading time and more opportunities to benefit from interventions. These results illuminate the importance of academic learning time in regards to student learning. Also, the student scored "Low Average" on the Iowa Test of Basic Skills, whereas the previous year he had scored "Well Below Average".

The research conducted by Moore et al. (2003) revealed that RTR could indeed increase oral reading fluency. The study also revealed that utilizing strategies such as rule establishment and differential reinforcement assisted with on-task behavior occurrence. With this increase of on-task behavior, the student's required fewer reading trials to reach mastery.

Generalization in Reading Skills and Improvement in Additional Target Behaviors.

Munk and Repp (1994) reported that academic failure appears to serve as a setting event for antisocial behaviors. With this in mind, it is vital that assignments should be appropriate for the functioning level of the individual student, thus decreasing or eliminating failure. Mayer, Butterworth, Komoto, and Benoit (1983) added that it is important to match a student's functioning level with appropriate academic demands and instructional material. Munk and Repp (1994) continued by stating that academic experiences and tasks should be interspersed that are guaranteed to lead to success should be programmed into the intervention for the student. Gold and Mann (1982) found that when the curriculum was more individualized and the environment became more reinforcing, student's behavior and scholastic performance were improved.

Baer, Wolf, and Risely (1968) stated that programming for generalization requires an active approach. Stokes and Baer (1977) described generalization as the occurrence of relevant behavior under different, non-training conditions with the scheduling of the same events in those during the training conditions. Miltenberger (2004) explained that generalization has transpired when a behavior occurs in the presence of stimuli that have similarities to the discriminative stimulus that was present during training. Ultimately, generalization is reported to have happened when a behavior occurs in different circumstances (i.e., time, setting, and people) than the ones in which the behavior was taught.

In the current study, the RTR intervention package will be utilized in order to increase the participants' oral reading fluency and literal comprehension skills. In order

to check for generalization of oral fluency and literal comprehension skills, a grade-level probe will be administered to each participant at least a day after the participant had mastered a reading probe during the last intervention session. As mentioned earlier, generalization is the occurrence of the behavior during a non-training period. This check allows for close examination of maintenance of the skills being acquired during the intervention sessions across time.

Until this study, the majority of research has examined the implications of RTR on academic behavior. For example, Kastner et al. (2000) researched the effectiveness of RTR and the use of medications (i.e., methylphenidate) on academic behavior. Another example is a study by Moore et al. (2003), in which academic behavior was increased by using behavioral techniques (i.e., differential reinforcement and rules). The use of these behavioral techniques led to the use of fewer trials in order for the student to reach mastery.

Research has indicated that an increase in student's social and academic behavior may be possible by means of individualizing the curriculum and creating a more reinforcing environment (Gold & Mann, 1982). Center et al. (1982) and Meyer (1999) reported a relationship between difficulty level of academic tasks and off-task classroom behavior. Researchers have also indicated that academic failure as a setting event for antisocial behaviors, and the interspersal of academic tasks that lead to success should be programmed into an intervention for students (Munk & Repp, 1994). However this practice has not been empirically evaluated for efficacy.

This study will also examine generalization effects from the RTR intervention package to the performance of target social behavior(s) during reading class. In theory, it would seem that escape-motivated behaviors in reading class would decline as the participants' skills (i.e., oral reading fluency and comprehension) in reading increased. In order to assess the generalization effects from the RTR intervention, observations within the reading classroom will occur the same day or immediately the next day after the implementation of the RTR intervention. Again, generalization is reported to have transpired when the behavior occurs outside of a training condition. It is anticipated that over time the reading skills obtained during intervention sessions will generalize to the reading class, thus leading to a decrease in escape-motivated behaviors.

Purpose of Current Study

The purpose of the current study is to empirically evaluate the effectiveness of the RTR intervention package in addressing the oral reading fluency and comprehension difficulties of elementary students. Also, this study will examine the effects of the reading intervention on the identified escape-maintained problem behaviors (i.e., noncompliance, out-of-seat, talking out) during the reading class in the general education classroom.

A plethora of behavioral problems (i.e., teasing, talking out, fighting, and gangs) continue to plague schools and create a deep, sincere concern for the teachers. Researchers have identified a number of environmental factors (i.e. task difficulty, length of task, and instructions used) that greatly contribute and lead to the problem behaviors

exhibited by students. Many of these problem behaviors occur in order to escape or avoid aversive academic tasks.

Within the PBIS model, the individual system is within the tertiary level of intervention and utilizes functional behavioral assessments to assist in the development of empirically-based intervention plans for identified students. Specifically, FBAs include several phases consisting of descriptive assessments (record reviews, rating scales, and interviews), experimental analyses, and intervention development and implementation. In this study, the ability of specific FBA procedures used to identify students with reading difficulties who are demonstrating escape maintained target behaviors during reading class will be investigated. In addition, the effects of the RTR intervention in addressing skill deficits in oral reading fluency as well as literal comprehension will be examined. Finally, effects on the performance of social problem behavior during reading instruction n the general education classroom will be examined.

Research Question 1. Will FBA procedures identify students whose behavior is maintained by escape from reading tasks in the general education classroom?

Research Question 2. Will implementation of the RTR intervention package improve the number of words read correct on intervention probes beyond baseline levels for identified elementary school students across a 9-week period of time?

Research Question 3. Will implementation of the RTR intervention package improve literal comprehension on intervention probes beyond baseline levels for identified elementary school students across a 9-week period of time?

Research Question 4. Will implementation the RTR intervention package improve the number of words read correct on generalization probes beyond baseline levels for identified elementary school students across a 9-week period of time?

Research Question 5. Will implementation of the RTR intervention package improve comprehension on generalization maze probes beyond baseline levels for identified elementary school students across a 9-week period of time?

Research Question 6. Will escape maintained behaviors performed in the general education classroom decrease over a 9-week period of time as the referred students demonstrate improvement in reading skills?

CHAPTER II

METHODOLOGY

Experiment I

Participants

Four students enrolled in the third grade in a public school located in the southeastern United States participated in the study. The students were referred by their classroom teacher or teacher support team (TST) for a functional behavioral assessment (FBA) and a positive behavior support plan because of the display of disruptive behavior in the classroom and poor academic performance. Thus, the students were considered "at-risk" for learning or behavioral problems. The students were 1 year behind in reading or identified "at-risk" in reading based on school-wide curriculum based measurement. Students with educational diagnoses and enrolled in self-contained special education classrooms were not included in the current study. Approval from the Institutional Review Board (IRB) was obtained prior to conducting the study (Appendix A). Demographic information about each participant is presented is Table 1 on page 57.

Settings

Data were collected in two settings for Experiment I. Specifically, baseline data on the referred target behaviors and brief functional analysis (BFA) data were collected in the student's general education classroom. The classroom contained typical decorative and teaching materials and had approximately 20-25 students enrolled in each classroom staffed by a general education teacher.

Data from curriculum-based measurement (CBM) reading probes were collected in a separate setting (e.g., empty classroom) outside the classroom to minimize distractions. CBM reading probe sessions were conducted by trained school personnel. Only the school personnel and referred student were present during the CBM sessions. The CBM reading probes were used to establish mastery, instructional, and frustrational reading fluency levels for each student.

Primary Researcher and Data Collectors

The primary researcher was an advanced level doctoral student. The primary researcher was responsible for training the classroom teachers to implement the BFAs and for training additional data collectors how to collect baseline data in the general education classroom and CBM reading probe data in the separate sessions.

Additional data collectors assisting in this study were school personnel (e.g., resource teacher, counselor, and administrator approved school volunteer). Didactic and applied experiences in the experimental procedures and observation procedures were provided to the observers by the primary researcher prior to the initiation of the study.

The additional data collectors implemented baseline observation and CBM procedures with at least 80% accuracy prior to being allowed to collect data for the current project. Accuracy with observation procedures were evaluated by having the additional data collectors complete the observation procedures on other students who were not included in the current study along with the primary researcher until an 80% mastery criterion was achieved. This ensured that proper interobserver agreement (IOA) levels were established prior to the initiation of the study. A checklist (Appendix B) was utilized to ensure that proper procedural integrity was obtained for the implementation of the CBM reading probe procedures. The additional data collectors implemented the CBM reading probe procedures with at least 80% with the primary researcher before being allowed to participate in the current study.

Materials

Functional Assessment Informant Record for Teachers: Revised Edition (FAIR-T). The FAIR-T (Edwards, 2002) was used to obtain information to develop potential hypotheses regarding the function of problem behavior being displayed in the general education classrooms that led to a referral by the classroom teacher or TST. The FAIR-T consists of four sections: (a) general referral information, (b) description and definition of problem behaviors, (c) identification of antecedent events, and (d) identification of consequent events. The general referral information section includes basic student demographic data, description of problem behavior, previous intervention strategies,

provides information identifying problem behaviors associated with academics, medical problems and current medications. The problem behavior section provides descriptive information about the student's three most serious problem behaviors. The teacher rates the manageability, level of disruption, and the frequency, and duration of the problem behaviors. The antecedent section is completed for each of the behavior(s) listed by the teacher. Specific questions are used to obtain information about environmental variables related to task elements, preceding activities, presence or absence of specific individuals, child and teacher behaviors prior to the problem behavior, and situations in which the behavior is more likely to occur. The consequent section is also completed for each individual problem behavior. Some of the consequences on the FAIR-T include removal of difficult or non-preferred tasks (i.e., escape or avoidance of demands), provision of social attention for problem behavior (i.e., teacher or peer attention), provision of tangible items and preferred activities for the display of problem behaviors, provision of positive consequences for desirable behaviors, and identification of additional behaviors that may follow the primary behavior of concern.

Additional data (e.g., curriculum-based measurement probes, brief functional analysis conditions, direct observations) were collected for students whose problem behavior was displayed potentially to escape or avoid task demands associated with reading. If the student's problem behavior was displayed primarily to obtain other consequent events (e.g., social attention, tangible items) or to escape other academic tasks (e.g., mathematics), then he or she was excluded from the current study and referred back to the TST or district behavior specialist to address the referral concern. Students whose

problem behavior potentially served multiple functions (e.g., social attention, escape/avoidance, activity reinforcement) were included in the study with the stipulation that one of the potential hypothesized functions was escape or avoidance of reading activities in the general education classroom.

CBM reading probes. Reading probes using CBM procedures outlined by Shapiro (1996) were utilized to obtain baseline data on grade level reading performance and to identify the student's instructional level in reading. A minimum of three 1-minute grade level 100 word reading probes were administered outside the general education classroom to establish a baseline level of reading performance at each student's grade level. Additionally, the primary researcher and additional data collectors administered reading probes to each student starting with their grade level and working backward through the reading passages until his or her instructional level was identified. At this point, a minimum of three 1-minute instructional level 100 word reading probes were administered to establish a baseline level of reading performance at each student's instructional level. Finally, mastery level probes were identified after the collection of baseline data at each student's instructional level. Additional mastery and grade level (i.e., frustrational level) probes were used later during the BFA conditions conducted in the general education classrooms.

Direct observations. Partial interval observation forms were utilized in conducting classroom observations of the target behavior(s) during a minimum of three baseline

sessions and the BFA sessions. Each observation was conducted for 10-minutes using a tape-cued partial interval recording system where the observer observed the student for 10 seconds and then recorded occurrence of the target behavior during a 5-second record interval. The observation form included a total of 60 observation intervals and occurrence of problem behavior was calculated as a percentage of intervals of occurrence during the 10-minute observation session.

Dependent Variables

Data on three academic behaviors were collected during each CBM reading probe sessions. Specifically, data were collected on oral reading fluency, oral reading errors, and literal comprehension (Shapiro, 1996). Oral reading fluency was measured by the evaluating the number of words read correctly in 55 seconds (for instructional level passages) and 60 seconds (for grade level generalization passages) and was referred to as words read correct (WRC). Oral reading errors were measured by evaluating the total number of oral reading errors that each student makes on each reading probe. Oral reading errors included omissions, substitutions, additions, and hesitations committed by the student on each reading probe and will be referred to as errors read. An error of omission was scored if the student leaves out an entire word. An error of substitution was scored if the student said the wrong words. However, continued mispronunciation of a proper noun (e.g., John, Sally) was only counted as one error for the entire 100-word passage. An error of addition was scored if the student adds a word not in the passage. An error of hesitation was scored if the student pauses for more than five seconds when

reading the passage. Deletions of suffixes such as "-ed" or "-s" associated with speech patterns and dialects of some ethnicities was not counted as errors. Literal comprehension was assessed in the same manner as assessing work accuracy discussed above with the exception that the questions was presented orally by the individual conducting the sessions and answered orally by the referred student.

Data were collected on one academic behavior during the BFAs. Specifically, data on work accuracy was collected during each condition contained within the BFAs conducted in the general education classroom (Moore & Edwards, 2003). Work accuracy was defined as the student correctly answering the item by writing their answer to each question in the space provided. Each worksheet contained five literal comprehension questions developed from information provided throughout the 100-word reading probe. Work accuracy was represented as a percentage of the items answered correctly and was calculated by dividing the total number of items answered correctly by the total number of items and multiplying by 100%.

One problem behavior (e.g., off-task) was as identified by the classroom teacher or TST on the *FAIR-T*. Problem behavior was operationally defined based on *FAIR-T* information and teacher interview. The off-task behavior was operationally defined as the student's eyes not being directed toward the teacher during lecture/instruction or the assignment for more than 5 seconds or being engaged in other behaviors not dealing with assigned reading activity. Data on the problem behaviors were collected using a 10-second tape-cued partial interval recording system during the baseline sessions and BFA sessions conducted in the general education classroom.

Independent Variables

Two sets of independent variables were included in the present study. The first set of independent variables was associated with the 100-word passages administered to the referred students during the CBM reading probe sessions. The reading passages were developed by Fluency Plus, Inc. and adapted from reading passages from the Trophies series published by Harcourt Brace (2003). Grade, instructional, and mastery levels for each student was established using procedures outlined by Shapiro (1996) which were discussed above.

The second set of independent variables was associated with the environmental events included in BFAs conducted in the general education classrooms. Each BFA contained two easy demand (i.e., mastery level task based on CBA) conditions and two difficult demand conditions (i.e., frustrational level task based on CBA) adapted from previous research (e.g., Moore & Edwards, 2003; Moore et al., 2001; O'Neill et al., 1997). All problem behaviors were ignored by the classroom teacher during the low and high demand sessions. The primary researcher cued the classroom teachers to implement the two sets of conditions (i.e., easy task versus difficult task) via a written signal.

Easy task demand. An easy task (ET) was defined as a task that has a high probability of successful completion (i.e., mastery level reading material) and was determined on an individual basis using CBA procedures outlined by Shapiro (1996). Referred students were given 100-word passages based on their *mastery range* of fluency, meaning that the student read these passages at this level during the CBM

reading probe sessions at or above 100 CWPM (Shapiro, 1996). The student was instructed by the classroom teacher to read the passage and then provide a written answer to the literal comprehension questions in the blanks provided. Specifically, the classroom teacher told the referred student, "Please read this passage. When you finish reading, please write the answer to each question in the blank space. I'll tell you when to stop." If the referred student disengaged from the task, the classroom teacher prompted the student to return to the task by stating "Please keep working" one time. If the student finished the worksheet prior to the completion of the 5-minute session, he or she was provided with another worksheet.

Difficult task demand. A difficult task (DT) was defined as a task demand that has a low probability of successful completion (i.e., frustrational level reading material) and was determined on an individual basis using CBA procedures outlined by Shapiro (1996). Referred students were given 100-word passages based on their *frustrational range* of fluency, meaning that the student read these passages at this level during the CBM reading probe sessions at or below 49 CWPM for students in the fourth and fifth grades and at or below 29 CWPM for students in the second and third grades (Shapiro, 1996). The student was instructed by the classroom teacher to read the passage and then provide a written answer to the literal comprehension questions in the blanks provided. Specifically, the classroom teacher told the referred student, "Please read this passage. When you finish reading, please write the answer to each question in the blank space. I'll tell you when to stop." If the referred student disengaged from the task, the classroom

teacher prompted the student to return to the task by stating “Please keep working” one time. If the student finished the worksheet prior to the completion of the 5-minute session, he or she was provided with another worksheet.

Experimental Design for Brief Functional Analysis Conditions

Each environmental variable introduced during the BFA (i.e., hypothesis-based antecedent conditions) was manipulated via a multiple element design based on guidance from previous researchers (Cooper et al., 1990; Derby et al., 1992; Northup et al., 1991). This design allowed for rapid alternation of conditions while providing experimental control over implementation of the independent variable. Conditions were implemented as easy task/difficult task/easy task/difficult task for two of the participants and as difficult task/easy task/difficult task/easy task for the other two participants. Changing the order of the conditions across participants assisted in ruling out the influence of order effects which could confound the results obtained from the BFA. In other words, the conditions were counterbalanced across the participants in an effort to reduce the likelihood that the order of the conditions and not the independent variables associated with the conditions (e.g., low demand, high demand) was responsible for the results. BFA conditions were collected across 1 day and were separated by a minimum of 5-minutes based on guidance from previous researchers (e.g., Moore & Edwards, 2003).

Procedures

Informant assessment. Descriptive assessment techniques were used initially in this study. The researcher examined academic records for each of the participants. Each student's teacher completed the FAIR-T. Then, the experimenter conducted a follow-up interview with the teacher to clarify the information provided on the FAIR-T. The information obtained was used to establish operational definitions of the target behavior(s), specific times for observations, and antecedent and consequent events that surround the occurrence of the problem behavior.

CBM reading probes. After reviewing the records and interviewing the teacher, CBM reading probes were administered by trained graduate students to identify the mastery, frustrational, and instructional levels of oral reading fluency for each student. Baseline data were collected on grade level oral reading fluency performance and instructional level reading performance during this time as well. The referred student was given a minimum of three 100-word grade level passages and instructed to read them aloud for 1-minute each. Specifically, the trained data collector provided the student with one 100-word grade level passage and instructed the referred student to "Begin here. Read this passage aloud until I tell you to stop." The referred student was encouraged to move to the next word in the passage if he or she hesitates for more than five seconds on a word. However, he or she was given no feedback during the reading of the 1-minute passage. At the conclusion of 1 minute, the trained data collector was recorded the WRC

and errors At this point, the student was asked five literal comprehension questions. The trained data collector recorded the student's answers and repeated this procedure for at least two additional grade level probes.

After data (e.g., WRC, errors, comprehension) were obtained for the three grade level probes, the trained data collector proceded backward through the reading passage using guidelines established by Shapiro (1996) to identify the student's instructional and mastery levels. When the referred student's instructional level was identified, the trained data collector will gather data on the student's oral reading fluency (e.g., WRC, errors and percent comprehension for a minimum of three 1-minute reading passages using the same procedures as outlined for the grade level probes. The trained data collector identified probes at the student's mastery level for use later in the BFA conditions.

Brief functional analysis. After the functioning levels were identified per student and baseline data was obtained, the primary researcher verbally explained the conditions to the classroom teacher and provided him or her with a written description of each condition (e.g, easy versus difficult task demand) prior to implementation of each condition. After the BFA conditions were presented to the teacher, the primary researcher provided him or her with reading probes at the appropriate level (i.e., mastery versus frustrational levels) and instructed him or her to implement each condition alternating between easy and difficult demand conditions with a minimum of a 5-minute break between conditions. The primary researcher cued the teacher via a written sign to implement in the BFA conditions in the general education classroom during normal

classroom activities over the course of 1 day with a minimum of 5 minutes between each condition (Moore & Edwards, 2003). Data were recorded on work accuracy and performance of problem behavior using partial interval recording. The BFA conditions were used to confirm or disconfirm the data obtained from the FAIR-T. Student's who displayed lower amounts of work accuracy and displayed higher amounts of problem behavior during the high demand conditions were retained for Experiment II.

Interscorer Agreement

Interscorer agreement data were collected for a minimum of 33% of the CBM reading probe sessions and a minimum of 50% of the BFA sessions. For the CBM reading probe sessions, two data collectors was present to gather data on WRC, errors, and percent comprehension. For the BFA sessions, two data collectors were present to assess work accuracy. Interscorer agreement was expected to be at least 80% for WRC, errors, percent comprehension, and work accuracy or retraining would occur using data from other students not included in the present study before the data collector was allowed to continue to collect data. Actual interscorer agreement for data collected during CBM probe sessions was 94% (range, 90-100%) and during BEA sessions was 100%.

Interobserver Agreement

Interobserver agreement (IOA) data were collected for a minimum of 33% of the baseline sessions and a minimum of 50% of the BFA sessions across all students. IOA was calculated on an exact interval-by-interval basis by dividing the total number of

agreements by the total number of agreements plus disagreements and then multiplying by 100%. IOA was expected to be at least 80% or retraining using video tapes or observation of other students not included in the study occurred before the observer would be allowed to continue to collect data. Actual IOA was 96% (range, 92-100%) during BFA sessions and 93% (range, 88-95%) during baseline sessions.

Procedural Integrity

Procedural integrity was assessed during 33% of the CBM reading probe sessions and 50% of the BFA conditions using a checklist. Procedural integrity was expected to be at least 80% or retraining would occur. Actual procedural integrity was 100% during both CBM reading probe sessions and brief functional analysis conditions.

Data Analysis

Data from the CBM probes for both grade level and instructional level performance were displayed graphically and visually inspected for changes in level, trend, and variability during baseline data collection. Level referred to the average value of the measure. As such, the identified mean of each phase was also referred to as the level of the series of data points for that phase. Trend referred to the direction of change from the beginning of the series of data points to the end of data points. Variability referred to the spread of data points around the level and trend. The more variable the data was in a phase, the more difficult it is to identify the student's true level of performance as extreme data points skew the calculation of the mean. A large amount of

variability in a phase usually suggests the influence of other extraneous variables (e.g., distractions, illness, other interventions), or lack of uniform knowledge in the area being assessed (i.e., has some basic decoding skills, knows simple vocabulary words, etc.). However, the attainment of more stable data during intervention conditions as opposed to baseline conditions has been suggested to be an important intervention effect regardless of changes in level and trend (Hayes, Barlow, & Nelson-Gray, 1999). Thus, it is sometimes necessary to proceed to intervention despite having less stable data in a pretreatment or baseline phase.

