Response to Intervention Within Restrictive Settings: A Multi-Tiered Behavioral Intervention System for Addressing Behavior Problems Within the Top Tier

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ABSTRACT OF THE DISSERTATION

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One of the primary goals of any multi-tiered intervention system delivered within an educational setting is to provide an appropriate level of support to each student based upon his or her demonstrated level of need. It has been established that approximately 95% of students served under a multi-tiered intervention system will have their needs met without ever entering into the highest tier of support. However, for the 5% of students who do enter into the restrictive settings associated with top tier service delivery, educational, as well as overall life outcomes, have traditionally been demonstrated to be very poor. The purpose of this study was to investigate the effectiveness of utilizing a multi-tiered intervention system to address behavior problems exhibited by primary age students within a highly restrictive, top tier setting. Although multi-tiered intervention systems such as Response to Intervention (RtI) and Positive Behavior Support (PBS) have previously been applied across various types of educational settings to address both
academic and behavioral deficits, little attention has been paid to the utility of such approaches for addressing problem behavior for students who are educated within alternative educational settings. The current study sought to evaluate the utility of a behaviorally based RtI service delivery model, delivered within a highly restrictive setting, to decrease problem behaviors, increase pro-social behavior, and to guide placement decisions.
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Chapter 1: Statement of the Problem

Response to Intervention within Restrictive Settings: A Multi-Tier Behavioral Intervention System for Addressing Behavior Problems within the Top Tier

One of the greatest challenges that educators face in today’s educational system is how to effectively address the problem behaviors exhibited by the students they serve (Gresham, 2007). Behaviorally challenging students not only pose risks to themselves, but they also provide challenges for teachers, administrators, and for fellow students (Crone & Horner, 2003). According to the Office of Special Education Rehabilitative Services (OSERS) Annual Report to Congress on the implementation of the Individuals With Disabilities Education Act (2000), students with emotional and behavioral disorders (EBD) constitute approximately 1-5% of any given school population, yet they account for 40-50% of all behavioral disruptions. In addition, it has been estimated that EBD students drain as much 50-60% of all building and classroom resources (Colvin, Kame'enui, & Sugai, 1993; Gresham, 2004). Yet despite the inordinately high percentage of overall resources that schools allocate towards educating EBD students, outcomes associated with these same students continue to be poor (Corbett, Clark, & Blank, 2002).

Research has demonstrated that students with emotional and behavioral disorders are at greater risk for developing academic deficits, are less responsive to intervention strategies, and are more likely to be educated in highly restrictive settings than their general education and learning disabled (LD) peers (Lane, Wehby, Little, and Cooley, 2005). And while EBD students are more likely to be educated within highly restrictive settings, they are also more likely to exit school by way of dropping out rather than by earning a diploma or certificate of completion (Landrum, Katsiyannis, & Archwmety,
2004), seriously calling into question the efficacy of educating EBD students within restrictive settings. In fact, research has shown that more than 50% of students with EBD drop out before finishing high school (Chesapeake Institute, 1994, as cited in Jolivette et al, 2000). And in cases where EBD students do graduate, Malmgren, Edgar & Neel (1998) found that 10 years after graduation, only 28.6% completed a post-secondary program, compared with 66.9% of their non-disabled peers. While it would be difficult to argue against the importance of restrictive educational settings for some groups of students, EBD students included, it would also be difficult to argue that the manner by which these services have traditionally been delivered, and the outcomes associated with them, are not as impressive as one might hope them to be.

One of the primary tenants in the development and delivery of special education and related services is that, to the maximum extent possible, students should be educated within the least restrictive environment (LRE), alongside their non-disabled peers, and within a setting that is the same as, or closely approximates, the one they would be educated in if they were not disabled (Crocket & Kauffman, 1999). One reason behind the development of the LRE clause in special education can be found in the understanding that when students with disabilities are educated in integrated settings, they are ensured access to community resources and opportunities to develop academic and social skills within the environmental and societal contexts in which they are ultimately being prepared to enter (Gartner & Lipsky, 1987). Additionally, the LRE clause serves to protect the rights of students by safeguarding them from segregation and discrimination based upon the existence of a disability (Osborne & Dimmatia, 1994). The
Individuals with Disabilities Education Improvement Act (IDEIA, 2004) stipulates, in regard to the least restrictive environment, that the use of separate facilities for educating students may only occur when the nature and severity of the student’s disability is such that it precludes appropriate instruction within a general education setting, even with the use of supplementary aids and supports. Despite this stipulation in the law, students with EBD are placed within segregated or restrictive settings at a higher rate than any other disability category (Reddy, 2001). When the poor outcomes associated with EBD students and restrictive settings are taken into account, one must consider the value of exploring alternative approaches to educating these students other than those that have traditionally been employed. To this end, multi-tiered service delivery models such as Response to Intervention (RtI) have emerged in the field of education as a preferred method for addressing problem behavior, both academic and behavioral in nature, for school aged children in educational settings (Hawken, Vincent, & Schumann, 2008).