Data obtained from the BFA sessions were displayed graphically and visually inspected for changes in level between the low and high demand conditions and replication of effects across the two conditions. Only one data point was collected per BFA condition; therefore, only changes in level were analyzed as at least two data points are needed to evaluate changes in trend and three data points are needed to evaluate changes in variability. Having only one data point per phase may be viewed as a limitation; however, this methodology was consistent with previous research (e.g., Moore & Edwards, 2003, Moore et al., 2001) and having a replication of each condition (i.e., easy task, difficult task) provided us with greater confidence of the findings of the study.

Table 1. Participant Information.

Student	Age	Grade	Educational Diagnosis	Retention	Instructional level CBM	Baseline Off-task %
Mark	8	3	none	no	63	49%
Olivia	8	3	none	no	48	20%
Kristi	9	3	none	1st	53	34%
Michelle	9	3	S/L (artic)	K	59	23%

Note. S/L (artic) = previous diagnosis as articulation disorder, K= kindergarten.

Experiment II

Participants

Only students whose problem behavior was identified as being potentially maintained by escape from task demands in reading from Experiment I were retained for Experiment II. Data from the FAIR-T, curriculum-based measurement probes, direct observations in the general education classroom, and brief functional analysis conditions were used to evaluate the potential function of problem behavior.

Settings

Data for Experiment II were collected in two settings. Specifically, intervention data on the student's oral reading fluency (e.g., WRC, errors) and percent comprehension

on instructional level and grade level passages were collected in a separate setting outside the general education classroom. Direct observation data on the performance of problem behavior (i.e., off-task behavior) was collected in the general education classroom during reading class during regularly scheduled reading activities. The classroom contained typical decorative and teaching materials, had approximately 20-25 students enrolled in each classroom staffed by a general education teacher.

Primary Researcher, Interventionists, and Data Collectors

The primary researcher was an advanced level doctoral student. The primary researcher was responsible for training the classroom teachers how to implement the BFAs and training additional data collectors how to collect baseline data in the general education classroom and CBM reading probe data in the separate sessions.

Additional interventionists and data collectors assisting in this study were school personnel (e.g., resource teacher, counselor, and administrator approved school volunteer). Didactic and applied experiences in the experimental procedures and observation procedures were provided to the observers by the primary researcher prior to the initiation of the study. The additional data collectors implemented direct observation procedures and intervention procedures with at least 80% accuracy prior to being allowed to collect data for the current project. Accuracy with observation procedures were evaluated by having the additional data collectors complete the observation procedures on other students who were not included in the current study along with the primary researcher until an 80% mastery criterion was achieved. This ensured that proper

interobserver agreement (IOA) was established prior to the initiation of the study. A checklist (Appendix C) was utilized to ensure that proper treatment integrity was obtained for the implementation of the reading intervention procedures. The interventionist implemented the reading intervention procedures with at least 80% with the primary researcher before being allowed to participate in the current study.

Materials

Curriculum-based reading probes. Reading probes developed by Fluency Plus, Inc. and adapted from Harcourt Brace Trophies series (2003) was used during the intervention phase of the study. Specifically, three 100-word reading passages were developed from each third (i.e., beginning, middle, end) of a book included in the Trophies reading series and bound in a manual containing all of the passages. There were a total of 11 books that ranging from the first through the fifth grade levels. Appendix D lists the books that correspond to each grade level. A student reading probe and an interventionist reading probe was developed for each level. The student's probe was a 100-word passage printed in 12 point black San Script font on an 8 ½ by 11 sheet of white paper. The interventionist's probe was a 100-word passage printed in 12 point black San Script font on an 8 ½ by 11 sheet of white paper with numbers printed on the right side at the end of each line to indicate the number of words per line and a cumulative total of words. The interventionist's passage also had five literal

comprehension questions listed at the bottom of the page underneath the 100-word passage.

Documentation forms. In addition to having reading passages at each level, several documentation forms exist to document the student's progress throughout the intervention phase of the study. Specifically, a daily documentation form, treatment integrity form, and self-monitoring graph. The daily documentation form (Appendix E) allowed for documentation of the words per minute, errors per minute and the correct words per minute for each of the ten trials. This form also had a designated place for the documentation of the comprehension accuracy percentage which is just below the previously mentioned data being collected. The student, teacher and assistant teacher's names; student age and grade, and the beginning date of the intervention were located at the top of the page. Next, the form had a place for the examiner's initials, the reading level, the date, and the time of session. The treatment integrity form (Appendix C) allowed for documentation of the follow-through of all of the treatment procedures. This form had a place for the interventionist's and observer's name, date, and the observation number. The form listed each of the components (i.e., materials ready, timed passages, immediate feedback, computes WRC, informs student, verbal praise, and completes to mastery, and comprehension questions) for all ten trials. At the bottom of the form, the total percentage for treatment integrity was calculated. A self-monitoring graph (Appendix H) form allowed for documentation of the student's progress. The form had a place the student's name and the date located at the top of the page. The page had two

separate graphs on the page for two separate sessions each containing ten trials. The student shaded in the WRC (i.e., 0-100) along the y-axis for each trial. At the bottom of the form, there were spaces for the interventionist to fill in the passage number, total words, errors and WRC for each trial for both sessions.

Direct observations. Partial interval observation forms (Appendix G) were utilized in conducting classroom observations of the target behavior(s). Each observation were conducted for 10 minutes using a tape-cued partial interval recording system where the observer observed the student for 10 seconds and then recorded occurrence of the target behavior during a 5-second record interval. The observation form included a total of 60 observation intervals.

Dependent Variables

Data were collected on three academic behaviors during each reading intervention session. Specifically, data was collected on oral reading fluency, oral reading errors, and percent comprehension on literal questions (Shapiro, 1996). Oral reading fluency was measured by the evaluating the number of words read correctly in 55 seconds (for intervention probes) and 60 seconds (for generalization probes) and was referred to as WRC. Oral reading errors were measured by evaluating the total number of oral reading errors that each student makes during each 55 second reading probe. Oral reading errors included omissions, substitutions, additions, and hesitations committed by the student during the 1 minute reading probe and were referred to as errors. An error of omission

was scored if the student left out an entire word. An error of substitution was scored if the student read the wrong words. However, continued mispronunciation of a proper noun (e.g., John, Sally) was only counted as one error for the entire 100-word passage. An error of addition was scored if the student added a word not in the passage. An error of hesitation was scored if the student paused for more than 5 seconds when reading the passage. Deletions of suffixes such as "-ed" or "-s" associated with speech patterns and dialects of some ethnicities were not counted as errors. Literal comprehension was assessed in the same manner as assessing work accuracy discussed above with the exception that the questions were be presented orally by the graduate student conducting the sessions and answered orally by the referred student.

The students were required to read the intervention probes in 55 seconds as a means to increase their accurate reading to a level commensurate with the reading fluency rate at their current grade placement. However, the students were required to read the generalization probes (at grade-level) for 1 minute. The generalization probes were timed for 1 minute to see if the students were indeed making gains on grade-level material. Again, the intervention probe reading time was reduced in order to increase accurate reading rates to correspond with grade level reading fluency. If the students were only trained on instructional level material to read at an equivalent rate or maybe even slightly higher on grade level material, this change in the timing is necessary and the evidence will be found in the generalization probes.

Off-task behavior previously identified by the classroom teacher was observed in the general education classroom during Experiment II. Operational definitions for the

problem behaviors were developed in Experiment I and retained for Experiment II to ensure that the integrity of the data collection procedures was maintained. The off-task behavior was operationally defined as the student's eyes not being directed toward the teacher during lecture/instruction or the assignment for more than 5 seconds or being engaged in other behaviors not dealing with assigned reading activity. Data on the problem behaviors was collected using a 10-second tape-cued partial interval recording system during the observation session conducted in the general education classroom during reading class.

Independent Variables

Reading to Read intervention. Reading to Read (RTR) is a remedial intervention program consisting of a series of direct instructional reading sessions beginning with student's independent instructional levels and ending at the point in the school curriculum where student's peers are currently working. Targeted students beginning instructional levels are determined prior to intervention by administering a curriculum-based assessment using Reading to Read instructional passages. A student's independent instructional level is the point in the curriculum where he is successfully at reading 90% or greater of the words in a reading passage correctly. During intervention, students participated in direct instruction sessions consisting of approximately seven to ten, 1-minute repeated readings of a l00-word instructional passage. Instructional materials consisted of a series of 100-word reading passages developed from a basal reading series.

Passages were derived from the beginning, middle, and end of each book in a given reading series. The components of RTR included listening passage previewing, repeated reading, immediate corrective feedback, self-charting, and reinforcement.

Experimental Design

A multiple baseline (MBL) across participants design was used to evaluate the impact of the RTR intervention on both academic and target problem behaviors. The multiple baseline design was used to control for extraneous factors (i.e., maturity, selection bias, pre-treatment effects, reactive experimental arrangements, other interventions) that could affect student performance. When the phase changes were staggered across participants and immediate changes in student performance (i.e., change in the level, trend, variability of the data) were observed only after the introduction of new condition or phase for each participant included in the multiple baseline design, more confidence was placed in the effectiveness of the intervention as opposed to unknown external factors increasing the confidence in the internal validity of the study. The students in this study were grouped into dyads to avoid excessively long baselines and increase their exposure to the intervention.

Procedures

Baseline. In order to obtain a pre-treatment level of performance on both academic and target behavior variables, baseline data was collected on WRC, errors, and

percent comprehension during individual CBM reading probe sessions and percentage of problem behavior during direct observations in the general education classroom. Data were obtained on a minimum of three sessions for each student. Specifically, a minimum of three instructional level reading probe sessions and classroom observations were conducted for Students 1 and 3 and a minimum of six instructional level reading sessions and classroom observations were conducted during baseline for Students 2 and 4. The final number of data points was established by an evaluation the level, trend, and variability of the reading probe data obtained on instructional level probes and is discussed further in the data analysis section of this manuscript.

Intervention. *Reading to Read* (RTR) is a remedial intervention program consisting of a series of direct instructional reading sessions beginning with student's independent instructional levels and ending at the point in the school curriculum where student's peers are currently working. Targeted students beginning instructional levels were determined prior to intervention by administering a curriculum-based assessment using *Reading to Read* instructional passages. A student's independent instructional level was the point in the curriculum where he is successfully at reading 90% or greater of the words in a reading passage correctly. Data was collected in the same manner as outlined in baseline phase on both academic variables (e.g., WRC, errors, percent comprehension) and behavior variables (e.g., percentage of intervals of problem behavior) during the intervention phase of Experiment II to evaluate the impact of intervention on the performance of oral reading fluency and literal comprehension during individual

intervention sessions and problem behavior in the general education classroom. The intervention used instructional level materials with previewing, repeated practice, immediate corrective feedback, performance feedback, self charting of progress, mastery-based progression, and reinforcement to increase the rate of words read correct. The specific steps of the RTR intervention are outlined below.

Step one. The examiner read aloud the appropriate intervention passage at the rate of 100 words per minute while the student followed along with the examiner.

Step two. The student reads the instructional level passage in a series of 55-second trials until a mastery criterion of 97 or greater words read correct was achieved. Students were required to read the passage in 50 seconds as opposed to the traditional 60 seconds because this criterion would assist the students in learning to read accurately at a rate that is more closely aligned with the reading fluency rate at the student's current grade placement. While the student read the passage aloud, the examiner followed along marking the errors and providing immediate corrective feedback. Immediately after each trial, the examiner informed the student of his or her words read correct for each trial and the student marked his or her progress on a chart to visually display his or her ongoing performance after each trial. The examiner offered ample verbal praise to the student for his or her performance. The process continued until the student reaches the mastery criterion for reading fluency.

Step three. Once the student reached the fluency criterion (e.g., 97 or greater WRC) and completed the self-monitoring chart, he or she was asked five literal comprehension questions from the passage. The student was required to answer the items orally and the interventionist recorded his or her answer on the appropriate documentation form. Also after reaching mastery, the student was allowed to access a tangible reinforcer from a box of donated developmentally appropriate items. This entire process was repeated each meeting using the next highest passage in the instructional sequence.

Generalization. Two forms of generalization were assessed during Experiment II. First, grade level probes were administered to each student prior to starting intervention sessions after he or she had mastered a probe. Secondly, generalization comprehension probes were administered after the grade level probes. For example, if a student mastered a probe on Monday, then he or she would be administered a grade level probe and a generalization comprehension probe on Wednesday prior to starting the intervention sessions for the next level passage. Data on WRC, errors, and percentage of comprehension was obtained to assess the student's growth over time on grade level material. Each student was allowed 60 seconds to read the generalization probes. The generalization comprehension probes were very similar in format to the cloze procedure. The students choose an answer from three choices that best completes the sentence.

Assessment of generalization effects from the RTR intervention on the performance of social target behavior was conducted through the use of direct classroom

observations of teacher identified problem behavior during reading class. These observations occurred three times a week either the same day or immediately the next day after RTR intervention had occurred.

Interscorer Agreement

Interscorer agreement data was collected for a minimum of 33% of the reading intervention probe sessions. For the CBM reading probe sessions, two data collectors were present to gather data on WRC, errors, and percentage of comprehension. Interscorer agreement was expected to be at least 80% for WRC, errors, percentage of comprehension, work completion, and work accuracy or retraining occurred using data from other students not included in the present study before the data collector was allowed to continue to collect data. Actual interscorer agreement was 86% (range, 80-93%) for the data collected across all four students.

Interobserver Agreement

Interobserver agreement (IOA) data was collected for a minimum of 33% direct classroom observations across all students. IOA was calculated on an exact interval-by-interval basis by dividing the total number of agreements by the total number of agreements plus disagreements and then multiplying by 100%. IOA was expected to be at least 80% or retraining using video tapes or observation of other students not included in the study occurred before the observer was allowed to continue to collect data. Actual

interobserver agreement was 96.5% (range, 96-97%) for the data collected across all 4 students.

Treatment Integrity

Treatment integrity was assessed during 33% of the reading intervention probe sessions using a checklist. Treatment integrity (Appendix C) was expected to be at least 80% or retraining would occur. This form had a place for the interventionist's and observer's name, date, and the observation number. The form listed each of the components (i.e., materials ready, timed passages, immediate feedback, computes WRC, informs student, verbal praise, and completes to mastery, and comprehension questions) for all 10 trials. At the bottom of the form, the total percentage for treatment integrity was calculated. Actual treatment integrity was 100% across all four students included in the present study.

Data Analysis

Data from the reading probes (i.e., WRC, errors, percentage of comprehension) for both instructional level performance and grade level performance were displayed graphically and visually inspected for changes in level, trend, and variability across baseline and intervention phases of Experiment II. In addition, data obtained on the percentage of intervals of problem behavior from the direct classroom observations during the reading class will also be displayed graphically and visually inspected for changes in level, trend, and variability across baseline and intervention phases of

Experiment II. Level referred to the average value of the measure. As such, the identified mean of each phase was also referred to as the level of the series of data points for that phase. Trend referred to the direction of change from the beginning of the series of data points to the end of data points. In the current study, an increasing trend for WRC and percentage of comprehension was desirable during intervention conditions because such an observation would indicate that the student was improving in ability to read more words correct in a 55-second period of time and answer more comprehension questions correctly after mastering the passage. A decreasing trend in errors and percentage of intervals of problem behavior was desirable as such an observation would indicate that the student is improving in oral reading fluency and their performance of appropriate target behaviors during reading class as a result of improvement in academic abilities in reading. Variability referred to the spread of data points around the level and trend. The more variable the data were in a phase, the more difficult it is to identify the student's true level of performance as extreme data points skew the calculation of the mean. A large amount of variability in a phase usually suggests the influence of other extraneous variables (e.g., distractions, illness, other interventions), or lack of uniform knowledge in the area being assessed (i.e., has some basic decoding skills, knows simple vocabulary words, etc.). However, the attainment of more stable data during intervention conditions as opposed to baseline conditions had been suggested to be an important intervention effect regardless of changes in level and trend (Hayes et al., 1999). Thus, it is sometimes necessary to proceed to intervention despite having less stable data in a pretreatment or baseline phase.

Progression from the baseline phase to the *Reading to Read* intervention phase of the study occurred when stability has been obtained in the data during the baseline phase for WRC on intervention probes. Data on errors, percentage of comprehension, and percentage of intervals of problem behavior was reviewed and analyzed for changes in level, trend, and variability. However, only WRC obtained on intervention probes was reviewed for stability during the baseline phase. The rationale for this decision was because the primary purpose of the *Reading to Read* intervention was to improve a student's oral reading fluency (i.e., WRC) which should in turn reduce their errors and increase their percent comprehension based on previous research. Additionally, changes in the level, trend, and variability for the performance of problem behavior (as measured by percentage of intervals) were important to analyze. However, changes in the percentage of intervals of problem behavior were being evaluated as a form of generalization (i.e., improvement in academic performance should lead to an improvement in behavioral performance) in this study and not a direct target for intervention. Therefore, requiring stability in the behavioral data would be inappropriate for this study since the primary purpose of the intervention was to improve academic performance (i.e., WRC).

CHAPTER III

RESULTS

Due to the individual nature of each participant's response to the different phases included within the current study, the results for each individual participant across methods (e.g., FAIR-T, CBM reading probes, direct classroom observations, brief functional analysis conditions) in Experiment I are presented first. Then, the results for each individual participant across methods (e.g., baseline data, intervention data, generalization data) in Experiment II are presented. Specifically, the data of the individual students were analyzed by visual inspection of the data for observable changes in trend, level, and variability between baseline and intervention conditions (Hayes et al., 1999). Additionally, individual means were calculated for each participant to evaluate the average performance across each phase. Following the individual student responses on the baseline and *Reading to Read* intervention phases, changes in the individual student responses on behavioral and academic targets on generalization measures are presented. The results section concludes with a brief interpretation of the data as it relates to the six research questions evaluated in the current study.

Experiment I

Mark

Functional Assessment Informant Record for Teachers: Revised Edition (FAIR-T). Mark's third-grade teacher completed the FAIR-T and then a follow-up interview was conducted by the primary researcher. Mark's teacher described him as a "sweet" and "humorous" student who often "drifts off", plays with objects, stares off in space, and looks around the room during reading activities. The teacher continued by reporting that Mark is considered below grade level in reading. Based on the STAR (Renaissance Learning, 2008) reading test, Mark was considered to be at the 2.3 grade level. The teacher expressed concerns of the language potentially impacting his progress academically as he lives in a home where both English and Spanish are spoken. However, she reported that Mark does speak English fluently. The teacher reported that Mark completed 65% of his classwork with approximately 70% accuracy. The primary target behaviors reported to impact Mark's academic performance included: staring off in space, looking around the room, and playing with objects at his desk which was deemed to be "off-task" behavior. The off-task behavior was rated as a serious concern and was reported to occur approximately 10-12 times during the reading class. This target behavior was reported to have been present since the beginning of the academic year. Reported antecedent events included certain types of task, certain subjects, large group, independent work, and small group that primarily involved reading activities. Reported

typical consequences for off-task behavior included verbal redirection, talking to him after class, phone calls to parent, parent conference, and allowing him to escape the task demands in reading. Based on teacher responses, it was hypothesized the off-task behavior was potentially maintained by access to social attention and escape avoidance.

CBM reading probes. Mark was administered CBM reading probes to determine the mastery, frustrational, and instructional levels of his oral reading fluency. Mastery for Mark's oral reading fluency was found to be at the beginning of second grade. Instructional level for his oral reading fluency was found to be at the middle of second grade. His frustrational level was found to be at the beginning of third grade material.

Direct classroom observations. Mark was observed during reading class to determine the percentage of intervals that off-task behaviors occurred prior to reading intervention and to obtain a baseline level of performance of off-task behavior. Mark engaged in off-task behavior during an average of 49% (range, 45%-52%) of the observed intervals across three observations.

Brief functional analysis. Because a primary function of the student's behavior was considered to be escape from academic material in reading, a brief functional analysis was conducted to determine whether easy or difficult task demands were environmental events associated with the target behavior. Each brief functional analysis included two easy demand conditions and two difficult demand conditions. Each

condition was implemented for 5 minutes. The analysis was conducted in one session and lasted approximately 35 minutes. All conditions were conducted during reading class and all students in the class were given the same reading materials. During the first easy demand condition, Mark was observed to engage in off-task behavior during 0% of the observed intervals. During the first difficult demand condition, Mark was observed to engage in off-task behavior during 10% of the observed intervals. During the second easy demand condition, Mark was observed to engage in off-task during 0% of the observed intervals. During the second difficult demand condition, Mark was observed to engage in off-task behavior during 7% of the observed intervals. These results are displayed in Figure 1.

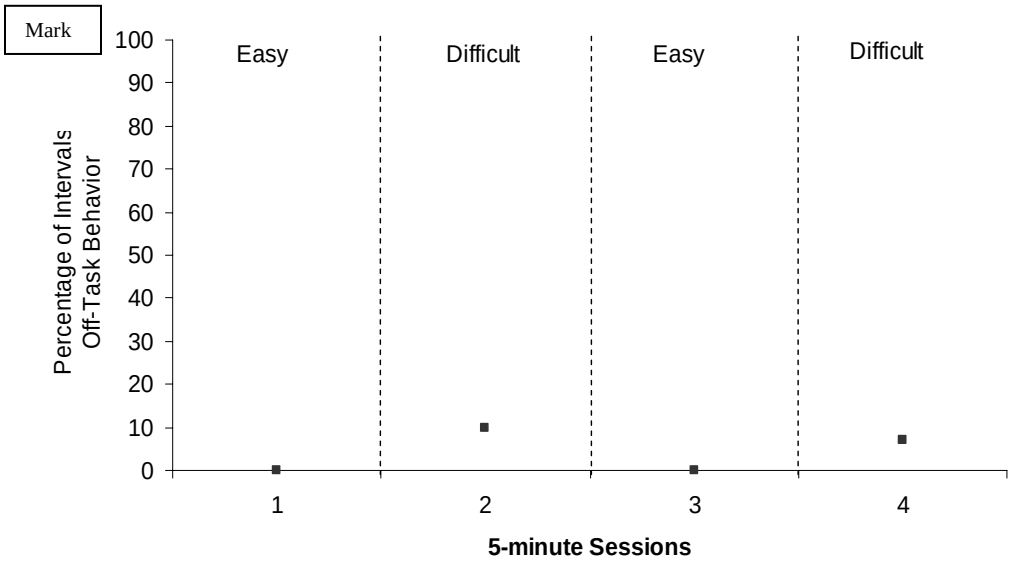

Figure 1. Percentage of Intervals of Off-task Behavior during 5-minute Brief Functional Analysis Conditions for Mark.