**IDEIA 2004 and Response to Intervention**

In 2004, the Individuals with Disabilities Education Improvement (IDEIA, 2004) brought about change in federal legislation that amended the use of the ability/achievement discrepancy method to identifying students as having a specific learning disability (SLD), and instead specified a Response to Intervention (RtI) type of approach as a viable, and indeed even preferable, means of achieving the same goal. According to the new regulations, local education agencies (LEAs) are no longer mandated to use the traditional approach of testing for a significant discrepancy between IQ and achievement as a means of qualifying students for special education services.
under the eligibility category Specific Learning Disability (SLD). Instead, under the new system, an increased importance has been placed upon the ongoing and systematic collection of data as a means of evaluating student response to evidence-based intervention strategies. Although specific to the identification of Learning Disabilities, this change in language and regulatory standards has also opened the door for utilizing RtI methodology across other domains as well. One area in which RtI holds particular promise is for addressing and ameliorating behavior problems in schools. Although the passage of IDEIA may have marked the first time that a problem solving approach has been prescribed in terms of federal legislative guidelines as a preferable method, the notion of RtI itself is far from new. In fact, RtI and similar problem solving procedures have been utilized quite successfully in multiple settings and under various conditions for decades (Barnett et al., 2006; Fletcher, Francis, Morris, & Lyon, 2005; Gresham, 1991, 2005). The move towards an RtI approach to SLD identification has slowly been gaining popularity over the course of the last twenty years in response to a strong body of literature that has clearly demonstrated the problems and pitfalls associated with the traditional discrepancy model (Fletcher et al., 2002). In recent years, however, the popularity of RtI methodology has gained considerable momentum as consensus has grown among professionals within the field of education that the discrepancy model has failed to live up to its originally conceived of purpose (Kavale & Forness, 1995), and that a change in practice has been long overdue.

With a foundation that is firmly rooted in scientifically validated intervention procedures, RtI has emerged as a method of service delivery that inherently sidesteps
many of the problems associated with the traditional discrepancy approach. For example, the phenomenon known as “wait to fail” in which struggling students must wait until there is a significant discrepancy between IQ and achievement before supplementary supports are provided, is a direct result of the traditional discrepancy model for SLD determination (Fletcher et al., 2002; Vellutino, Scanlon, & Lyon, 2000). The unfortunate result of the so-called “wait to fail” approach is that too often it leads to a delay in supplementary service delivery beyond the point where intervention services have been shown to be most effective (O’Connor, Harty, & Fulmer, 2005), thereby needlessly creating cumulative deficits for students to overcome. In direct contrast, when an RtI approach is employed, there is no reason to wait until an arbitrarily determined discrepancy cutoff score has been met before services are rendered. Rather than withholding services until a discrepancy is demonstrated, under an RtI approach student problems are addressed as soon as they occur, or in some instances even before they develop into problems, through the use of proactive screening procedures that identify at-risk students who have yet to evidence problems to a degree severe enough to raise concerns.

One of the primary premises that drive RtI is that individual students who are struggling to succeed will respond differently from each other when exposed to the same, or similar, empirically validated intervention strategies. The degree to which a student responds to an intervention implemented with integrity will provide educators with data by which to evaluate the severity of the problem (Gresham, 2002). These data can then be used to guide decision making processes, as well as to identify how the needs of
individual students can most effectively be addressed. As such, RtI allows educators to select, alter, and evaluate intervention procedures using a data driven approach that eliminates issues of bias, opinion, and subjectivity from the decision making process. If a student demonstrates resistance to the best intervention strategies available, then it may be objectively determined that the student’s needs may be most appropriately met through the delivery of special education and related services (Gresham. 2004). For example, Torgesen (2001) and Vellutino et al. (1996) found that when students were provided intensive and explicit supplemental instruction, only 5 to 7% failed to make substantially adequate progress. Using an RtI rationale, these are the students that would be considered as needing additional, more intensive educational supports either within the general education setting or in the form of special education services.

**RtI: Description and Definition**

RtI can be thought of as a problem-solving approach that utilizes a multi-tiered method of service delivery which systematically intensifies in response to student need. Under a problem-solving model, a problem is defined as a discrepancy between current and expected levels of performance (Deno, 2002). Using this philosophy, it follows that the larger the discrepancy, the larger the problem to be addressed. RtI differs from traditional methods of identifying problems in that it does not assume the source of the problem to exist strictly within the child, but instead considers all possible factors that may contribute to student difficulties (Crone & Horner, 2003; Gresham & Noell, 1999; Smith, 2000). In fact, Walker and Plomin (2005) have reported that over 90% of teachers believed that genetic influences played a more significant role in the expression of
problem behaviors by students than environmental influences. The search for pathology has dominated special education practice and treatment to such a degree that special education teachers sometimes refrain from considering any other alternative explanations or methods for resolving problems (Reschly & Ysseldyke, 2002; Ysseldyke, 2005). Unfortunately, this viewpoint often deflects teachers’ attention from altering their own behaviors or from examining environmental factors as a means of addressing student centered problems and reaching a positive resolution. RtI, on the other hand, places emphasis on environmental conditions, prior experience and exposure to instruction, and acquisition vs. performance deficits as possible explanations for why students are experiencing difficulty in school. Then, taking all of these different factors into account, seeks to identify the most effective course of action for the individual student or problem being considered.

There are four primary areas to focus on when using RtI: (a) the referral problem (academic, behavioral, or both), (b) the environment (instructional, classroom management practices, and school discipline practices), (c) the intensity of intervention needs (universal, selected, intensive, or special education), and (d) the intervention outcomes (immediate, intermediate, and long term). These four areas may be rephrased to reflect the language associated with a typical problem-solving model: problem identification (the referral problem), problem analysis (the environment), plan implementation (intervention needs), and plan evaluation (outcomes) (Bergan & Kratochwill, 1990).
When using an RtI model of service delivery, educators will still evaluate whether a discrepancy exists, but the discrepancy of concern is one of academic performance and/or behavior differences between baseline and intervention phases rather than between IQ and achievement scores. Under RtI, discrepancy refers to positive changes in performance from baseline levels as a result of intervention effects. If it can be determined through data analyses that a student has not adequately responded to scientifically validated intervention procedures implemented with integrity, then that information can be used as evidence of an underlying disability. Once this has been determined, decisions as to whether special education services are warranted must be considered in light of eligibility criteria that both a disability and a need for supplementary services have been demonstrated. If it is determined that a student meets criteria for entrance into special education, it is important that provisions be made so that the student may someday exit back into general education if he or she demonstrates a change in problematic behaviors so that special education services are no longer necessary. RtI methodology provides a simple, built in, means of accomplishing this goal through the analysis of progress monitoring data that is already collected for each individual student as part of the RtI process.

At the core of RtI methodology are the multiple procedures that constitute progress monitoring. Without progress monitoring, the data-based aspect of decision making in an RtI model would not be possible. Progress monitoring is a scientifically-based practice of data collection that is used to directly evaluate a student’s academic or behavioral performance in response to an empirically validated intervention implemented...
with integrity, be it universal, selected, or targeted (National Center on Progress Monitoring, 2006). The academic or behavioral content of interest is made up of teachable or alterable skills or behaviors. The student’s targeted skills or behaviors are then measured on a continual and consistent basis (e.g., weekly or bi-weekly) to provide information that is used to increase the accuracy of decision-making by providing a clearer picture of student performance.

One particularly important aspect of the progress monitoring process is goal setting. Without a well written, well conceived of goal that clearly indicates the student’s current levels of performance, expected levels of performance, specific behavior of concern stated in unambiguous terms, timeframe for expected change, and specific conditions for change, the tracking of progress becomes more a judgment call than a data-based decision (Fuchs, 2002). Progress toward student goals must be monitored closely to compare expected and actual rates of performance. Correspondingly, the progress monitoring data can be used to make decisions about and adjustments to interventions, thus making it possible for all involved parties to be confident that a student’s needs are ultimately being met.