In addition to obtaining data on target behavior, academic skills were also evaluated during the brief functional analysis conditions. Specifically, comprehension was assessed by having the students answer five literal comprehension questions that were printed on a separate page from the reading material. The student was required to write his answers to the item below each question. Mark's comprehension accuracy during both easy demand conditions was 80%; however, his comprehension accuracy during the first difficult demand condition was 47% and 30% during the second difficult demand condition. These results are displayed in Figure 2.

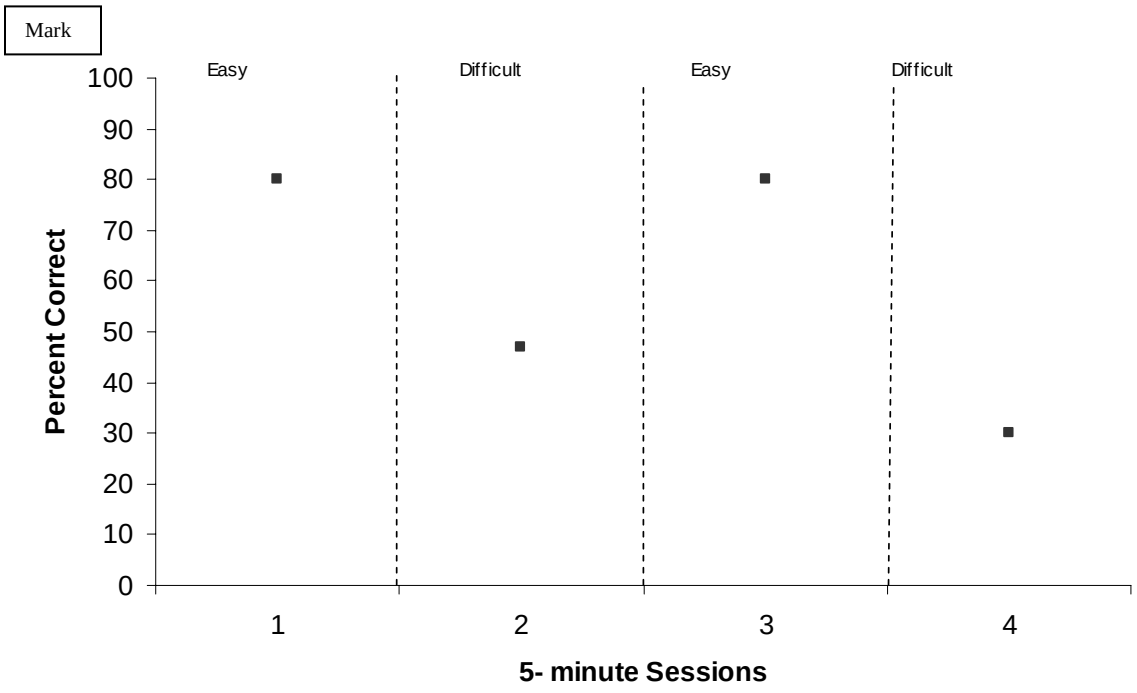

Figure 2. Percentage Correct on Literal Comprehension Questions during Brief Functional Analysis Conditions.

Olivia

Functional Assessment Informant Record for Teachers: Revised Edition (FAIR-T). Olivia's third-grade teacher completed the FAIR-T and then a follow-up interview was conducted by the primary researcher. Olivia's teacher described her as a "strong-willed" student who fidgeted or played with objects (e.g., twirls hair, stickers, objects in desk) and "stared off" during reading activities. The teacher also stated that Olivia was considered to be below grade level in reading. Based on the STAR (Renaissance Learning, 2008) reading test, Olivia was considered to be at the 2.1 grade level. The teacher reported that Olivia completed 80% of her classwork with approximately 75% accuracy. The primary target behaviors were reported to include playing with objects and staring off which was deemed to be "off-task" behavior. The off-task behavior was rated as a major concern with a reported occurrence rate of approximately 7-9 times during the reading class. This target behavior was reported to have been present since the beginning of academic year. Reported antecedent events included certain types of task, large group, independent work, and small group mainly centered around reading activities. Reported typical consequences for the performance of off-task behavior primarily included verbal redirection. Based on teacher responses to the FAIR-T, it was hypothesized the off-task behavior was potentially maintained by access to social attention and escape from academic material involving reading.

CBM reading probes. Olivia was administered CBM reading probes to determine the mastery, frustrational, and instructional levels of her oral reading fluency. Mastery for Olivia's oral reading fluency was found to be at the beginning second grade. Instructional level for her oral reading fluency was found to be at the end of second. Her frustrational level was found to be at the beginning of third grade material.

Direct observations. Olivia was observed during reading class to determine the percentage of intervals in which off-task behaviors occurred prior to the reading intervention and to establish a baseline level of performance. Olivia's engaged in off-task behaviors during an average of 20% (range, 5% - 38%) the observed intervals across six observations.

Brief functional analysis. Because a primary function of the student's behavior was considered to be escape from academic material in reading, a brief functional analysis was conducted to determine whether easy or difficult task demands were environmental events associated with the target behavior. Each brief functional analysis included two easy demand conditions and two difficult demand conditions. Each condition was implemented for 5 minutes. The analysis was conducted in one session and lasted approximately 35 minutes. All conditions were conducted during reading class and all students in the class were given the same reading materials.

During the first difficult demand condition, Olivia was observed to engage in off-task behavior during 10% of the observed intervals. During the first easy demand

condition, Olivia was observed to engage in off-task behavior during 0% of the observed intervals. During the second difficult demand condition, Olivia was observed to engage in off-task behavior during 13% of the observed intervals. During the second easy demand condition, Olivia was observed to engage in off-task behavior during 0% of the observed intervals. These results are displayed in Figure 3.

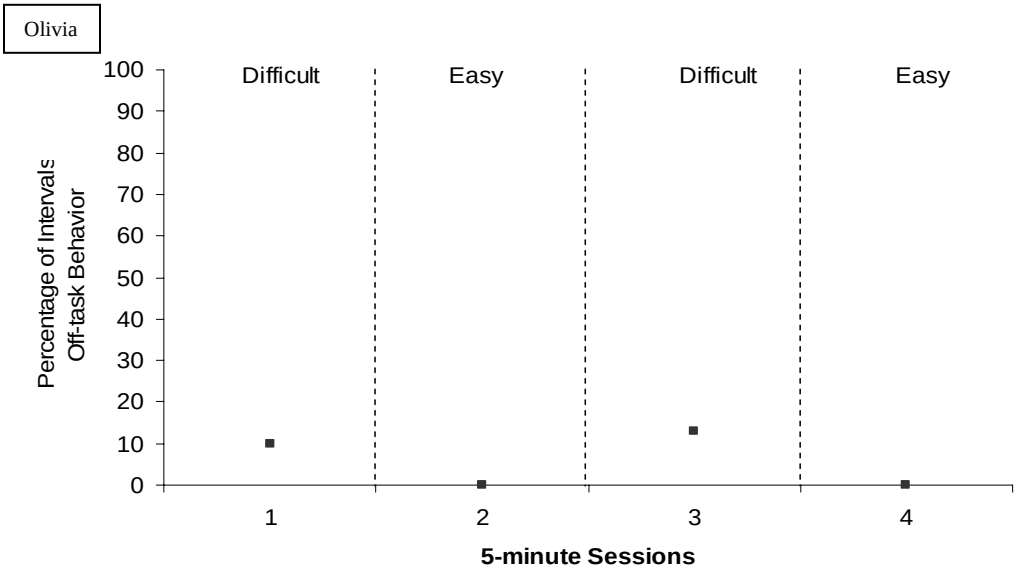

Figure 3. Percentage of Intervals of Off-task Behavior during 5-minute Brief Functional Analysis Conditions for Olivia.

In addition to obtaining data on social behavior, academic skills were also evaluated during the brief functional analysis conditions. Specifically, comprehension was assessed by having the students answer five literal comprehension questions that were printed on a separate page from the reading material. The student was required to write her answers to the item below each question. Olivia correctly answered 80% of the items during the first difficult demand condition and 40% of the items during the second

difficult demand condition. She correctly completed 90% of the items during the first easy demand condition and 100% of the items in the second easy demand condition. These results are displayed in Figure 4.

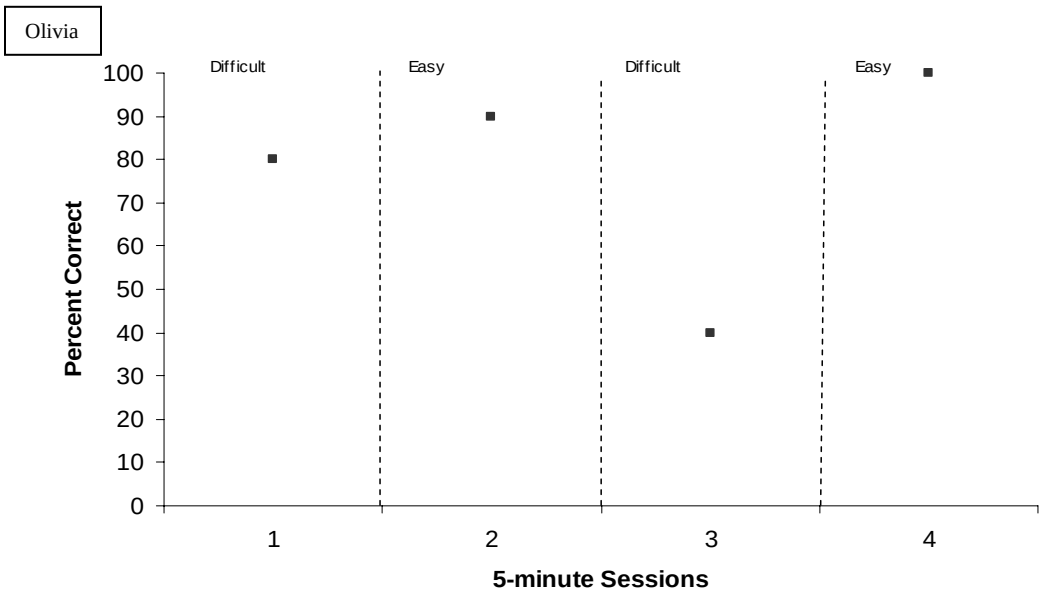

Figure 4. Percentage of Correct on Literal Comprehension during Brief Functional Analysis Conditions.

Kristi

Functional Assessment Informant Record for Teachers: Revised Edition (FAIR-T). Kristi's third-grade teacher completed the FAIR-T and then a follow-up interview was conducted by the primary researcher. Kristi's teacher described her as a "happy" student with a "sense of humor" who sometimes "stared off into space" and "dawdles" during reading activities. The teacher reported that Kristi was considered to be below grade level in reading. Based on the STAR (Renaissance Learning, 2008) reading test, Kristi was

considered to be at the 2.3 grade level. The teacher stated that Kristi completed 80% of her work with approximately 65% accuracy. The primary target behavior was reported to include "dawdling" and "starring into space" which was deemed to be "off-task" behavior. The off-task behavior was rated as a major concern with a reported to occurrence rate of approximately 10-12 times during the reading class. This target behavior was reported to have been present since the beginning of the academic year. Reported antecedent events included certain types of task, large group, independent work, and small group all that primarily involved reading activities. Reported consequences for the occurrence of off-task behavior included verbal redirection. Based on teacher responses, it was hypothesized the off-task behavior was potentially maintained by access to social attention and escape from demands associated with reading.

CBM reading probes. Kristi was administered CBM reading probes to determine the mastery, frustrational, and instructional levels of her oral reading fluency. Mastery for Kristi's oral reading fluency was found to be at the beginning of second grade. Instructional level for her oral reading fluency was found to be at the middle of second grade. Her frustrational level was found to be at the beginning of third grade material.

Direct observations. Kristi was observed during reading class to determine the percentage of intervals of off-task behaviors prior to reading intervention and to establish a baseline level of performance. Kristi engaged in off-task behavior during an average of 34% (range, 13% - 60%) of the observed intervals across three observations.

Brief Functional Analysis. Because a primary function of the student's behavior was considered to be escape from academic material in reading, a brief functional analysis was conducted to determine whether easy or difficult task demands were environmental events associated with the target behavior. Each brief functional analysis included two easy demand conditions and two difficult demand conditions. Each condition was implemented for 5 minutes. The analysis was conducted in one session and lasted approximately 35 minutes. All conditions were conducted during reading class and all students in the class were given the same reading materials.

During the first easy demand condition, Kristi was observed to engage in off-task behavior during 3% of the observed intervals. During the first difficult demand condition, Kristi was observed to engage in off-task behavior during 7% of the observed intervals. During the second easy demand condition, Kristi was observed to engage in off-task behavior during 3% of the observed intervals. During the second difficult demand condition, Kristi was observed to engage in off-task behavior during 13% of the observed intervals. These results are displayed in Figure 5.

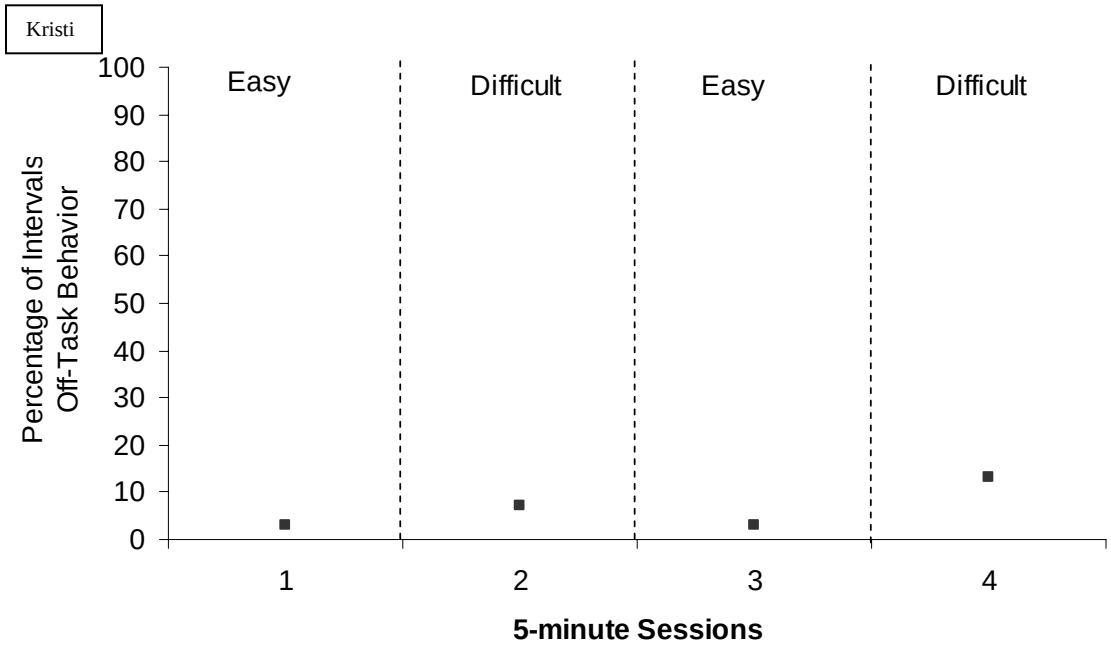

Figure 5. Percentage of Intervals of Off-task Behavior during 5-minute Brief Functional Conditions for Kristi.

In addition to obtaining data on social behavior, academic skills were also evaluated during the brief functional analysis conditions. Specifically, comprehension was assessed by having the students answer five literal comprehension questions that were printed on a separate page from the reading material. The student was required to write her answers to the item below each question. Kristi's comprehension accuracy during the first easy demand condition was 50% and 60% during the second easy demand condition. Her comprehension accuracy during the first difficult demand condition was 50% and 40% during the second difficult demand condition. These results are displayed in Figure 6.

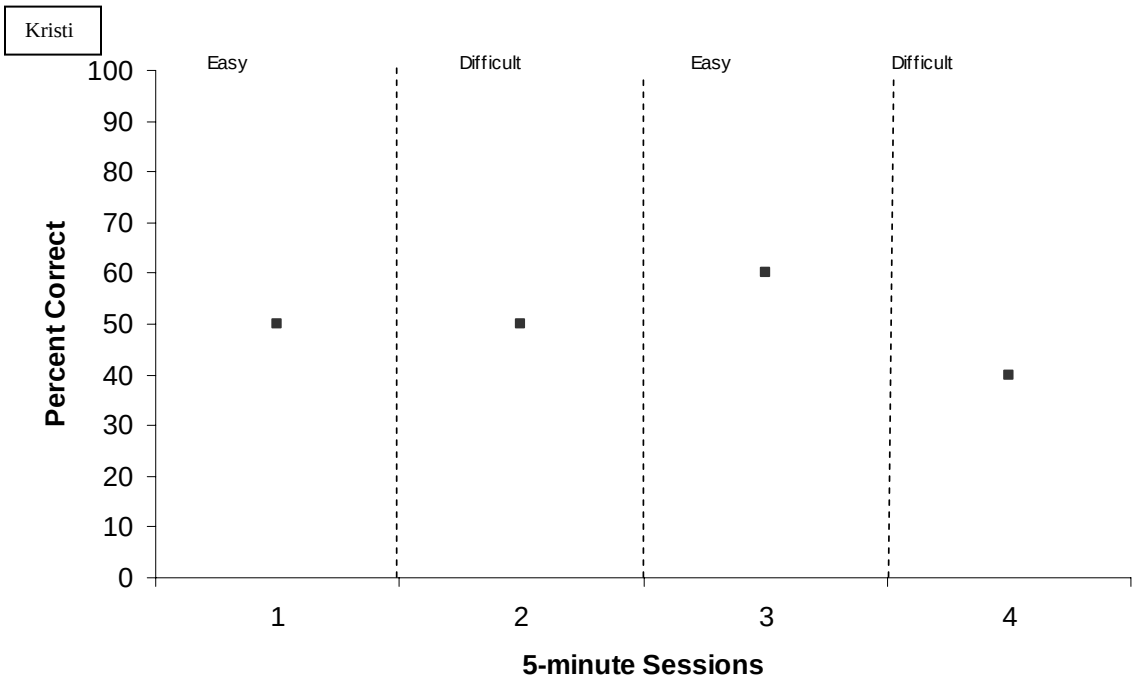

Figure 6. Percentage of Correct Literal Comprehension during Brief Functional Analysis Conditions for Kristi.

Michelle

Functional Assessment Informant Record for Teachers: Revised Edition (FAIR-T). Michelle's third-grade teacher completed the FAIR-T and then a follow-up interview was conducted by the primary researcher. Michelle's teacher described her as a "quiet" student who "stopped working" and "watched others" during reading activities. The teacher reported that Michelle was considered to be below grade level in reading. Based on the STAR (Renaissance Learning, 2008) reading test, Michelle was considered to be at the 2.8 grade level. The teacher stated that Michelle completed 75% of her classwork

with approximately 70% accuracy. The primary target behavior was reported to include watching others and not completing her work which was deemed to be "off-task" behavior. The off-task behavior was rated as a major concern with a reported to occurrence rate of approximately 7-9 times during the reading class. This target behavior was reported to have been present since the beginning of the academic year. Reported antecedent events included certain types of task, large group, independent work, and small group all that primarily involved reading activities. Reported typical consequences for off-task behavior included verbal redirection. Based on teacher responses, it was hypothesized the off-task behavior was potentially maintained by access to social attention and escape from demands associated with reading.

CBM reading probes. Michelle was administered CBM reading probes to determine the mastery, frustrational, and instructional levels of her oral reading fluency. Mastery for Michelle's oral reading fluency was found to be at second grade. Instructional level for her oral reading fluency was found to be at the beginning of third grade. Her frustrational level was found to be at the end of third grade material.

Direct observations. Michelle was observed during reading class to determine percent of intervals of off-task behaviors prior to reading intervention and to establish a baseline level of performance. Michelle's engaged in off-task behavior during an average of 23% (range 10% - 38%) of the observed intervals across six observations.

Brief functional analysis. Because a primary function of the student's behavior is considered to be escape from academic material in reading, a brief functional analysis was conducted to determine whether easy or difficult task demands were environmental events associated with the target behavior. Each brief functional analysis included two easy demand conditions and two difficult demand conditions. Each condition was implemented for 5 minutes. The analysis was conducted in one session and lasted approximately 35 minutes. All conditions were conducted during reading class and all students in the class were given the same reading materials.

During the first difficult demand condition, Michelle was observed to engage in off-task behavior during 13% of the observed intervals. During the first easy demand condition, Michelle was observed to engage in off-task behavior during 0% of the observed intervals. During the second difficult demand condition, Michelle was observed to engage in off-task behavior during 10% of the observed intervals. During the second easy demand condition, Michelle was observed to engage in off-task behavior during 0% of the observed intervals. These results are displayed in Figure 7.