Although RtI has been well conceptualized and garnered much attention in the literature as a means of addressing academic problems and qualifying students as learning disabled, it has received less attention as a means of evaluating the needs of students who demonstrate serious emotional and behavioral difficulties. Using the same methodologies employed for academic difficulties, RtI strategies hold great promise for addressing behavioral concerns such as schoolwide behavioral management, focused selected
interventions for problematic students, and the differentiation of students as either conduct disordered (CD) or emotionally disturbed (ED). Gresham (2004) has argued that RtI methods are well suited for identifying students as ED. The rationale behind this argument is that students who are truly ED have conditions that are chronic and resistant to various forms of intervention. Whereas, students with transient or time-limited forms of behavior problems, and who are not truly ED, have less chronic behaviors and therefore respond well to scientifically validated interventions implemented with integrity. If this argument is accepted, then it should seem clear that the murky determination process which too often mistakenly labels emotionally disturbed students as conduct disordered, and conduct disordered students as emotionally disturbed, would cease to be a problem under an RtI approach to disability determination. In fact, the very process of moving through a behavioral RtI system would provide educators with a wealth of information that would be useful for helping to determine if a student may be eligible for services under the ED label, or whether the student demonstrates behavioral patterns that are more indicative of CD.

In very much the same way that traditional methods of identifying SLD have been fraught with problems, the same could be said of the traditional methods of determining ED. Currently, the decision making processes for determining ED qualification is confusing at best. For example, the social maladjustment clause has been a topic of ongoing controversy and confusion when considered alongside the ED definition (Merrell & Walker, 2004; Skiba & Grizzle, 1991). In essence, the social maladjustment exclusionary clause argues that a student who is socially maladjusted cannot, at the same
time, be ED. However, under the exclusionary clause, a student who is ED can be socially maladjusted. The primary effect of this differentiation is that many students who could benefit from additional educational services are denied them on the basis that they do not meet eligibility criteria. Proponents of the clause argue that the floodgates to special education will be opened, if the clause were to be removed from the definition. This argument, however, appears to be based on opinion rather than fact, as researchers have empirically demonstrated in states where the social maladjustment clause is not recognized, that students with emotional and/or behavioral problems are still largely underserved (Skiba, Grizzle, & Minke, 1994). A quote from Forness and Kavale’s (2000) synopsis of the status of ED and the field of special education captures the inadequacy of the current practice of ED eligibility determination: “[O]f several challenges that continue to face special education regarding children with emotional or behavioral disorders, the problem of eligibility is among the most pressing” (p. 267).

Under the traditional three-step process (referral, psychological evaluation, and team decisions) currently employed by public schools for the referral, classification, and placement of students with ED, often there are diagnostic inaccuracies (e.g., false positive or false negative), inappropriate placements, or a combination of the two. The traditional approach is also exclusive in the sense that only those students who pass through the first gate—referral—are even considered for psychological evaluation. This is especially problematic in light of the research that indicates teachers are not perfect instruments for identifying the needs of students (Gerber & Semmel, 1984; Gresham, MacMillan, & Bocian, 1997). In addition, issues such as inconsistency in assessment practices,
variability within and across states in identification rates, and exclusion of students who are in need of services (e.g., socially maladjusted) but who do not meet the criteria that would qualify them for those services (Merrell & Walker, 2004; Skiba & Grizzle, 1991) have left many educators and education providers wary of the traditional ED qualification process as a whole.

One area of particular concern to educators when considering the needs of EBD students is what constitutes proper placement. In fact, a clear trend has been demonstrated that EBD students have a tendency to be placed in restrictive settings (Stephens & Lakin, 1995). According to the U.S. Department of Education (2002), close to 77,000 students with EBD are educated in separate day treatment or residential facilities, indicating that students identified as EBD are more likely to be placed in alternative settings than students with any other type of disability classification (Reddy, 2001). Furthermore, a 13% increase in the number of EBD students placed in restrictive settings was reported between the years 1992-2002 (U.S. Department of Education, 2002). In addition to settings that are typically thought of as alternative, such as community day or non-public schools, within most traditional school setting there exists self-contained classrooms where students with intense behavioral problems may be placed so as not to disrupt the educational development of their peers (Walker, Ramsey, & Gresham, 2004). The assignment of EBD students to restrictive settings becomes particularly worrisome in light of research that has shown that students placed in alternative environments tend to socialize each other to higher levels of deviant behavior than would otherwise be the case under normal educational circumstances (Dishion &
Andrews, 1995). To prevent such iatrogenic effects, it is important that increased attention be paid to the development of alternative settings for EBD students that do not simply seek to increase the restrictive nature of the educational environment, but instead rely on the systematic implementation of empirically validated remediation strategies (Beaudoin, Knuth, & Benner, 2008).

Another area of great concern for educators and educational researchers when talking about students who qualify for special education, or a similar top tier placement, is if and how they will be allowed to exit once placed (Cartledge, 2005; Fuchs & Fuchs, 1995). Special education, as well as other types of restrictive placement, is often perceived of as a kind of holding pattern for students with problems that are too difficult to remediate. However, if the aim of special education is truly to utilize an increased level of supports to help students achieve higher social, emotional, behavioral, and educational outcomes, then it logically follows that a successful system would find a proportion of students who show strong response to these additional supports and, as a result, would be appropriately exited back into the general education setting.

From an RtI perspective, what this means is that RtI procedures should not cease once a student enters special education, but should instead be recycled within the special education setting. Systematic intervention, in conjunction with on-going systematic data collection, should be utilized within the special education setting as a means of tracking student progress and for making decisions as to the continued appropriateness of special education placement (Fuchs, Fuchs, & Zumeta, 2008; Fuchs et al., 2008). This is particularly true of students who have been placed in a special education equivalent
setting, such as an alternative or community day schools for students with emotional or behavioral disorders, and who do not face the kinds of cumulative deficits faced by students whose problems are academic in nature. In fact, when considering the differences in the basic nature of behavioral versus academic problems, one thing that becomes apparent is that while it is often a long and arduous process of building knowledge upon knowledge in order to close the discrepancy gap between current and expected levels of performance in academics, the same cannot necessarily be said of behavioral problems. A logical argument can be made that while building academic competency will generally follow a fairly steady trajectory, great jumps in progress can be made in a relatively short amount of time in areas of behavior.

One particularly beneficial aspect of using an RtI approach can be found in the flexibility with which it can be applied. Services are delivered based on the particular needs of the student, and do not rely on any particular label, program, or placement. Using student performance and progress as the primary indicator, RtI allows for ongoing, as needed, modification to intervention procedures based upon previously collected data. This approach allows for interventions to be modified or changed based on student response (Gresham, 2005), and for instructional procedures to be designed around the individual needs of the student rather than the topography of the perceived problem behavior. But the flexibility with which multi-tiered intervention approaches can be utilized within school systems extend beyond addressing problem behavior for individual students. They can also be utilized to address various types of behavior problems from a systems level perspective. In fact, problem solving models and methodologies associated
with RtI have been utilized by educational agencies to varying degrees for the last few decades. In Iowa, the Heartland Area Education Agency has employed a successful service delivery model that utilizes direct assessment, intervention, progress monitoring, and evaluation of student results for over 20 years (Grimes, Kurns, & Tilly, 2006). School-Wide Positive Behavior Support (SW-PBS) strategies, which are generally thought of as a form of behavioral RtI, and which include the use of evidence-based intervention within a multi-tiered framework and systematic progress monitoring, have also been used for the last several decades (McIntosh, Campbell, Carter, & Dickey, 2009). In fact, RtI and SW-PBS are so similar to one another that Sandomierski, Kincaid, & Algozzine (2007) have referred to them as “Brothers from Different Mothets or Sisters from Different Misters.”

SW-PBS, like RtI, is not generally conceived of as a specific model per se, but rather a system of various practices, intervention strategies, and philosophical approaches that have been demonstrated over time to be effective in addressing behavior problems within various educational environments (Center on Positive Behavioral Interventions and Supports, 2004). The focus of SW-PBS lies not only in the utilization of effective strategies for reducing problem behaviors, but also on teaching of prosocial skills, documenting lasting change, generalizing positive behaviors across settings and contexts, and increasing students’ opportunity to achieve rich and fulfilling lives (Carr et al., 1999). Multi-tiered intervention systems have clearly demonstrated their utility for addressing problems for the individual student as well as for the entire student body. In addition, multi-tiered approaches such as RtI and SW-PBS have been shown to be effective for
addressing problems that are both academic and behavioral in nature (Lassen, Steele, and Sailor, 2006). However, there is another area to which the flexibility of RtI procedures can be applied that has not yet been thoroughly explored. It can be found in the notion that the same procedures that are used for individual or school-wide intervention within a multi-tiered system (i.e., primary, secondary, and tertiary levels of support), can also be utilized, or recycled, within the smaller context of each individual level of support, and particularly within the highest, most restrictive, level of support… the top tier.