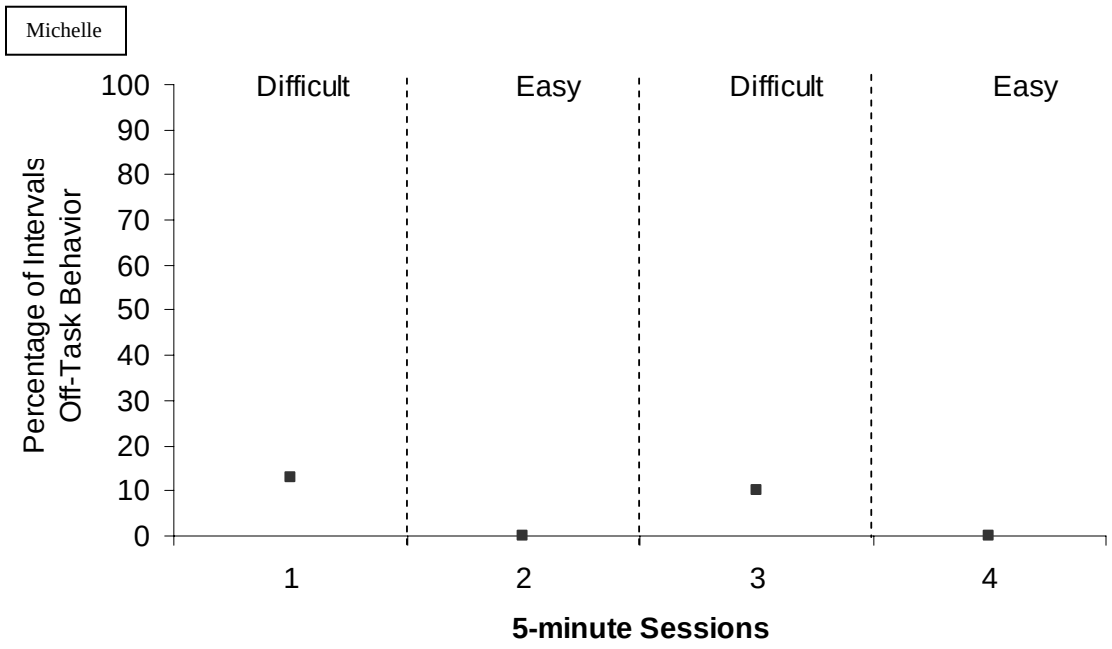

Figure 7. Percentage of Intervals of Off-task Behavior during 5-minute Brief Functional Conditions for Michelle.

In addition to obtaining data on social behavior, academic skills were also evaluated during the brief functional analysis conditions. Specifically, comprehension was assessed by having the students answer five literal comprehension questions that were printed on a separate page from the reading material. The student was required to write her answers to the item below each question. Michelle's comprehension accuracy during the first difficult demand condition was 47% and 30% during the second difficult demand condition. Her comprehension accuracy was 93% during the first easy demand condition and 87% during the second easy demand condition. These results are displayed in Figure 8.

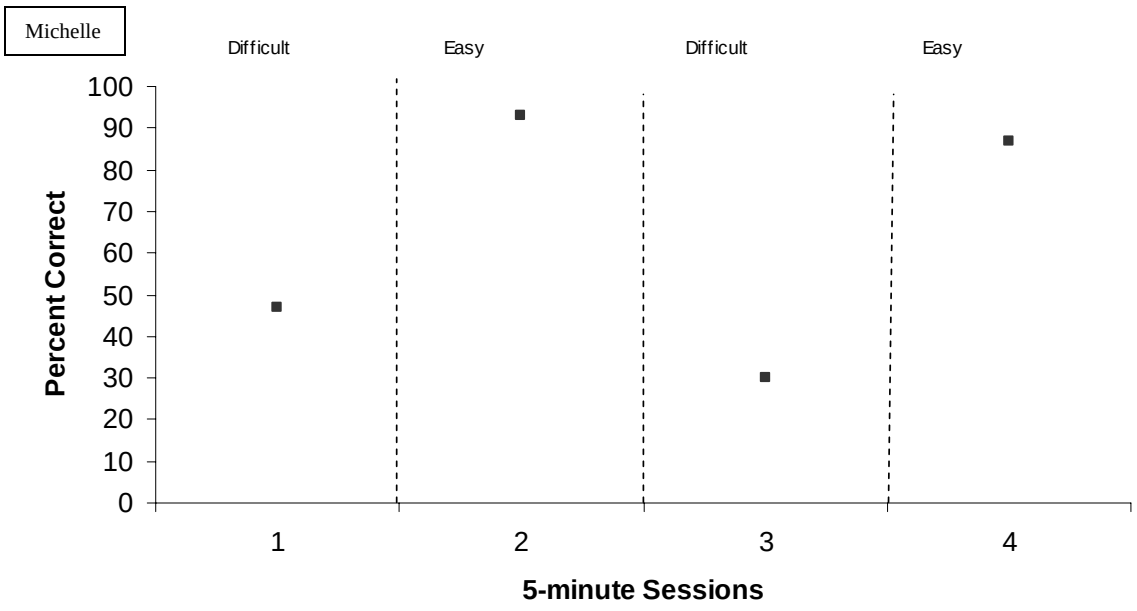

Figure 8. Percentage Correct Literal Comprehension during Brief Functional Analysis Conditions for Michelle.

Experiment II

Mark

Baseline. Pre-treatment levels of performance on reading materials (i.e., WRC and EPM) and target behavior (i.e., off-task) were collected during the baseline phase. On grade level material, Mark read an average of 64 WRC with a mean of 6 errors. On instructional level material, Mark read an average of 63 WRC with a mean of 5 errors. Ten minute partial interval observations were also conducted during reading class to evaluate the influence of reading skill deficits on the performance of off-task behavior in

the general education classroom. During the baseline observations, Mark's engaged in off-task behavior during an average of 49% (range, 45%-52%) of the observed intervals across three observations.

Reading intervention. Intervention for Mark consisted of implementation of the *Reading to Read* (RTR) intervention package for up to 30 minutes each session. Mark participated in the intervention three times a week for a period of 9 weeks. Results of the intervention are displayed in Figure 9. Of the 27 intervention sessions, Mark met mastery criteria 26 times (96%) within the ten trials. Additionally, Mark was able to reach the mastery criteria by reading between 1-5 trials on 18 of the 27 sessions (67%). Across all intervention sessions, Mark earned a mean of 99 WRC with a mean of 0.5 errors. Mark's WRC ranged from 89-100 during intervention. Mark's errors ranged from 0-3. Mark earned a mean score of 87% (range, 60-100%) on comprehension questions. The RTR literal comprehension data is graphically depicted in Figure 10.

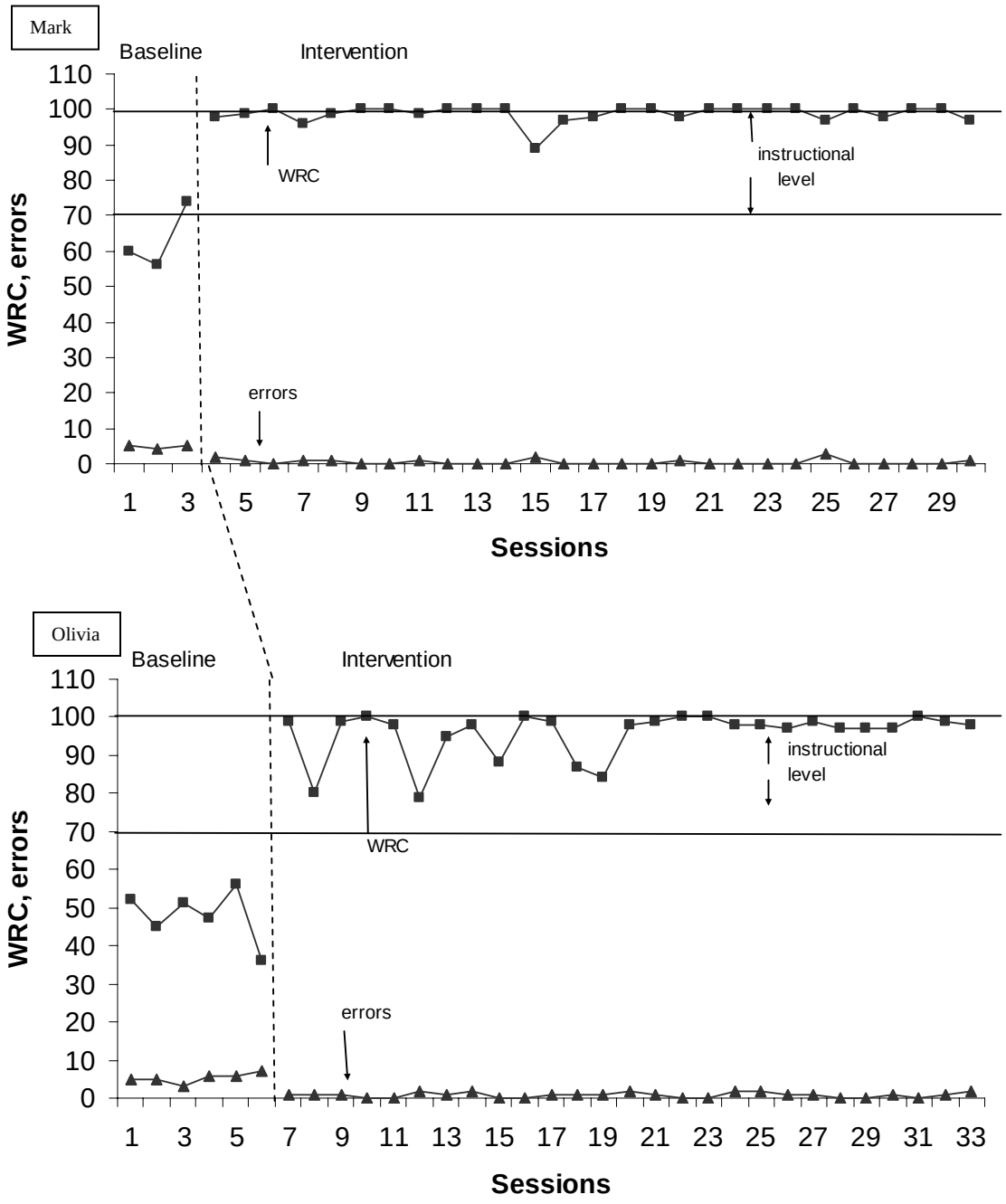

Figure 9. Number of Words Read Correct and errors during Baseline and Intervention for Mark and Olivia.

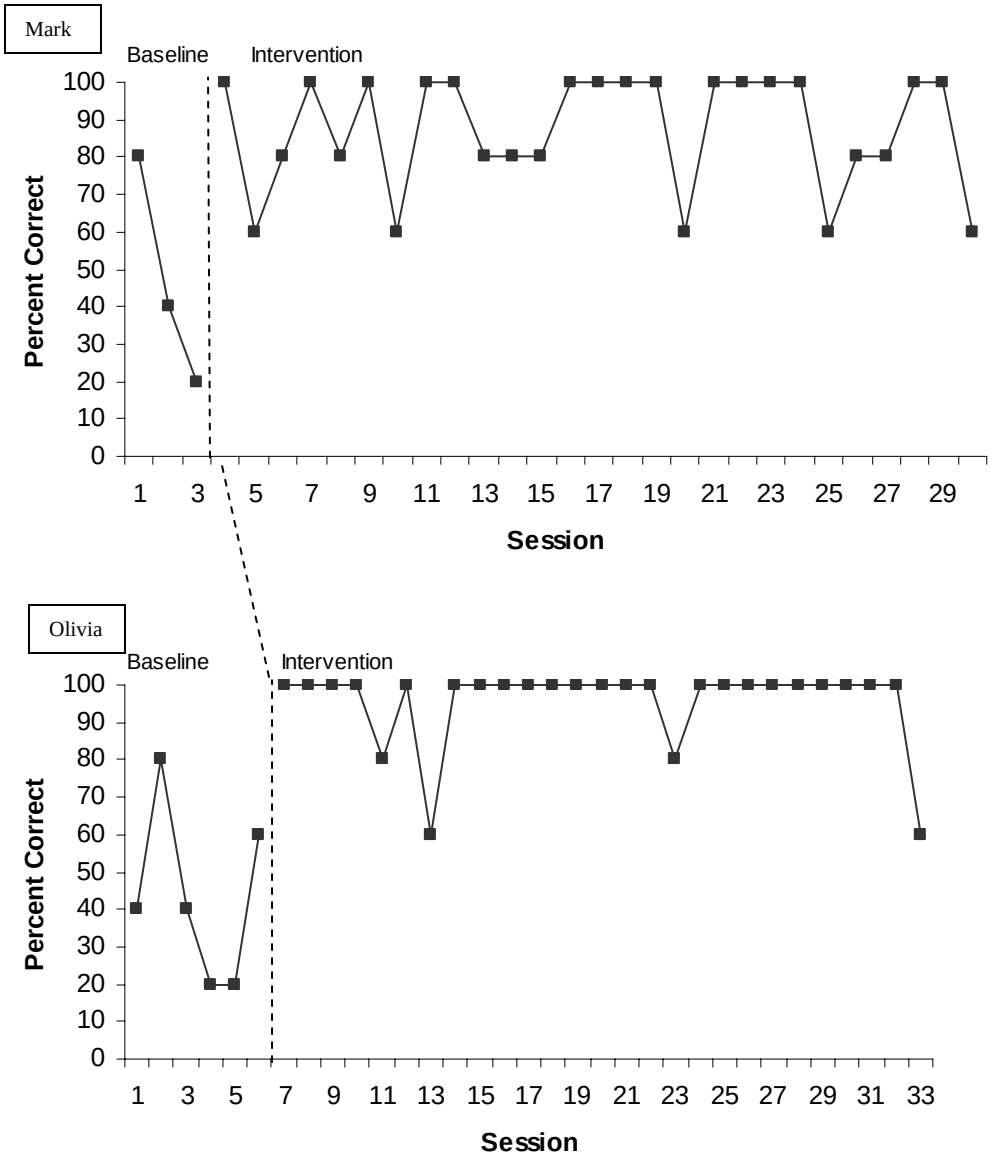

Figure 10. RTR Open-ended Comprehension Percent Correct for Mark and Olivia.

Direct classroom observations. Direct observation of off-task behavior was conducted by trained observers while the student's obtained instruction from the classroom teacher during typically scheduled reading activities. These observations were conducted as generalization measure to assess the potential impact of increased skill development in reading on on-task behavior during regular classroom instruction. Observations were conducted the day following the receipt of the individualized RTR intervention.

Off-task behaviors were observed to occur in the general education classroom during reading instruction during an average 5% of the observed intervals (range, 0% - 28%). Mark's off-task behaviors dropped over 20 percentage points within the first week of intervention implementation. Visual inspection of the data revealed that off-task behavior continued to decline during the remainder of the intervention phase in comparison to the baseline data. Some variability was observed during the intervention phase; however, a general trend was maintained a lower percentage of performance than the baseline data. A clear distinction in the level of off-task behavior during baseline and intervention was observed. Graphic analyses of the data are presented in Figure 11.

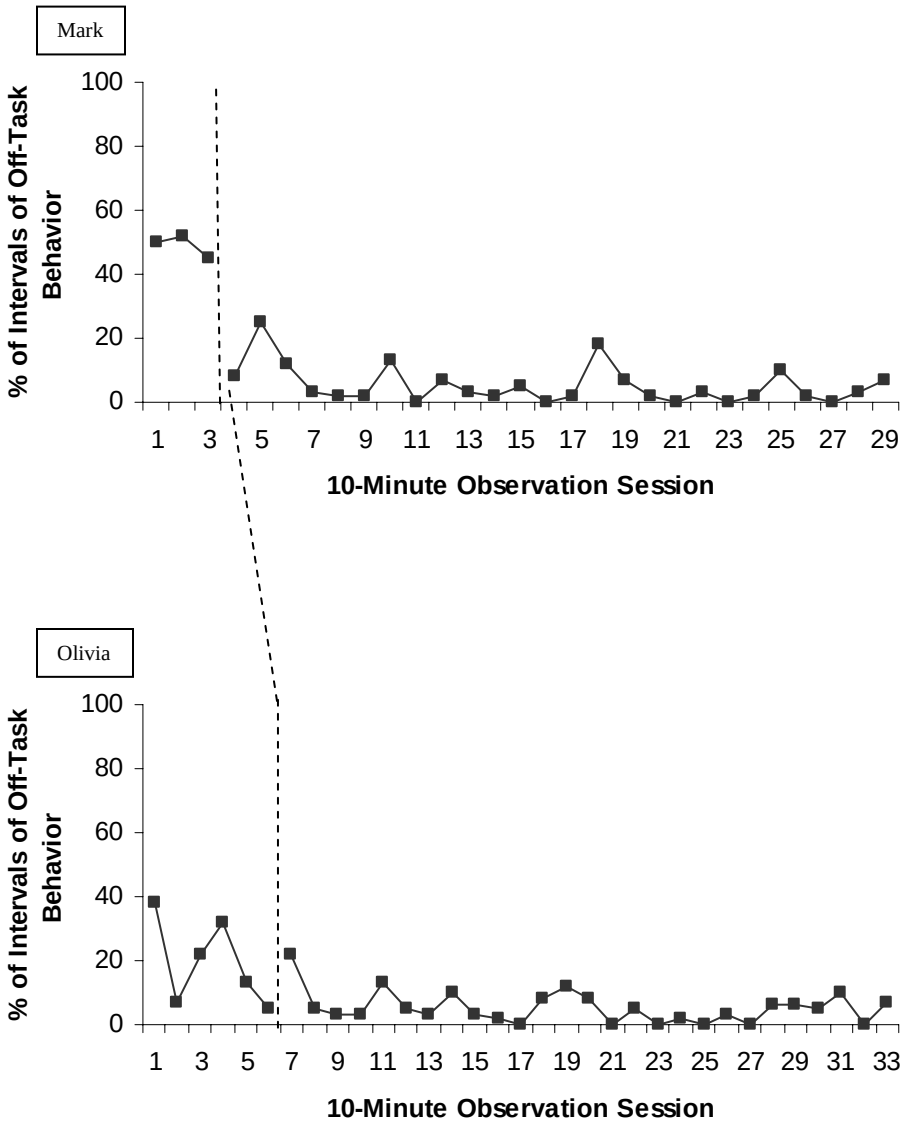

Figure 11. Percentage of Intervals of Off-task Behavior during 10-minute Observation Sessions of Mark and Olivia.

Generalization probes. Generalization probes were also conducted to evaluate the influence of the RTR intervention on non-intervention, grade level probes as another measure of skill development in reading. Initially, Mark scored above the general trend of his baseline data; however, Mark's generalization scores slowly dropped to below his baseline level of performance on occasion. The last three generalization data points reached above baseline levels, but Mark did begin to demonstrate a slight decline in trend. Overall, there was notable variability with the generalization data points. Mark earned a mean generalization score of 68 WRC with a mean of 1.8 errors. Mark's generalization scores ranged from 57-76 WRC and errors ranged from 0-3. Graphic analyses of the data are presented in Figure 12. Mark earned a mean of 97% on comprehension with a range of 86-100%. In terms of correct responses, Mark had a mean of 7 correct responses and a range of 6-9 correct responses. Graphic analysis of the maze comprehension data are presented in Figure 13.

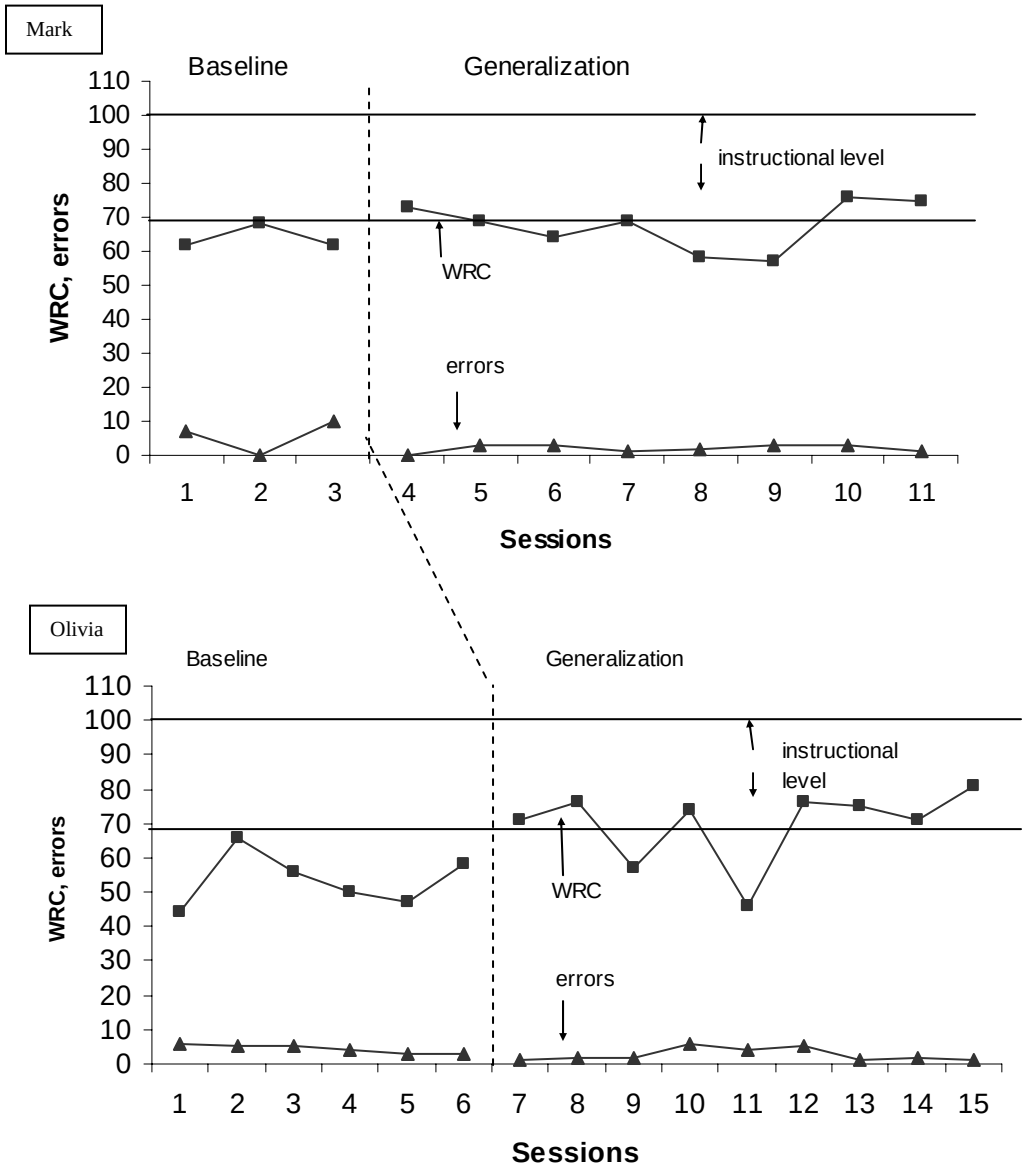

Figure 12. Number of Words Read Correct and Errors of Baseline and Generalization for Mark and Olivia.

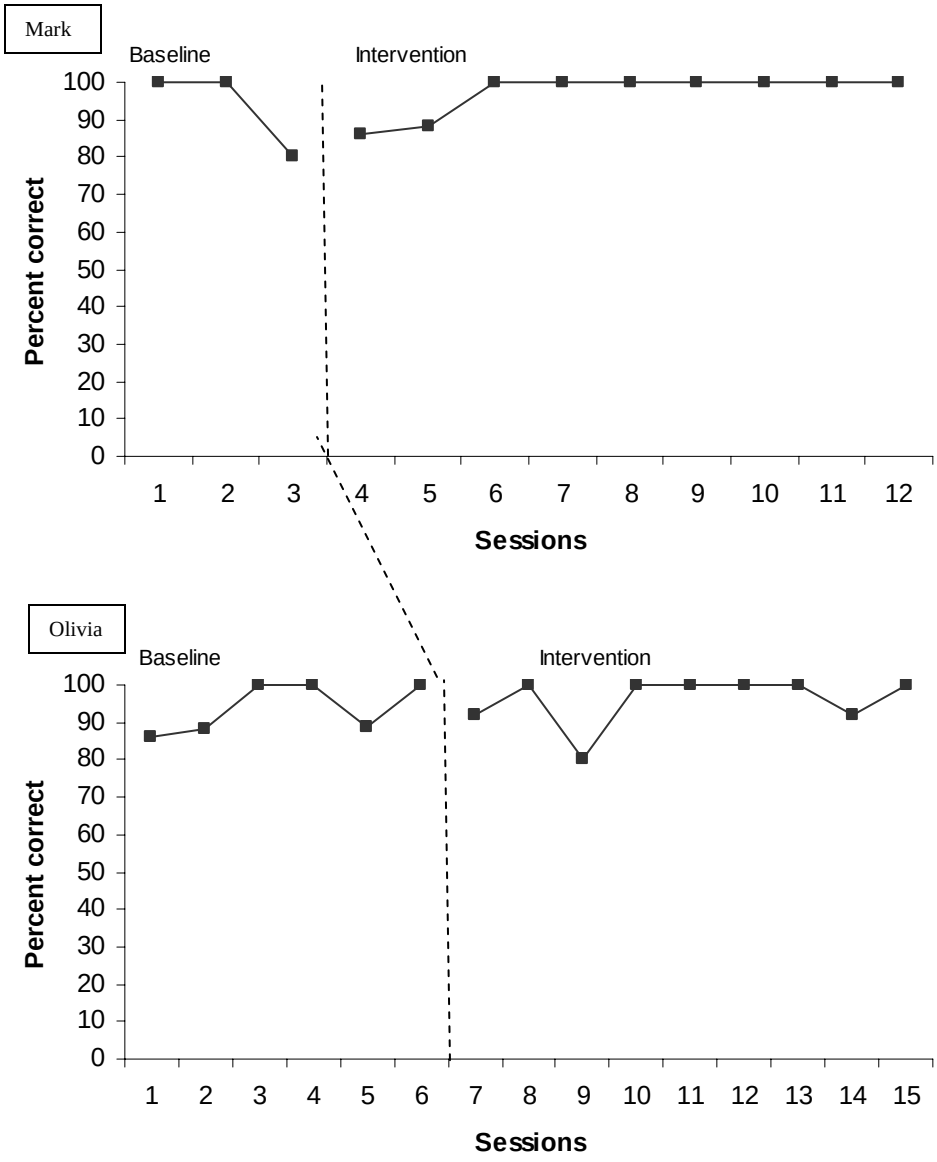

Figure 13. Maze Percentage Correct for Mark and Olivia.

Olivia

Baseline. Pre-treatment levels of performance on reading (i.e., WRC and EPM) and target behavior (i.e., off-task) were collected during the baseline phase. On grade level material, Olivia read an average of 54 WRC with a mean of 4 errors. On instructional level material, Olivia read an average of 48 WRC with a mean of 5 errors. Ten minute partial interval observations were also conducted during reading class to evaluate the influence of reading skill deficits on the performance of off-task behavior in the general education classroom. During the baseline observations, Olivia engaged in off-task behavior during an average of 20% of the observed intervals (range, 5%-38%) across six observations.

Reading intervention. Intervention for Olivia consisted of implementation of the RTR intervention package for up to 30 minutes each session. Olivia participated in the intervention three times a week for a period of nine weeks. Results of the intervention are displayed in Figure 9. Of the 27 intervention sessions, Olivia met mastery criteria 21 times (78%) within the ten trials; therefore, she missed reaching the mastery criteria 6 times (22%) within the ten trials. Additionally, Olivia was able to reach the mastery criteria by reading between 1-5 trials on 12 (44%) of the 27 sessions. Across all intervention sessions, Olivia earned a mean of 96 WRC with a mean of 0.9 errors. Olivia's WRC ranged from 79-100 during intervention. Olivia's errors ranged from 0-2

during intervention. Olivia earned a mean of 96% on comprehension with a range of 60-100%. The RTR literal comprehension data is depicted in Figure 10.

Direct classroom observations. Direct observation of off-task behavior was conducted by trained observers while the student's obtained instruction from the classroom teacher during typically scheduled reading activities. These observations were conducted as generalization measure to assess the potential impact of increased skill development in reading on on-task behavior during regular classroom instruction. Observations were conducted the day following the receipt of the individualized RTR intervention.

Off-task behaviors were observed to occur in the classroom during reading instruction during an average of 5% (range, 0% - 22%) of the observed intervals when Olivia was receiving the RTR intervention. Visual inspection of the data revealed that Olivia's off-task behaviors decreased within the first week of intervention implementation. This decreasing trend in off-task behavior was maintained during the intervention phase with limited observed variability. The level of off-task behavior is visibly lower during the intervention phase when compared to the baseline phase. Graphic analyses of the data are presented in Figure 11.

Generalization. Generalization probes were also conducted to evaluate the influence of the RTR on non-intervention, grade level probes as another measure of skill development in reading. Olivia's initial score was above her baseline data and a general

upward trend was observed on generalization probes. The third and fifth data points dropped dramatically (i.e., returned to baseline levels) and no clear environmental events were identified for this observed occurrence in performance. Overall, Olivia was able to return to above baseline levels and maintain that level for the duration of the remaining generalization probes. Olivia earned a mean generalization score of 70 WRC with a mean of 2.6 errors. Olivia's generalization scores ranged from 46-81 WRC and errors ranged from 1-6. Graphic analyses of the data are presented in Figure 12. Olivia earned a mean of 96% on comprehension with a range of 80-100%. In terms of correct responses, Olivia had a mean of 11 correct responses and a range of 8-15 correct responses. The maze comprehension data is presented in Figure 13.

Kristi

Baseline. Pre-treatment levels of performance on reading (CWPM and EPM) and target behavior (off-task) were collected during the baseline phase. On grade level material, Kristi read an average of 61 WRC with a mean of 3 errors. On instructional level material, Kristi read an average of 53 WRC with a mean of 1 error. Ten minute partial interval observations were also conducted during reading class to evaluate the influence of reading skill deficits on the performance of off-task behavior in the general education classroom. Kristi was observed to engage in off-task behavior during an average of 34% (range, 13%-60%) of the observed intervals across three baseline observations.

Reading intervention. Intervention for Kristi consisted of implementation of the Reading to Read intervention package for up to 30 minutes each session. Kristi participated in the intervention three times a week for a period of 9 weeks. Results of the intervention are displayed in Figure 14. Of the total 27 intervention sessions, Kristi met mastery criteria 19 times (70%) within the ten trials; therefore, she missed reaching the mastery criteria eight times (30%) within the ten trials. Additionally, Kristi was able to reach the mastery criteria by reading between 1-5 trials on 16 (59%) of the 27 sessions. Across all intervention sessions, Kristi earned a mean of 96 WRC with a mean of 0.6 errors. Kristi's WRC ranged from 80-100 during intervention. Kristi's errors ranged from 0-3. Kristi earned a mean of 87% on comprehension with a range of 40-100%. Graphic analysis of the RTR literal comprehension data are presented in Figure 15.

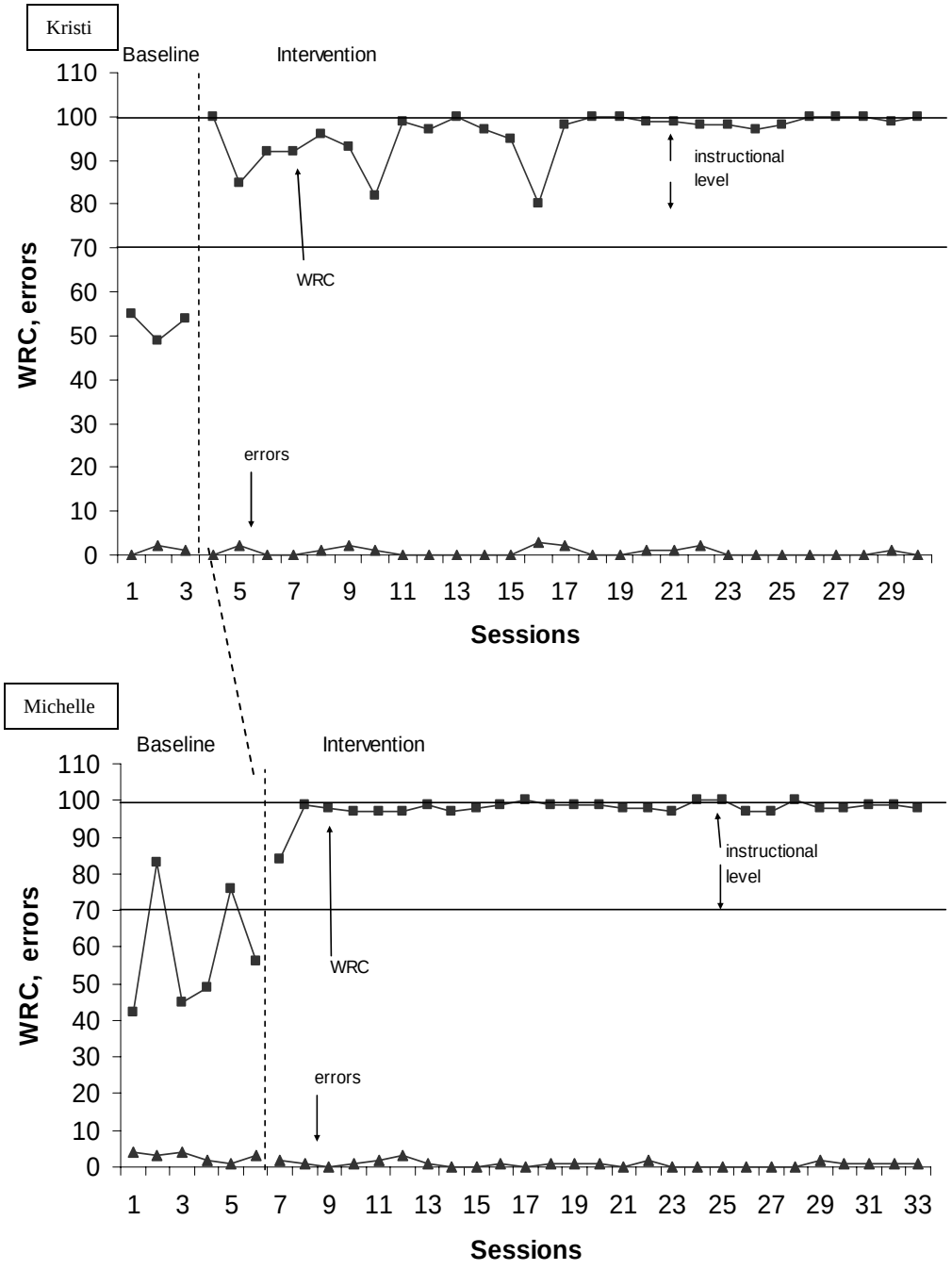

Figure 14. Words Read Correct and errors during Baseline and Intervention for Kristi and Michelle.

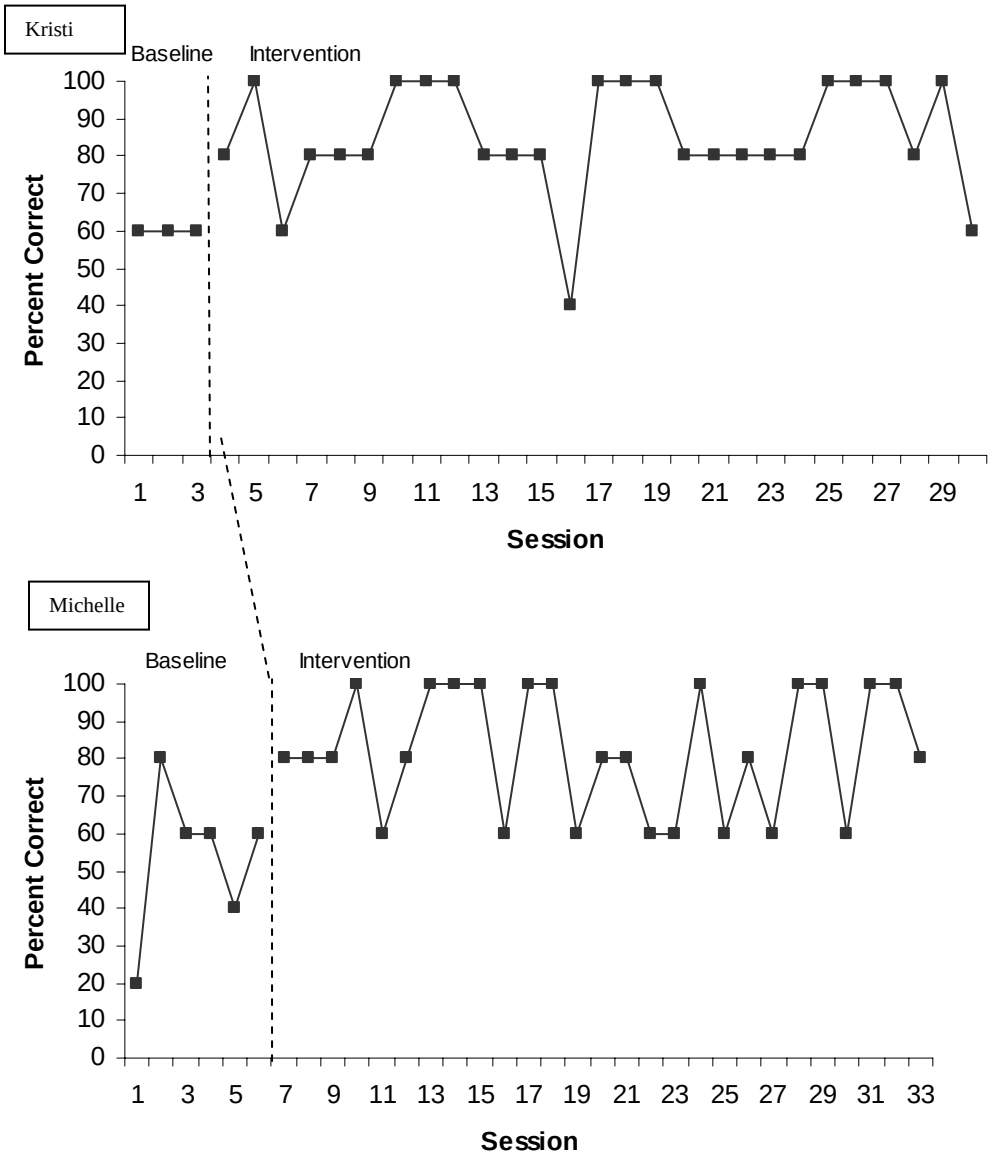

Figure 15. RTR Open-ended Comprehension Percentage Correct for Kristi and Michelle.

Direct classroom observations. Direct observation of off-task behavior was conducted by trained observers while the student's obtained instruction from the classroom teacher during typically scheduled reading activities. These observations were conducted as generalization measure to assess the potential impact of increased skill development in reading on on-task behavior during regular classroom instruction. Observations were conducted the day following the receipt of the individualized RTR intervention.

Off-task behaviors were observed to occur in the classroom during reading instruction during an average of 7% (range, 0% - 60%) when she was receiving the RTR intervention. Kristi's off-task behaviors decreased steadily over within the first two weeks of intervention implementation having only two instances when off-task behavior that returned to or exceeded baseline levels. There was minimal variability in the observational data. Overall, the general trend maintained was lower than the baseline data. The level of off-task behavior during baseline is visibly higher than during intervention. The last data point of off-task behavior was considered exceptionally high. The teacher reported that Kristi had felt sick and eventually left school after reading class. Graphic analyses of the results are presented in Figure 16.

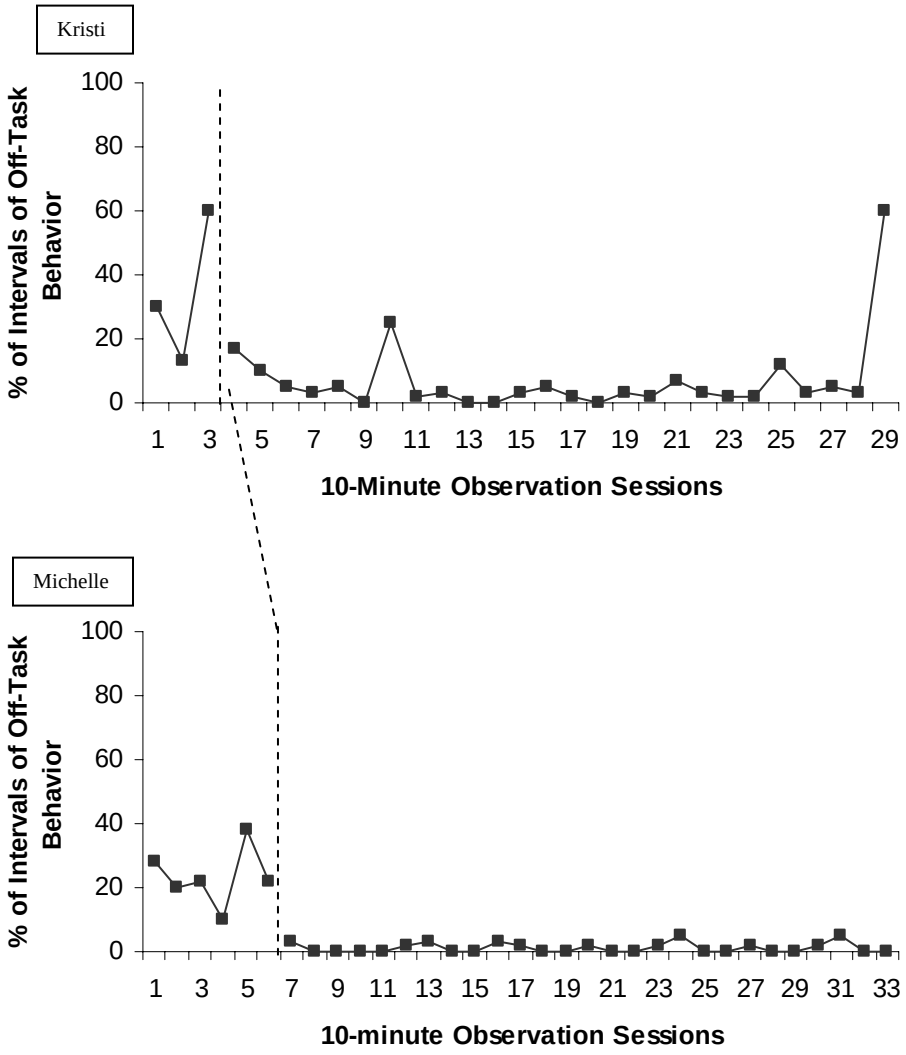

Figure 16. Percentage of Off-task Behavior during 10-minute Observation Sessions for Kristi and Michelle.

Generalization. Generalization probes were also conducted to evaluate the influence of the RTR on non-intervention, grade level probes as another measure of skill development in reading. Kristi's initial score was above her baseline data; however, the trend of Kristi's generalization scores slowly decreased steadily to baseline level or below baseline levels. However, an increasing trend was observed across the last five generalization data points where these data exceeded baseline level performance Overall, there was notable variability with the generalization data points; however, there is clearly a distinction in the increase of level during intervention. Kristi's earned a mean generalization score of 72 WRC with a mean of 1.7 errors. Kristi's generalization scores ranged from 50-90 WRC and errors ranged from 0-3. Graphic analyses of the results are presented in Figure 17. Kristi earned a mean of 89% on comprehension with a range of 73-100%. In terms of correct responses, Kristi had a mean of 7 correct responses and a range of 4-11 correct responses. Graphic analyses of the results of the Maze comprehension is represented in Figure 18.

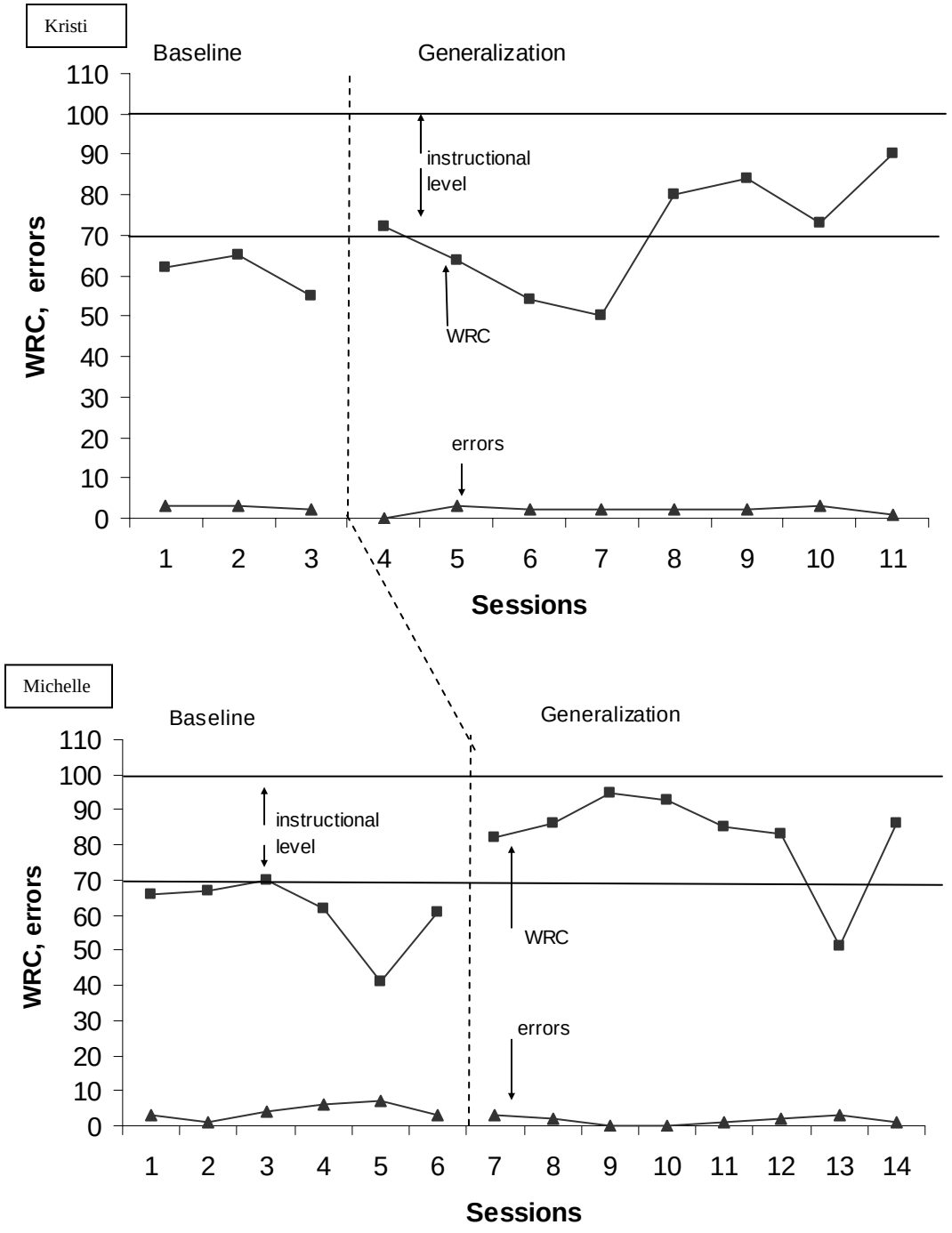

Figure 17. Words Read Correct and errors during Baseline and Generalization for Kristi and Michelle.

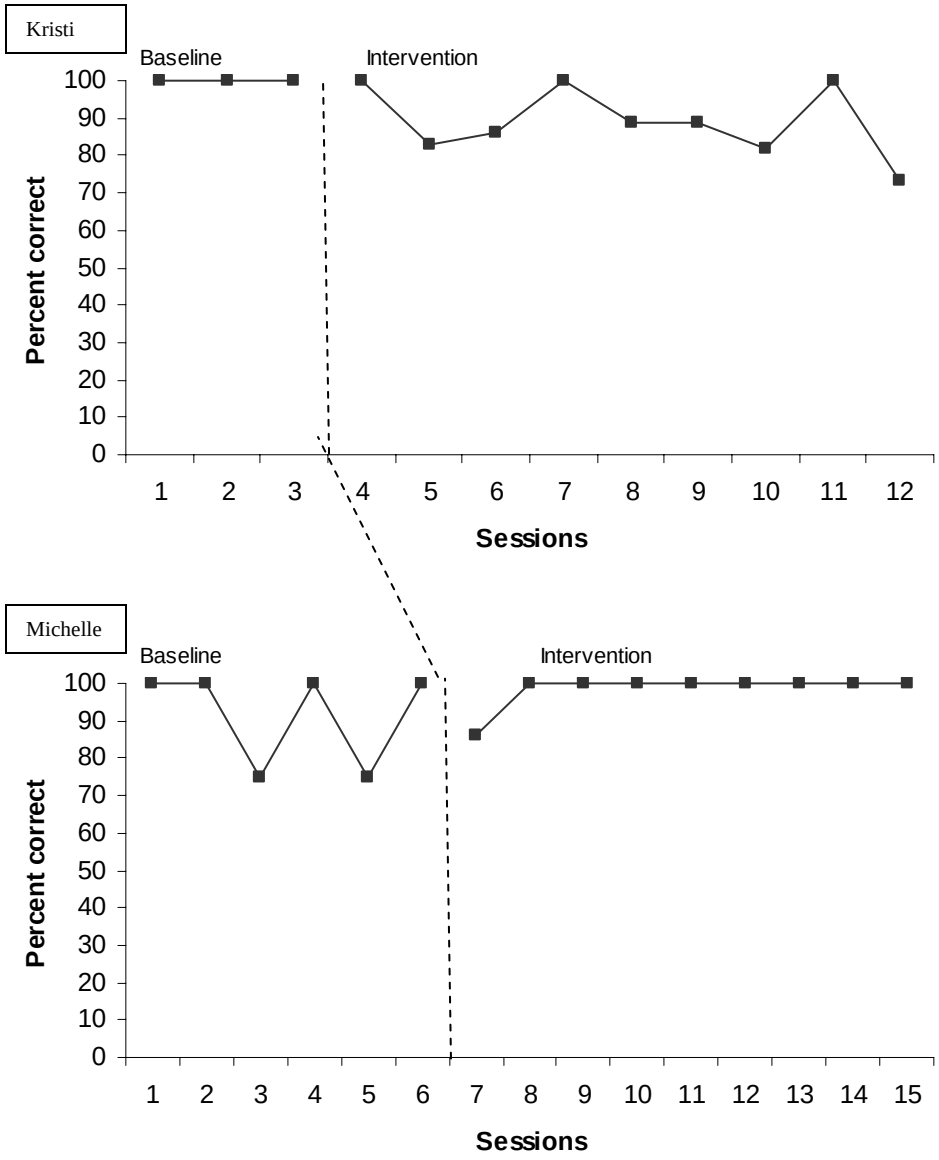

Figure 18. Maze Percentage Correct for Kristi and Michelle.

Michelle

Baseline. Pre-treatment levels of performance on reading (i.e., WRC and EPM) and target behavior (i.e., off-task) were collected during the baseline phase. On grade level material, Michelle read an average of 51 WRC with a mean of 4 errors. On instructional level material, Michelle read an average of 59 WRC with a mean of 6 errors. Ten minute partial interval observations were also conducted during reading class to evaluate the influence of reading skill deficits on the performance of off-task behavior in the general education classroom. Michelle was observed to engage in off-task behavior during a mean of 23% (range, 10% - 38%) of the observed intervals across six baseline observations.

Reading intervention. Intervention for Michelle consisted of implementation of the RTR intervention package for up to 30-minutes each session. Michelle participated in the intervention three times a week for a period of nine weeks. Results of the intervention are displayed in Figure 14. Of the total 27 intervention sessions, Michelle met mastery criteria 26 times (96%) within the ten trials; therefore, missed reaching the mastery criteria one time (.04%) within the ten trials. Additionally, Michelle was able to reach the mastery criteria by reading between 1-5 trials on 20 (74%) of the 27 sessions. Across all intervention sessions, Michelle earned a mean of 98 WRC with a mean of 0.8 errors. Michelle's WRC ranged from 84-100 during intervention. Michelle's errors ranged from

0-3. Michelle earned a mean of 82% on comprehension with a range of 60-100%. The RTR literal comprehension data is presented in Figure 15.

Direct classroom observations. Direct observation of off-task behavior was conducted by trained observers while the student's obtained instruction from the classroom teacher during typically scheduled reading activities. These observations were conducted as generalization measure to assess the potential impact of increased skill development in reading on on-task behavior during regular classroom instruction. Observations were conducted the day following the receipt of the individualized RTR intervention.

Off-task behaviors were observed to occur in the classroom during reading instruction during an average of 1% (range, 0% - 5%) of the observed intervals when Michelle was receiving the reading intervention. Michelle's off-task behaviors decreased immediately within the first week of intervention implementation. This decreasing trend in off-task behavior was maintained during the intervention implementation with minimal variability. The level of off-task behavior is visibly lower during intervention than in baseline. Graphic analyses of the data are presented in Figure 16.

Generalization. Generalization probes were also conducted to evaluate the influence of the RTR on non-intervention, grade level probes as another measure of skill development in reading. Michelle's generalization scores were above her baseline data, and her generalization trend continued upwardly until the fourth data point which

revealed a slight decline. There was an unexplained dramatic drop (return to baseline levels) on the seventh generalization probe; however, Michelle was able to recover by the next generalization probe by surpassing baseline levels. Overall, there was minimal variability with the exception of one data point within all of the generalization data points. Michelle's earned a mean generalization score of 84 WRC with a mean of 1 error. Michelle's generalization scores ranged from 51-95 WRC and errors ranged from 0-3. Graphic analyses of the data are presented in Figure 17. Michelle earned a mean of 99.5% on comprehension with a range of 86-100%. In terms of correct responses, Michelle had a mean of 6 correct responses and a range of 5-10 correct responses. Graphic analysis of the result of the maze comprehension is represented in Figure 18.

Research Questions

Six specific research questions were posed at the beginning of the manuscript designed to evaluate the ability of the *Reading to Read* intervention package to increase reading fluency and decrease escape-maintained target behaviors for identified students in a school setting. Results for each research question will be addressed below.

Research Question 1. Will FBA procedures identify students whose behavior maintained by escape from reading tasks in the general education classroom?

The current study provided evidence that FBA procedures can identify students whose behavior is maintained by escape. The results from the FAIR-T and follow-up interview suggested that all four students potentially engaged in off-task behavior to

escape difficult task demands associated with reading. In addition, each student's teacher reported that the students were approximately 1 year behind in reading based on Star (Renaissance Learning, 2008) reading tests.

Furthermore, results from the CBA procedures supported the finding from the informant record by revealing that each student displayed fluency rates approximately one grade level below their current grade placement. Unfortunately, the results from the brief functional analysis conditions were not as convincing with regard to changes in off-task behavior across conditions. Overall, the average percentage of intervals of off-task behavior during difficult demand conditions (range, 7%-13%) was greater than during easy demand conditions (range: 0%-3%) across the four participants. However, this separation was not very large based on visual inspection and this could be a result of limitations within the experimental conditions that will be discussed later in this document. Individual student data related to the performance of off-task behavior during the brief functional analysis conditions is presented in Table 2. It is important to note that the academic targets were more sensitive to separation than the behavioral targets. A closer examination of the brief functional analyses revealed a very distinct separation during the easy and difficult task on comprehension levels particularly for two of the students (e.g., Mark and Michelle). Individual student data related to percent comprehension obtained during the brief functional analysis conditions is presented in Table 3.

Table 2. Percentage of Intervals of Off-task Behavior Observed during Brief Functional Analysis Conditions.

	Brief Functional Analysis Conditions			
Student	Difficult #1	Easy #1	Difficult#2	Easy #2
Mark	10%	0%	7%	0%
Olivia	10%	0%	13%	0%
Kristi	7%	3%	13%	3%
Michelle	13%	0%	10%	0%

Note. Difficult #1 = frustrational level, Easy #1 = instructional level, Difficult #2 = frustrational level, Easy #2 = instructional level.

Table 3. Percent Comprehension Obtained Literal Comprehension Questions during Brief Functional Analysis Conditions.

	Brief Functional Analysis Conditions			
Student	Difficult #1	Easy #1	Difficult#2	Easy #2
Mark	47%	80%	30%	80%
Olivia	80%	90%	40%	100%
Kristi	50%	50%	40%	60%
Michelle	47%	93%	30%	87%

Note. Difficult #1 = frustrational level, Easy #1 = instructional level, Difficult #2 = frustrational level, Easy #2 = instructional level.

Research Question 2. Will implementation of the RTR intervention package improve the number of words read correct on intervention probes beyond baseline levels for identified elementary school students across a 9-week period of time?

For all four students (100%) included in the current study, exposure to the Reading to Read intervention resulted in a mean increase in WRC over baseline levels. Additionally, the mean level of performance was at or above the mastery criterion for all four students (100%) on intervention probes. These data are presented in Table 4.

Table 4. Mean WRC and Range on Reading to Read Intervention Probes

	Baseline		Reading to Read	
Student	Mean WRC	Range	Mean WRC	Range
Mark	63	56 - 74	99	89 - 100
Olivia	48	36 - 56	96	79 - 100
Kristi	53	49 - 55	96	80 - 100
Michelle	59	42 - 83	98	84 - 100

Research Question 3. Will implementation of the RTR intervention package improve literal comprehension on intervention probes beyond baseline levels for identified elementary school students across a 9-week period of time?

For all four students (100%) included in the current study, exposure to the Reading to Read intervention resulted in a mean increase in percent comprehension over baseline levels. Additionally, the mean level of performance was at or above the mastery criterion for all four students (100%) on intervention probes. These data are presented in Table 5.

Table 5. Mean Percentage Correct and Range on Open-ended Instructional Level Comprehension Questions.

	Baseline		Reading to Read	
Student	Mean % Comprehension	Range	Mean % Comprehension	Range
Mark	47%	20 -80%	87%	60 -100%
Olivia	43%	20 -80%	96%	60 -100%
Kristi	60%	NA	87%	40 -100%
Michelle	53%	20 -60%	82%	82 -100%

Research Question 4. Will implementation the RTR intervention package improve the number of words read correct on generalization probes beyond baseline levels for identified elementary school students across a 9-week period of time?

For all four students (100%) included in the current study, exposure to the Reading to Read intervention resulted in a mean increase in WRC over baseline levels. However, none of the student's mean level of performance (0%) was at or above the mastery criterion of 100 WRC. These data are presented in Table 6.

Table 6. Mean WRC and Range on Grade Level Generalization Probes

	Baseline		Generalization Probes	
Student	Mean WRC	Range	Mean WRC	Range
Mark	64	62 - 68	68	57 - 76
Olivia	54	44 - 66	70	46 - 81
Kristi	61	55 - 65	72	50 - 90
Michelle	51	41 - 70	84	51 - 95

Research Question 5. Will implementation of the RTR intervention package improve comprehension on generalization maze probes beyond baseline levels for identified elementary school students across a 9-week period of time?

Exposure to the RTR intervention resulted in a mean increase in comprehension on grade level maze probes for 3 out of 4 students. These data are presented in Table 7.

Table 7. Mean Percentage of Comprehension and Range on Grade-level Maze Probes.

	Baseline		Reading to Read	
Student	Mean % Comprehension	Range	Mean % Comprehension	Range
Mark	92%	75 -100%	97%	86 -100%
Olivia	94%	86 -100%	96%	80 -100%
Kristi	95%	86 -100%	89%	73 -100%
Michelle	92%	75 -100%	99.5%	86 -100%

Research Question 6. Will escape maintained behaviors performed in the general education classroom decrease over a 9-week period of time as the referred students demonstrate improvement in reading skills?

For all four students (100%) included in the current study, exposure to the Reading to Read intervention resulted in a mean decrease in the percentage of intervals of occurrence of problem behavior in the reading class in the general education classroom. These data are presented in Table 8.

Table 8. Mean Percentage of Intervals of Off-task Behavior and Range during Reading Class in the General Education Classroom.

	Baseline		Reading Class	
Student	Mean % of Intervals	Range	Mean % of Intervals	Range
Mark	49%	45 -52%	5%	0 -28%
Olivia	20%	5 -38%	5%	0 -22%
Kristi	34%	13 -60%	7%	0 -60%
Michelle	23%	10 -38%	1%	0 - 5%

CHAPTER IV

DISCUSSION

Summary of Findings

The purpose of the current study was to examine FBA procedures in identifying escape maintained problem behavior in students with reading difficulties. In addition, this study empirically evaluated the effectiveness of the Reading to Read (RTR) intervention package in addressing oral reading fluency and comprehension skill deficits as well as to evaluate the generalization of improvement in these academic skills on identified escape-maintained problem behaviors (i.e., off-task behavior) during reading class within the general education classroom setting. The participants in this study included four third grade students identified as at-risk for reading difficulties based on school-wide curriculum based measurement and referral from the teacher support team. The participants' reading abilities and off-task behavior was evaluated during a brief experimental analysis that occurred over approximately 45-minutes during the general education reading class. The students whose off-task behavior was higher during the difficult demand conditions and whose comprehension scores were lower during the difficult demand conditions were retained to participate in the intervention for a 9-week period. Generalization reading probes were administered once a week prior to

intervention implementation to assess the effects of the intervention on novel grade level reading probes.

Results of Experiment I revealed that all four participants were reading below expectations based on the administration of curriculum-based assessment (CBA) probes. A review of the FAIR-T information completed through teacher interview revealed that the possibility of attention and escape/avoidace both served as the functions of behavior. However, after direct classroom observations were completed, the off-task behavior appeared to be maintained primarily by escape/avoidance as social attention was rarely delivered as a consequent event for the performance of off-task behavior. Instead the students were allowed to escape or avoid working on the required assignment during most observations. Thus, the delivery of social attention, as indicated by the teachers, was not occurring as often as reported based on data obtained from direct observations. All four participants demonstrated slightly more off-task behavior when given difficult tasks than when engaged in easy tasks during the brief functional analysis. The participants also obtained lower average comprehension scores during the difficult task demand conditions as compared to the easy task demand conditions.

Results of Experiment II revealed that all four participants' off-task behavior decreased when compared to baseline levels while they were receiving the RTR intervention. This decrease in off-task behavior continued throughout the study for all four participants. In addition, all four participants increased in their oral reading fluency levels on intervention probes in comparison to the baseline data levels. Not only was there an increase in oral reading fluency, but there was an increase in their percentage of

correct responses in reading comprehension when compared to baseline levels. Overall, positive impacts were noted on the generalization reading probes. All four participants demonstrated an overall increase in their reading skills when compared to baseline data. Also, the participants increased from frustrational levels to near mastery levels on the generalization probe readings.

This chapter will continue by reporting the research questions and providing information pertaining to each question. After each of the research questions are answered, the implications of the current research will be discussed. Then the limitations and future research will be reviewed and discussed. Finally, a summary will be provided.

Each research question will be addressed below.

Research Question 1. Will FBA procedures identify students whose behavior is maintained by escape?

In the current study, functional behavioral assessment (FBA) procedures were able to identify students whose behavior was escape-maintained. Information provided by the teachers via the FAIR-T and follow-up interview revealed students who engaged in off-task behaviors to escape difficult reading activity demands. Also based on teacher report and reading test scores (i.e., Star reading tests), each of the participants were approximately 1 year behind in reading. Information gleaned from the brief functional analysis (BFA) revealed higher rates of off-task behavior during difficult task demand conditions than during the easy task demand conditions. The separation was not considered optimal due to the poor separation; however, there were overall differences. In

review of the comprehension data obtained during the BFA, a more clear separation existed between the difficult and easy task demand conditions; especially for Mark and Michelle.

Drasgow and Yell (2001) reported that functional behavior assessments (FBAs) should be conducted for reasons other than to reduce the occurrence of problem behavior. In fact, FBAs should lead to proactive programming which may include environmental modifications, academic and behavioral skill building, as well as other positive support techniques. Iwata et al. (1994) continued by suggesting that functional analysis conditions incorporated within an FBA should be used to identify specific events surrounding problem behavior(s) so that treatment effectiveness is heightened for the referred individual. Broussard and Northup (1995) conducted a study examining the use of functional assessment and analysis of disruptive behavior within the regular education setting. Functional assessments and analyses were completed on three students ages 6-9 who were referred for disruptive behavior within the general education classroom. The disruptive behavior included aggression, noncompliance, and property destruction. The results of this study indicated that functional assessment and analysis can be completed within the general education setting and for disruptive problem behaviors of students with average intelligence. The results also indicated that a systematic manipulation of naturally occurring events may provide valuable information. In fact, it may provide an avenue of intervention.

Roberts et al. (2001) completed a study examining the use of CBA within functional behavioral assessments to identify escaped maintained behaviors in the general

education setting. The study included three male students who demonstrated off-task behaviors as well as academic difficulties. The results of the study revealed that the use of CBA procedures provided a means of determining instructional and frustrational levels specific to each student; assisted in the manipulation of curriculum during the FBA phases; and assisted in determining the effects on student's behaviors. Overall, the results of the study revealed an increase in off-task behaviors within the general education environment when given materials that were too difficult for the student's level.

Research Question 2. Will implementation of the RTR intervention package improve the number of words read correct on intervention probes beyond baseline levels for identified elementary school students across a 9-week period of time?

All four participants (100%) in the current study increased their words read correct (WRC) above baseline levels on intervention probes. However, unique findings were obtained for each student. Therefore, a brief discussion of the findings for each participant as related to the research question will be provided.

When examining his intervention data (M=99 WRC), there is a distinctly higher level when compared to baseline data (M=63 WRC) in regards to the number of words read correct. Also, Mark demonstrated much lower error rate during intervention (M=0.5 errors) than baseline data (M=5 errors). Mark's teacher reported that he had shown gains within the classroom environment. The teacher reported that she could hear a difference in his reading fluency. It is important to note that Mark's mother is from Spain and her English is considered to be a second language. Also, English is the primary language

spoken in the home. Additionally, Mark had family visit from Spain for several weeks and his usual routine at home was disrupted.

A review of Olivia's intervention data (M=96 WRC) revealed an increase in words read correct when compared to the baseline data (M= 48 WRC). Also, there was a decrease in errors from baseline (M=5 errors) to intervention (M=0.9 errors). Olivia's school attendance was considered problematic due to high number of absences and tardies. Also, Olivia was reported to have "bad" days per school personnel. It appeared on these days that Olivia's performance was somewhat different as she appeared preoccupied. However, despite these variables, Olivia did demonstrate an increase in her overall words read correct.

In examination of Kristi's intervention data (M=96 WRC), there is an evident increase from baseline (M=53 WRC) in the number of words correct. There was a slight drop in the number of errors from baseline (M=1 error) to intervention (M=0.6 error). After intervention sessions had been implemented for a period of time, Kristi began engaging in self-deprecating statements prior to beginning intervention and appeared stressed to do well. Due to these behaviors, the interventionist provided substantial amounts of reinforcement for her demonstration of effort and calm behaviors. After this strategy was implemented, Kristi's reading fluency appeared to gain momentum and stabilized for the remainder of the intervention phase. The teacher specified that Kristi's overall self-confidence had increased as evidenced by her willingness to read aloud in class and to be more actively engaged.

In review of Michelle's intervention data (M=98 WRC), there is an evident increase from baseline (M=59 WRC). There was also a noticeable decrease in the number of errors from baseline (M=6 errors) to intervention (M=0.8 errors). Michelle's teacher also provided anecdotal data regarding her improvement. The teacher reported that Michelle had "blossomed." The teacher further explained that Michelle was more confident in her reading aloud and seemed happier. Michelle's reading teacher had her moved to a higher level reading group during the intervention period.

It is important to note some anecdotal information from school personnel as well. All of the teachers expressed gratitude and excitement in the overall improvement in the students' oral reading fluency. The principal also indicated gratitude and delight in the success the students had demonstrated over the 9-week period in the increase in words read correct, confidence levels, and active participation.

The results of this study are commensurate with previous studies in regards of increasing students' oral reading fluency. Repeated readings have been proven as an effective intervention strategy to increase oral reading fluency (Eckert et al., 2000). Research by Boyer (1992/1993) found RTR to be more effective in increasing oral reading fluency than the traditional repeated readings. According to Boyer (1991) research utilizing RTR intervention package, students experienced significant improvements in overall reading fluency. Also, research conducted by Frederick (1995) uses the RTR intervention package revealed increases in oral reading fluency. A study completed by Kastner et al. (2000) revealed increase in words read correct and a decrease in reading errors. More specifically, the study examined the effects of RTR on oral

reading fluency of students with Attention-Deficit Hyperactivity Disorder-Combined Type. Cottingham (1993) found that using RTR students increased oral reading fluency. Also, there were no differences in rates of improvements in either the immediate or no feedback conditions.

Research Question 3. Will implementation of the RTR intervention package improve literal comprehension on intervention probes beyond baseline levels for identified elementary school students across a 9-week period of time?

For all 4 students (100%) included in the current study, exposure to the Reading to Read intervention resulted in a mean increase in percentage of comprehension over baseline levels. Additionally, the mean level of performance was at or above the mastery criterion for all 4 students (100%) on intervention probes. Idiosyncratic results related to each student will be discussed further below.

In closer examination of Mark's comprehension data, there is a distinct increase from baseline (M=47%) to intervention (M=87%). Mark's comprehension during baseline ranged from 20-80% and during intervention ranged from 60-100%. Overall, Mark demonstrated gains in comprehension skills.

In review of Olivia's comprehension data, there is evidence of a significant increase from baseline (M=43%) to intervention (M=95%). Olivia's comprehension during baseline ranged from 20-80% and during intervention ranged from 60-100%. Overall, Olivia demonstrated gains in comprehension skills.

Inspection of Kristi's comprehension data revealed there is evidence of increase from baseline (M=60%) to intervention (M=87%). Kristi's comprehension during baseline ranged from 60% and during intervention ranged from 40-100%. All in all, Kristi demonstrated gains in comprehension skills.

Review of Michelle's comprehension data revealed evidence of increase from baseline (M=53%) to intervention (M=82%). Michelle's comprehension during baseline ranged from 20-60% and during intervention ranged from 60-100%. In total, Michelle demonstrated gains in comprehension skills.

These results supported previous research conducted with the Reading to Read intervention. A study conducted by Frederick (1995) revealed RTR improved comprehension skills for participants by increasing oral reading fluency rates. Other researchers have indicated that RTR was a useful intervention in improving reading comprehension leading to the generalization of reading comprehension skills to novel passages (Boyer, 1992/1993). Also, Boyer (1992/1993) indicated that reading gains appeared to generalize better to unrelated passages during the RTR conditions. Freidberg (1993/1994) investigated the generalizability of reading fluency gains to similar reading passages. The research revealed significant improvements in oral reading fluency. Additionally, improvements were noted in reading comprehension and in the generalization passages. In this current study, the impact of the RTR intervention package on literal comprehension beyond baseline levels revealed an overall improvement for all participants following improvement in reading fluency on intervention probes. Across all

four participants, there was a difference (range, 27%-53%) between their mean baseline comprehension levels and their mean comprehension levels during intervention.

Research Question 4. Will implementation the RTR intervention package improve the number of words read correct per minute on generalization probes beyond baseline levels for identified elementary school students across a 9-week period of time?

Mark's generalization data's trend was higher than baseline data; however, his gains were not as great as some of the other participants. Mark's data revealed that he was moving at a slower rate in reaching appropriate grade-level in oral reading fluency. Again, Mark experienced some disruption at home due to his grandparents visiting from Spain for several weeks. Also, his mother's native language is not English. Mark is reported to be proficient in the Spanish language.

When looking at the book series of the RTR intervention package, Mark started at 7m1 and ended at 9m2. Book 9m2 is the middle of third grade. Mark reached mastery for 96% of the intervention sessions. Mark reached mastery for 0% of the generalization sessions; however, 44% of the generalization sessions were within the instructional range.

In review of the trend of Olivia's generalization data, she made distinct gains in her number of words read correctly. There are a couple data points that returned to baseline levels. These results may be attributed to "bad" days according to the school personnel. Olivia had some attendance issues at school regarding excessive tardies and absences.

Also, Olivia started in book 7m1 and ended in book 9m2 of the RTR intervention package. Book 9m2 is the middle of third grade. Olivia reached mastery for 78% of the intervention sessions. Olivia reached mastery for 0% of the generalization sessions; however, 78% of the generalization sessions were within the instructional range.

In analysis of the trend of Kristi's generalization data, Kristi's started above baseline levels but eventually even dropped below baseline levels. This drop is attributed to Kristi's potential "lack of confidence" as reported by school personnel and interventionist. Kristi often made self-deprecating statements and seemed almost stressed in the environment due to her desire to do well. Based on interactions and conversations with Kristi, she was very aware that her reading was not proficient. The interventionist provided substantial reinforcement for Kristi's demonstration of effort and remaining calm during sessions. With the use of high rates of reinforcement of desired behaviors (e.g., effort, calm), Kristi's scores began to rise. It appeared that this differential reinforcement assisted Kristi developing a momentum of reading progress.

Kristi began on book 7m1 and ended on book 9m2 of the RTR intervention package. Book 9m2 is the middle of third grade. Kristi reached mastery for 70% of the intervention sessions. Kristi reached mastery for 0% of the generalization sessions; however, 67% of the generalization sessions were within the instructional range.

When examining the trend of Michelle's generalization data, it is visibly greater than baseline levels. There is one data point that had a significant drop. This dramatic drop is believed to be associated with a problem with a classmate Michelle experienced earlier in the day. In fact, Michelle was moved to a higher reading level class.

Michelle started on book 8m1 and ended on book 10b5 of the RTR intervention package. Book 10b5 is at the beginning of fourth grade. Michelle reached mastery for 96% of the intervention sessions. Michelle reached mastery for 0% of the generalization sessions; however, 89% of the generalization sessions were within the instructional range.

These results provide further validation for a study conducted by Friedberg (1993/1994) who investigated oral reading fluency and the generalizability of reading fluency using the Reading to Read intervention. Also, the impact of increasing oral reading fluency on reading comprehension was examined. The study revealed overall improvements during the RTR conditions in oral reading fluency as well as generalization to reading comprehension skills. Based on the current study, there is evidence that after the implementation of the RTR intervention package will assist participants in reaching their appropriate grade-level in oral reading fluency. All participants responded to the intervention evidenced by the increase of words read correct in comparison to baseline levels. Additionally, students demonstrated a significant improvement in reading comprehension as evaluated by generalization probes.

Research Question 5. Will implementation of the RTR intervention package improve comprehension on generalization maze probes beyond baseline levels for identified elementary school students across a 9-week period of time?

Boyer (1992/1993) found that RTR implementation resulted in great gains in reading fluency rates and overall literal comprehension when compared to the standard

repeated reading procedure with corrective feedback. Additionally, the study found that the gains established were better able to generalize to novel passages. Friedberg (1993/1994) found that RTR intervention package impacted reading comprehension and generalization of skills to novel passages. Based on the current study, evidence exists to demonstrate that the participants were able to improve overall oral reading fluency and comprehension on grade level probes over a 9-week period. The comprehension generalization probes varied from those during intervention. The generalization comprehension probes were very similar in format to the cloze procedure. The students choose an answer from three choices that best completes the sentence. Three of the participants' (e.g., Olivia, Kristi, and Michelle) data revealed clearly visible increases in oral reading fluency and comprehension levels on grade level probes during the 9-week period. One participant (e.g., Mark) did increase overall in his oral reading fluency and comprehension levels; however, his changes were not as apparent. In addition, teachers provided anecdotal data regarding the improvements of the participants.

Additional baseline comprehension performance was assessed using the maze format which is the same format as the generalization comprehension probes. All participants with the exception of one (i.e., Kristi) demonstrated an increase in comprehension levels using this format to assess comprehension. However, it is important to note that Kristi had more correct responses overall during the generalization comprehension probes. When examining the data of the other participants, there was a difference (range, 2 - 7.5%) between baseline and generalization comprehension probes. When examining the changes based on the number of correct response from baseline to

intervention comprehension data, there is a clear difference. The total number of responses increased from baseline to generalization probes, so the students were able to read and answer more during the generalization probes.

In closer examination, Mark demonstrated a slight gain in comprehension from baseline (M=92%) to intervention (M=97%). In looking at the number of correct responses, Mark increased by two correct responses. Also, he had more responses during intervention.

Olivia's comprehension percentage increased slightly from baseline (M=94%) to intervention (M=96%). Olivia's number of correct responses increased from baseline (4-CR) to intervention (11-CR). Also, she had more responses during intervention.

Kristi's comprehension percentage revealed a slight decrease from baseline (M=95%) to intervention (M=89%). Kristi's number of correct responses increased from baseline (5-CR) to intervention (7-CR). Kristi was able to provide more responses during intervention.

Michelle's comprehension percentage revealed a slight increase from baseline (M=92%) to intervention (M=99.5%). Michelle's number of correct responses slightly increased from baseline (5-CR) to intervention (6-CR). Michelle was also able to provide more responses during intervention.

Research Question 6. Will escape maintained behaviors performed in the general education classroom decrease over a 9-week period of time as the referred students demonstrate improvement in reading skills?

School personnel have concerns regarding problem behaviors displayed at school. With the increasing challenges that are presented to schools, strict disciplinary methodologies have been chosen to address those needs (Lewis & Sugai, 1999). These types of procedures may allow for an immediate reduction in the behavior issues; unfortunately, the reduction is only temporary. According to Gunter et al., (1993), task difficulty has been identified as a precursor for problem behavior and that students engage in the problem behavior as an attempt to escape the difficult task demand.

Umbreit et al. (2004) also reported findings of a relationship between student performance and task difficulty. The study revealed that altering the level of the task difficulty had a positive impact on increasing students' on-task behaviors. Greenberg's research (1974) revealed a compelling correlation between misbehavior and reading skills. More recently, additional researchers have reported a relationship between difficulty level of academic task demands and off-task behaviors (Roberts et al., 2001; Meyer, 1999; Cooper et al., 1993). The results of this current study indicated that improvement in reading ability will positively impact target behaviors by decreasing problem behavior during reading in the general education setting. All four of the participants demonstrated increases in oral reading fluency and significant decreases in the overall average percentage of the occurrence of the target behavior. More specifically, Mark's target behavior dropped significantly when compared to baseline data. There

were a few instances when off-task behavior approximated the level observed in baseline; however, those occasions may have been related to his routine disruption at home, substitute at school, not feeling well. In review of Olivia's target behavior, there was a visible decrease in the overall target behavior in comparison to the baseline data. Examination of Kristi's target behavior data revealed lower levels when compared to baseline data. However, there was one occurrence at the end of intervention when the student's off-task behavior returned to baseline levels which were attributed to student illness. In regards to Michelle's target behavior data, there was a distinct decrease in comparison to baseline levels.

Implications of the Current Research

Recent changes in federal and state law now require that students receive empirically-based interventions and supports implemented with appropriate levels of compliance and treatment integrity prior to referral for potential evaluation for special education eligibility and placement. In addition, students must receive remediation and intervention designed to address all of their specific referral concerns. In relation, Sugai and Horner (2002) reported that positive behavior intervention and support (PBIS) strategies have become a major area of focus in preventing problem behaviors. In relation, the Response to Intervention (RTI) model as recently been proposed to address potential academic deficits experienced by students in the general education setting. The PBIS and RTI models are considered complimentary because the strategies are targeting similar populations although PBIS focuses more on remediation of social behaviors and

RTI focuses more on academic targets. Proponents for the use of both PBIS and RTI suggest that students at the tertiary level should receive tier three interventions to address their specific referral concerns. The ultimate goal of PBIS and RTI is to assist schools in effectively and efficiently addressing the needs of all students. The Reading to Read (RTR) intervention package is an example of a potential tier three intervention designed to address academic concerns related to reading fluency and comprehension (Edwards, Tingstrom, & Cottingham, 1993; Kastner, et al., 2000; Tingstrom, et al., 1995).

For this current study, FBA procedures were able identify students whose behavior was maintained by escape; however, the separation was small with regard to the performance of off-task behavior. Interestingly, the separation was larger with regard to academic targets. Such findings suggest that practitioners and researchers need to continue to refine brief functional analysis conditions and potentially assess impact on multiple targets when identifying the potential function of the problem behavior. Finally, each student improved his/her oral reading fluency and comprehension on grade level probes over a 9-week period and demonstrated a decrease in the escaped maintained behaviors over time. Therefore, the remediation of skill deficits in the academic domain addressed the performance of problem behavior within the social domain. These results are promising for practitioners and researchers who choose to work with students demonstrating both academic and behavioral concerns. However, additional work in this area will be needed with other students in other settings demonstrating other problem behaviors before final conclusions can be made about the ability of an academic intervention to address both academic and target problem behaviors. It is entirely possible

that other students who are referred may need a more comprehensive intervention containing empirically-based elements designed to address both the academic and social behavior. In order words, generalization of the results are hoped for as in the case in this study, but can never be completely assumed.

Limitations and Future Research

Although the present study revealed that increasing student's oral reading fluency positively impacted on-task behavior within the general education environment, there are some limitations that must be mentioned. Limitations of the current study may be related to both internal and external validity threats. Specific threats will be discussed below.

All four subjects exhibited off-task behaviors during reading activities which was the only social behavior targeted for observation. In addition, there was poor separation of the targeted behavior in the two conditions within the brief functional analysis. The functional analysis methodology used in this study manipulated antecedent events (i.e., level of task difficulty) and not consequent events (i.e., level of social attention, permitted escape from the demand). As such, the students were observed under each condition (i.e., easy demand, difficult demand) to see if they elected to engage in off-task behavior as a result of being presented with task demands of difficult levels of difficulty. However, other researchers have also manipulated specific consequences when presenting students different types of task demands. For example, some researchers (e.g., Broussard & Northup, 1995; 1997) purposely provide escape contingent upon the display of identified target behaviors. More specifically, the students in these studies are placed in time-out for

a brief period of time (e.g., 30 seconds) contingent upon the occurrence of problem behavior. The task is then represented to the student until he or she engages in the target behavior again. It is also important to note that the researcher served in the role of teacher in the Broussard and Northup studies to ensure that the conditions were implemented with appropriate levels of integrity. Students in this study were permitted to escape the task demands by engaging in off-task behavior. However, they were not directly provided the opportunity to escape by removing them from the task as in the Broussard and Northup studies. This difference in functional analysis methodologies could account for the difference. However, it is also important to note that the manipulations conducted in this study were implemented during ongoing classroom activities by the classroom teacher. Thus, another variable that could account for the difference is the person implementing the conditions as previous researchers have found that the person implementing the conditions (Doggett, Dufrene, Mong, Ota, & Campbell, 2006; Ringdahl & Sellers, 2000).

A final threat to the brief functional analysis conditions conducted in this study is that only one hypothesis was tested (i.e., escape). Previous studies have revealed that hypothesis-based conditions are effective in correctly identifying the function of behavior and generating appropriate intervention recommendations (Moore et al., 1999; Doggett et al., 2001; Umbreit, 1995). However, the informant record included within this study also suggested that social attention could be a potential motivating consequence for some of the students. As such, future researchers may want to investigate all functions of behavior with the brief functional analysis methodology through incorporation isolated conditions

(i.e., escape, teacher attention, peer attention, preferred activities) and combined conditions (i.e., escape and social attention).

The participants in the current study were all in the third grade. However, the participants were a mixture of gender and ethnicity. It has been estimated that 17.5% of elementary and middle school students experience reading difficulties (Shaywitz, Fletcher, & Shaywitz, 1996). Skinner (1998) indicated that one of the areas of concern with middle school students involves reading materials in the content areas. The text of these materials is written at a more advanced level than the student's reading level. The concern leads not to oral reading fluency, but the student's comprehension of the material. With this in mind, researchers should continue to refine and improve reading interventions that will generalize to content area texts. Also identifying these students with reading difficulties as soon as possible, in an attempt to avoid or minimize the problem of difference of the student's instructional level and the grade level content area text.

The students participated in the research project for 9 weeks. When examining the procedures regarding the RTI process, the differing tier levels require certain lengths of intervention implementation. This research study implemented intervention within the suggested timeline for a tier three level of intervention based on district guidelines. However, other states and school districts may have other requirements that practitioners and researchers must follow to maintain compliance with federal and state level policy.

The students also continued to participate in their core reading program. As such, they were receiving academic instruction in the area of reading outside of the intervention

sessions limiting the ability to claim that the results were completely due to the RTR intervention. However, these concerns are limited by the low level of performance during baseline conditions and the immediate improved performance during intervention phases.

The students may have become more comfortable with the procedures with the intervention process and the generalization probing as a form of maturation. For example, some of the students appeared to really enjoy seeing their success overtime. Michelle, in particular, seemed to thrive on the behavioral momentum of her progress. Although the researchers maintained confidentiality of each students' progress, two of the students explained on separate occasions of speaking with one another about their progress. There seemed to be a degree of competition between the two of them.

The RTR intervention package involves several components (e.g., listening previewing, repeated readings, immediate corrective feedback, self-charting, and reinforcement). This study examined the effects of the RTR intervention package as a whole. With this study, one is unable to determine if there was a greater impact on a participant's targeted behavior with a particular component of the RTR intervention package. However, Fredrick (1995) found that RTR in combination with listening previewing was generally more effective. Boyer (1991) found that students who participated in traditional repeated readings without corrective feedback made gains; however, those who participated in RTR made more significant gains. Another study revealed that when behavioral rules (i.e., keep eyes on passage while interventionist reads the passage and remain seated unless otherwise given permission) in conjunction with

RTR intervention package, a student diagnosed with ADHD demonstrated higher rates of on-task behavior and his words correct increased (Moore et al., 2003).

One issue that arose was finding a 30-minute block of time that the teachers were willing to allow me to work with the students. Students are required to attend special areas (i.e., art, music, p.e., library) so those times were not an option even if the student did not want to attend the special. In addition, teachers as well as the researcher did not want to remove the students from math, reading, science, social studies, or writing. Finally, the teachers, principal, and researcher agreed that missing a portion of social studies and writing was the best time periods for intervention implementation. The rationale of the potential increase in reading skills would prove most beneficial and would positively impact other subject areas. However, other individuals attempting to replicate the results of this study may want to consider the actual times during the day when the intervention can be conducted as a practical issue of concern given the limited time during the school day that students have for remedial efforts.

Another limitation includes the lack of follow-up data on the gains attained by each participant during the intervention. Therefore, there is no data to determine if the gains were maintained months after the intervention implementation. Also, this study did not collect data on classroom academic targets such as grades or state-wide testing.

The current research examined the use of an empirically based reading intervention to address reading difficulties and escaped maintained target behaviors of elementary school students. Future research may include examining interventions targeting problem behavior and its impact on academics. In other words, would

decreasing target problem behaviors increase academic success? Results from this study suggested that intervening with academic targets first yielded an improvement in target problem behaviors. However, data need to be collected and analyzed to examine if the reverse is true to students identified as displaying both academic and social concerns.

Additionally, a different type of reading intervention could be utilized. For instance, computerized reading programs (i.e., Destination Reading, Orchard, Language X) versus intervention provided through direct instruction with a person. Would the results indicate that computer intervention is equally if not better than intervention provided by an individual? Or, the different components of RTR could be introduced in increments in order to determine if one component has more impact on reading progress. As mentioned previously, there are some studies that have separated some of the RTR components to determine effectiveness. Moore et al., (2003) demonstrated that RTR combined with behavioral rules positively impacted a student diagnosed with Attention-Deficit Hyperactivity Disorder in his on-task behaviors as well as his oral reading fluency. Cottingham (1993) found no apparent differences in improvement rates for either immediate feedback or no feedback conditions. Also, Frederick (1995) found that RTR in conjunction with listening previewing was generally more effective than without listening previewing.

Another possible research idea is examining generalization with other populations (e.g., secondary), other subject areas (e.g., math or writing), and other reading interventions. There is limited research with reading interventions for secondary level students. Fascio-Veeren (2004) found that secondary level students were able to increase

their reading fluency with repeated reading and listening previewing. Also, repeated reading was found to increase oral reading fluency better than listening previewing. In this study, students were observed to not follow along while the interventionist was reading. Instead, the students were observed to look around the room or out the window even when prompted to follow along with the interventionist. In addition, the students' improvement in oral reading fluency was able to generalize to grade level social studies text. The research indicated through follow-up data that all but one student regressed in oral reading fluency on the generalization probes. A study completed by Mercer, Campbell, Miller, Mercer, and Lane (2000) investigated a reading program that utilized repeated readings with middle school students. Results of this study revealed significant improvements in oral reading fluency.

Another possible research idea would be to replicate this study and the use of conditional probabilities obtained during the collection of baseline and generalization probes in the general education classroom. The use of conditional probabilities, when only using brief functional analysis to test one hypothesis, would strengthen the researcher's confidence in identifying the function of the problem behavior by providing an additional form of data. A final research idea would be to collect peer comparison data with regard to off-task behavior and reading levels. This data may provide a plethora of information. For example, the researcher would be able to evaluate if there are "true" or "perceived" differences between referred students and non-referred students. In addition, it would provide the researcher with the opportunity to see if the behavioral and academic learning rates of students identified as discrepant from their typically-

developing peers began to more closely approximate appropriate levels of responding over time when compared to local norms.

The goals of this current study were to examine the ability of FBA procedures to identify escaped maintained behavior in students with reading difficulties as well as empirically evaluate the effectiveness of the RTR intervention package in addressing both oral reading fluency and comprehension skill deficits. Also, the purpose of this current study was to evaluate the generalization of improvement in these academic skill areas on identified escape-maintained problem behaviors during reading class within the general education setting. The participants were third grade students identified as at-risk for learning problems in reading based on school-wide curriculum based measurement. Referrals were made by the teacher support team. Each participant's reading abilities and off-task behaviors were evaluated during a brief experimental analysis during reading class within the general education setting. The students whose off-task behaviors were higher during the difficult demand conditions and comprehension scores were lower during the difficult demand conditions were retained to participate in the RTR intervention package for a 9-week period.

Experiment I results revealed that all four participants' reading were within the at-risk range based on the curriculum based assessment. Also, all four participants demonstrated slightly more off-task behavior when provided a difficult demand during the brief experimental analysis. In addition, the participants demonstrated lower comprehension scores during the difficult demand.

Experiment II results revealed that all four participants' off-task behavior decreased from baseline to intervention. Also, all four participants' evidenced increases in their oral reading fluency from baseline to intervention. In addition to their increase in oral reading fluency, the participants' experienced an increase in comprehension. Also, all four participants' showed improvements on the generalization probes.

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APPENDIX A

IRB APPROVAL

Mississippi State University

September 27, 2006

Melissa Anderson
1212 Louisville St., # 2
Starkville, MS 39759

RE: IRB Study #06-071: Use of Empirically-Based Reading Interventions to Address the Academic Skills Deficits and Escape-Maintained Social Behaviors Exhibited by Elementary Schools

Dear Ms. Anderson:

The above referenced project was reviewed and approved via expedited review for a period of 9/23/2006 through 9/15/2007 in accordance with 45 CFR 46.110 #7. Please note the expiration date for approval of this project is 9/15/2007. If additional time is needed to complete the project, you will need to submit a Continuing Review Request form 30 days prior to the date of expiration. Any modifications made to this project must be submitted for approval prior to implementation. Forms for both Continuing Review and Modifications are located on our website at http://www.msstate.edu/dept/compliance.

Any failure to adhere to the approved protocol could result in suspension or termination of your project. Please note that the IRB reserves the right, at anytime, to observe you and any associated researchers as they conduct the project and audit research records associated with this project.

Please refer to your docket number (#06-071) when contacting our office regarding this project.

We wish you the very best of luck in your research and look forward to working with you again. If you have questions or concerns, please contact Christine Williams at cwilliams@research.msstate.edu or by phone at 662-325-5220

Sincerely,

[for electronic submission]

R. Dwight Hare
Chairman

cc: R. Anthony Doggett

Office for Regulatory Compliance
P.O. Box 6223 • 70 Morgan Avenue • Mailstop 9563 • Mississippi State, MS 39762 • (662) 325-3294 • FAX (662) 325-8776

APPENDIX B

PROCEDURAL INTEGRITY CHECKLIST FOR CBM READING PROBES

CBM

Procedural Integrity Checklist

Assistant: _____ Observer: _____
Date Observed: _____ Student: _____
Intervention Components School: _____

1. Stopwatch/materials ready _____
2. Provides appropriate starting phrase _____
3. Times passage correctly (+/- 3 secs) _____
4. Computes CWPM _____
5. Provides appropriate phrase to initiate comprehension questions _____
6. Computes comprehension accuracy (%) _____

APPENDIX C

TREATMENT INTEGRITY CHECKLIST FOR READING INTERVENTION

Student:_____

Date: Passage # ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Total Words ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Errors ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
CWPM ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Comprehension ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

Date: Passage # ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Total Words ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Errors ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
CWPM ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Comprehension ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

Date: Passage # ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Total Words ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Errors ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
CWPM ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Comprehension ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

Date: Passage # ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Total Words ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Errors ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
CWPM ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Comprehension ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

Date: Passage # ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Total Words ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Errors ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
CWPM ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Comprehension ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

Date: Passage # ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Total Words ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Errors ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
CWPM ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Comprehension ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

Date: Passage # ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Total Words ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Errors ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
CWPM ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
Comprehension ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

APPENDIX D

BOOKS CORRESPONDING TO GRADE LEVEL

Reading Series Book Grade Levels

Books 1- 5	1st Grade
Books 6 & 7	2nd Grade
Books 8 & 9	3rd Grade
Book 10	4th Grade
Book 11	5th Grade
Book 12	6th Grade

APPENDIX E

DAILY DOCUMENTATION

READING TO READ

Intervention Session Documentation

Student: _____ Teacher Assistant:_____

Reading Teacher: _____ Beginning Date: _____
Student Age:_____ Grade:_____

Level ___

Initials of Examiner (or Substitute)_____ Date_____ Time_____

Trials

1 2 3 4 5 6 7 8 9 10
WPM _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

EPM _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

CWPM _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Comprehension Accuracy _____% (**Goal is at least 80% which is 4 Correct Responses**)

Level ____

Initials of Examiner (or Substitute)_____ Date_____Time_____

Trials

1 2 3 4 5 6 7 8 9 10
WPM _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

EPM _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

CWPM _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Comprehension Accuracy _____% (**Goal is at least 80% which is 4 Correct Responses**)

APPENDIX F

SELF-MONITORING GRAPH

Reading To Read
Student Self-Monitoring Graph

Student:_____

REMEMBER : WORDS READ – ERRORS = CWPM

Date:_____

I

100										
95										
90										
85										
80										
75										
70										
65										
60										
55										
50										
45										
40										
35										
30										
25										
20										
15										
10										
5										
Trial	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Date:_____

II

100										
95										
90										
85										
80										
75										
70										
65										
60										
55										
50										
45										
40										
35										
30										
25										
20										
15										
10										
5										
Trial	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

III. Passage # _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Total Words _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Errors _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

CWPM _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

IV. Passage # _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Total Words _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Errors _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

CWPM _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

APPENDIX G

PARTIAL INTERVAL OBSERVATION FORM

Date _____ From _____ To _____ Student _____

Setting _____ Activity _____ Observer _____

Behavior	1	2	3	4	5	6	7	8	9	10	11	12
Ant.	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T
Targets	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT
Conseq.	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN
Behavior	13	14	15	16	17	18	19	20	21	22	23	24
Ant.	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T
Targets	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT
Conseq.	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN
Behavior	25	26	27	28	29	30	31	32	33	34	35	36
Ant.	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T
Targets	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT
Conseq.	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN
Behavior	37	38	39	40	41	42	43	44	45	46	47	48
Ant.	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T
Targets	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT
Conseq.	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN
Behavior	49	50	51	52	53	54	55	56	57	58	59	60
Ant.	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T	D C T
Targets	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT
Conseq.	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN	E/A TP TN PP PN

APPENDIX H

GLOSSARY

Glossary

CBA (Curriculum Based Assessment)

Characterized by any set of measurement procedures using direct observations and recordings used to make instructional decisions regarding a student's performance in the school's curriculum.

CBM (Curriculum Based Measurement)

An approach to progress monitoring effectiveness of instruction that is highly sensitive to change across time.

FBA (Functional Behavioral Assessment)

An assessment process involving indirect and direct methods to determine the function of problem behaviors.

BFA (Brief Functional Analysis)

A brief manipulation of environmental variables under tight conditions to identify those environmental determinants of target behaviors.

WRC (Words Read Correct)

Oral reading fluency will be measured by evaluating the number of words read correct.

E (Errors)

Oral reading errors will be measured by evaluating the number of errors.

ET (Easy Task)

A task at the student's instructional level.

DT (Difficult Task)

A task at the student's frustrational level.

Frustrational

Material is too difficult.

Instructional

Material not yet mastered but not too difficult.

Mastery

Material is mastered.

RTR (Reading to Read)

A remedial reading program designed to address fluency and comprehension through direct instruction methodology.

APPENDIX I

VITA

Curriculum Vita

Melissa S. Anderson

EDUCATION

2008 (candidate)	Ph.D.	Mississippi State University Major Area: School Psychology (APA, NCATE approved) Dissertation: Use of empirically-based reading intervention to address the academic skills deficits and escape maintained target behaviors exhibited by elementary school students. Director: R. Anthony Doggett, Ph.D.
2004	Ed.S.	Mississippi State University Major Area: School Psychology Specialist Project: Increasing Oral Reading Fluency Director: Carlen Henington, Ph.D.
2002	M.S.	Mississippi State University Major Area: School Psychometry
1999	B.A.	The University of Southern Mississippi Major Area: Speech and Language Pathology

APPLIED EXPERIENCE

8/06-7/07 **Doctoral Internship**
Tennessee Internship Consortium, Knoxville, TN
Supervisors: David White, Ph.D., R. Anthony Doggett Ph.D.
Total Hours: 2000

Twelve-month internship emphasizing traditional assessments and reports, consultation with parents, teachers, and other school staff, and intervention planning, implementation, and monitoring of a large array of presenting problems including academic and school behavior problems: ADHD, anxiety, behavioral noncompliance, and developmental disabilities. Consulted on PBIS implementation, active member of the teacher support team, and supervision of a psychometry student.

8/05-5/06 **School Psychology Practicum--Behavior Specialist**
Mississippi State University, Department of Counseling, Educational Psychology, and Special Education
Supervisor: R. Anthony Doggett, Ph.D.
Total Hours: 171

Responsibilities include the following: teacher, parent, and student interviews, record reviews, classroom observations, brief functional analysis, development of intervention recommendations, functional behavioral assessment report, review FBA report with faculty and parents, assist with implementation of FBA recommendations, and teacher/staff consultation.

8/04-5/05 **School Psychology Practicum--Behavior Specialist**
Mississippi State University, Department of Counseling, Educational Psychology, and Special Education
Supervisor: Brad Dufrene, M.S. (doctoral candidate)
Total Hours: 453

Responsibilities include the following: teacher, parent and student interviews, record reviews, classroom observations, brief functional analysis, development of intervention recommendations, functional behavioral assessment report, review FBA report with faculty and parents, assist with implementation of FBA recommendations, and teacher/staff consultation.

8/03-5/04 **Educational Specialist Internship**
Mississippi State University, Department of Counseling, Educational Psychology, and Special Education
Supervisors: Carlen Henington, Ph.D., Dale Bailey Ph.D.
Total Hours: 1494

Ten-month internship emphasizing traditional assessments and reports, consultation with parents, teachers, and other school staff, and intervention planning, implementation, and monitoring of a large array of presenting problems including academic and school behavior problems: ADHD, anxiety, behavioral noncompliance, and developmental disabilities. Conducted teacher trainings on utilization of positive behavioral strategies, consulted on PBIS implementation, collected PBIS data, participated as a PBIS committee member, active member of the teacher support team, and supervision of a psychometry student.

8/01-7/05 **Early Intervention**
Mississippi State University, Department of Counseling, Educational Psychology, and Special Education
Supervisor: T. Steuart Watson, Ph.D., R. Anthony Doggett Ph.D., Carlen Henington, Ph.D., Janie Cirlot-New, M.S., CCC-SLP, Laurie Craig, M.S., CCC-SLP, Sandy Devlin, Ph.D.
Total Hours: 670

Twelve month graduate assistantship emphasizing assessment, behavioral consultation and treatment of a variety of presenting problems within the early intervention population including developmental delays, severely language disordered, cerebral palsy, autism spectrum, noncompliance, nonverbal, and hearing-impaired, and potty training. Reading intervention with non-verbal young man who used a communication device. Demonstrated Child Direct Interaction, time-out, and overcorrection procedures. Assisted in the classroom by using time-out, oral motor activities/activities, potty training, feeding and social skills.

Continued providing consultation services for a wide variety of behaviors including noncompliance self-injury, aggression, functional behavioral assessments with reports, and discrete training. Assisted with Camp Jabber Jaw.

1/03-5/03 **School Psychology Consultation Practicum**
Mississippi State University, Department of Counseling, Educational Psychology, and Special Education
Supervisor: R. Anthony Doggett, Ph.D.
Total Hours: 460

Coordinated psychological services between a local school district, a mental health facility, and Mississippi State University. Responsible for conducting classroom observations; intervention development, implementation, and monitoring; billing Medicaid, teacher consultation, functional behavioral assessments, and individual and group therapy

1/02-5/02 **School Psychology Assessment Practicum**
Mississippi State University, Department of Counseling, Educational Psychology, and Special Education
Supervisors: Cathy Lindsay, Ed.S., R. Anthony Doggett, Ph.D.
Total Hours: 340

Coordinated psychological services between a local school district and Mississippi State University School Psychology. Responsible for conducting developmental history intakes traditional assessments, classroom observations, developing psychoeducational reports and presenting report at eligibility meetings.

1/01-5/01 **Advance Behavior Intervention Course Project**
Mississippi State University, Department of Counseling, Educational Psychology, and Special Education
Supervisor: T. Steuart Watson, Ph.D.
Total Hours: 30

Professor assigned school-based behavior case. Responsible for teacher interviews, classroom observations, data collection, intervention development, implementation, and monitoring, and present case to class.

PROFESSIONAL EXPERIENCE

9/99-5/00 Teacher for Hearing-Impaired
Jones County School District, Ellisville, MS.
Superintendent: Thomas Prine

Responsibilities included sign language interpreting for hearing-impaired students in classroom settings, monitoring academic progress, teaching sign language to a deaf student and his friends, and social skills training.

1/98-12/02 Sign Language Interpreter
First Baptist Church of Sharon
Laurel, MS.

Services provided included sign language interpreting for hearing-impaired young person for most church morning and evening services, morning evening classes, special programs, retreats.

5/02	Contractual psychometry Columbus Municipal School District Columbus, MS. Services provided included traditional assessment for gifted program.
1/03-5/03	Adjunct faculty—Intro. Basic Sign Language: COE 4363/6363 Mississippi State University, Department of Counselor Education & Educational Psychology Introduction to American Sign Language (ASL), including finger spelling. ASL vocabulary and constructs emphasized. Goal to develop receptive and expressive skills. Introduction of concepts concerning the Deaf Culture.
6/03-7/03	Contractual psychometry Jones County School District, Ellisville, MS Services provided included traditional assessment for gifted program.
6/04	T. K. Martin Center for Technology and Disabilities Mississippi State University, Starkville, MS Services provided included an evaluation for communication device for a developmentally delayed child.
8/04-1/05	Contractual psychometry Amite County Services provided included traditional assessments and psychoeducation reports for special education eligibility.
8/04-1/05	Contractual psychometry Adolescent Offenders Program (AOP) Pike County Services provided included psychological evaluation.
7/07-Present	School Psychologist Knox County School District, Knoxville, TN

LICENSURE/CERTIFICATION

Apprentice Special Group---Tennessee Department of Education (Expires 8/31/2012)
School Psychometry—Mississippi Department of Education #167902 (Expires 6/30/2012)
School Psychology—Mississippi Department of Education #167902 (Expires 6/30/2012)
Nationally Certified School Psychologist—#33971 (Expires 12/31/2010)

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

National Association of School Psychologists (NASP)
Mississippi Association for Psychology in the Schools
American Psychological Association

PROFESSIONAL INTERESTS

Positive Behavior Interventions and Supports
Early Intervention
Developmental Delays
Parent Training
Behavioral Pediatric Psychology
Response to intervention

RESEARCH ASSISTANCE

10/03 **Parent Training**
Mississippi State University, Department of Counselor Education & Educational Psychology
Supervisor: R. Anthony Doggett, Ph.D.
Total Hours: 30

Provided in home direct behavioral consultation. Specific services provided included brief functional analysis, parent interview, discussion of intervention choice, implementation of CDI and PCIT through direct instruction.

4/03 **Intensive Potty Training**
Mississippi State University, Department of Counselor Education & Educational Psychology
Supervisor: R. Anthony Doggett, Ph.D.
Total Hours: 16

Provided in home direct behavioral consultation to a family regarding intensive potty training method. Consultation consisted of discussing method, modeling parents role, allow for parent to practice, and providing feedback.

MANUSCRIPTS IN PROGRESS

Anderson, M., Slay, L., Delaney, A., & Watson, T. S. The Effects of Teacher Commands and Teacher Praise on Inappropriate Behavior in an Alternative Classroom Setting. Manuscript submitted for publication. Journal of Positive Behavior Supports.

Anderson, M., Henington, C., Doggett, T, & Sanderson, G. Increasing Oral Reading Fluency. Manuscript to be submitted to Reading Remediation.

Anderson, M. & Devlin, S. Replacing Self-Injurious Behavior in a Preschooler with an Alternative Behavior. Manuscript to be submitted to Research in Developmental Disabilities.

Anderson, M., Doggett, T, & Bailey, D. Schoolwide implementation of PBIS. Manuscript to be submitted to Journal of Positive Behavior Supports.

PRESENTATIONS AT PROFESSIONAL CONFERENCES

Referred National/Regional Presentations

Cirlot-New, J., Perkerson, D. S., & Anderson, M. (2002, October) Moving beyond emergent literacy with AAC users. Presented at Southeast Augmentative Communication Conference, Birmingham, AL.

Cirlot-New, J., Perkerson, D. S., & Anderson, M. (2002, November) Facilitating Conventional Literacy for Persons Who Use Augmentative Communication. Presented at American Speech-Language-Hearing Association Convention, Atlanta, GA.

Henington, C., Slay, L. C., & Anderson, M. (2002, October) Implementing IDEA Part C: A Transdiciplary-Team Approach. Presented at the MidSouth Fall Convention, Chattanooga, TN.

Henington, C, Slay, L. C., Davis, C., Pugh, C., Anderson, M., Carter, S., & Hoda, N. (2004, April) Early Childhood Intervention and School Psychology: Trends and Issues. Presented at National Association of School Psychologist, Dallas, TX.

Roberts, A., Anderson, M., Bailey, D., & Doggett, T. (2004, October) It does matter whether we win or lose: A sure fire strategy for improving school discipline. Presented at The Midsouth Regional Conference on Psychology in the Schools, Tunica, MS.

Doggett, T., & Anderson, M. (2005, April). Positive Behavior Intervention and Support in a Rural School District. Presented at the National Association of School Psychologist Annual Conference, Atlanta, GA.

Doggett, T., & Anderson, M. (2006, April). Positive behavior supports in two public school districts. To be presented at the National Association of School Psychologist Annual Conference, Anaheim, CA.

State Presentations

Anderson, M., Slay, L., Delaney, A, & Watson, T. S. (2002, February) The effects of teacher commands and teacher praise on inappropriate behavior in an alternative classroom setting. Paper presented at the Mississippi Association for Psychologist in the Schools, Jackson, MS.

Henington, C, Slay, L. C., & Anderson, M. (2003, February) Role of the School Psychologist in Early Intervention and Assessment. Presented at Mississippi Association of Psychologists in the Schools, Jackson, MS.

Roberts, A., Anderson, M., Bailey, D., & Doggett, T. (2004,April) The Stakes are High, Win Big with PBIS. Presented at Mississippi Associations of Psychologists in the Schools, Philadelphia, MS.

Roberts, A., Anderson, M., Bailey, D., & Doggett, T. (2004, November) Come out of your role: the school counselors' role changing. Presented at Mississippi Association for Counselors, Biloxi, MS.

Invited Presentations

Roberts, A., Anderson, M., Bailey, D., & Doggett, T. (2005, November) PBIS: Changing the role of school counselors. To be presented at Mississippi Association for Counselors, Biloxi, MS. Postponed due to Hurricane Katrina.

POSTER SESSIONS AT PROFESSIONAL CONFERENCE

Henington, C., Slay, L. C., & Anderson, M. (2003, March) Role of the School Psychologist in Early Intervention and Assessment. Presented at Mississippi Early Intervention Conference, Hattiesburg, MS.

Perkerson, D., Anderson, M., McMaster, C., Craig, L., (2003, March) MSU Statewide School: T.K. Martin Center. Presented at Mississippi Early Intervention Conference, Hattiesburg, MS.

WORKSHOPS

Anderson, M. (2001, October). Teaching Study Skills using SQ3R. Presented to 9th grade students Kosciusko, MS.

Anderson, M., & Roberts, A. (2003, August). Components of Effective Time-In and Time-Out. Presented to Otken Elementary faculty and staff, McComb, MS.

Anderson, M., & Roberts, A. (2003, September). Components of Effective Time-In and Time-Out. Presented to Otken Elementary faculty and staff, McComb, MS.

Anderson, M., & Roberts, A. (2003, September). Using Precisions Requests. Presented to Otken Elementary faculty and staff, McComb, MS.

Anderson, M., & Roberts, A. (2003, November). PBIS Data Sharing. Presented to Otken Elementary faculty and staff, McComb, MS.

Anderson, M., & Roberts, A. (2004, January). Effective Use of Behavior Plans. Presented to Otken Elementary faculty and staff, McComb, MS.

Anderson, M., & Roberts, A. (2004, February). Diffusing Aggression and Anger. Presented to Otken Elementary faculty and staff, McComb, MS.

Anderson, M., & Roberts, A. (2004, August). Components of Effective Time-In and Time-Out and Use of Precision Requests. Presented to Otken Elementary faculty and staff, McComb, MS.

Anderson, M., Doggett, R. A., & Bailey. (2004, October). Basic Classroom Management Techniques. Presented to Starkville High School, Starkville, MS.