RtI: Medical Field Analogy

Consider the following illustration using the medical/public health model approach to treating diabetes. Thanks to advancements in modern medicine, individuals who have been diagnosed with diabetes can manage or treat their condition at several different levels of varying intensity before reaching a point where they need to be placed into a hospital environment and receive what would be considered the top tier of care. Upon first being diagnosed with diabetes, the individual would begin with the least restrictive level of care, which would typically consist of a well regimented diet, repeated self-injection of insulin to control blood-sugar (glucose), and daily monitoring of glucose levels. However, if the individual’s diabetic condition failed to respond to these basic medical care strategies, and correspondingly the condition became more problematic (i.e., discrepancies from baseline blood-sugar levels), then a visit to the physician for more intensive, secondary treatment and monitoring may be warranted. As part of the secondary level of treatment, the doctor may prescribe additional medication and ask for further dietary alterations to help shift the individual’s glucose back to baseline levels.
However, if the problem persisted in spite of the secondary treatment effort, and monitoring of vitals indicated a need for intensive tertiary care, then admission into a hospital may be necessary as a means of delivering top tier services to remediate or lessen the severity of the condition. Using this example, a diabetic reaching the point of hospitalization is analogous to a student with academic or behavior problems reaching the top tier of intervention (e.g., a highly restrictive setting) within an RtI framework. To continue with the analogy, once a patient has reached a point that requires hospitalization (e.g., the top tier of medical support), treatment would not necessarily look the same for one patient as it would for another. Rather, each individual patient would have layers of care available to him or her within the Tier III hospital setting, and would only receive the treatment that was considered appropriate based upon his or her overall needs and condition. For example, standard care for diabetes in a hospital may consist of nurses repeatedly monitoring the individual’s response to the universal medical care provided to in-house patients. However, if data on glucose levels and other vitals indicate that the patient is not responding appropriately to the standard care, then he or she may be placed in what is called a “step-up” care unit, whereby the intensity of treatment goes up, the number of professionals charged with patient care increases, and the frequency of monitoring important vitals increases. Most individuals who are hospitalized for their diabetic condition will likely respond favorably to either the universal, or secondary step-up tiers of care provided within the hospital setting. However, for a small minority of patients, the universal and secondary care strategies will not be sufficient to bring their diabetes into manageable levels, and their condition may take a life-threatening turn for
the worse. For these patients, placement into the tertiary system of care known as the Intensive Care Unit (ICU) may become necessary.

The example described above is analogous to using a multi-tiered approach for addressing academic and/or behavioral needs of students under an RtI model, but with the added component of an intensified multi-tiered system operating within the top tier of service delivery. Once the individual reaches the highest level of a multi-tiered system (i.e., hospitalization), the process of using a multi-tiered approach begins again as the patient progresses through a succession of increasingly intensifying levels of care based on treatment response. Even though these individuals have already moved through the traditional multi-tiered system of supports, once they enter into the highest tier of service, they may still move through what can be considered as an intensified version of primary, secondary and tertiary level supports (see Figure 1). The same idea holds true when one considers how students with academic and/or behavioral problems move through the traditional multi-tiered model.

Once a student has reached the highest tier of service delivery, the same multi-tiered approach can then be recycled, albeit in a more intensified manner, as a means maximizing the student’s chances of successfully responding to intervention through a range of procedures that systematically intensify as the student’s behavior or needs intensify. As mentioned earlier, it is a basic premise of RtI methodology that different individuals will respond differently to the same intervention strategies. As such, it naturally follows that even within the most restrictive tier of service delivery, different students will respond to intervention strategies of varying intensity. Some may respond
to the lowest level of intensified-interventions, while others may reach the highest level of intensified-interventions before adequately responding. Some will not respond at any level. The distinguishing features of the multiple “intensified” tiers delivered within the top “general” tier of the broader service delivery model are that intervention strategies are more intensive, and that progress monitoring is more comprehensive, than in the traditional multi-tiered model. In fact, one of the most beneficial aspects of utilizing an RtI approach to problem solving is that it can be applied to just about any type of problem behavior, whether academic or behavioral in nature, at any level of service delivery. The utility of RtI methodology allows for a system in which the larger overarching model may be reused within a smaller context at each constituent level of the larger system. This is particularly true for individuals who have already reached the highest tier of intervention, and who may be thought of as the most treatment resistant individuals within the most restrictive setting.

Something to avoid when employing an RtI approach is to conceptualize it as a multi-tiered system in which each level exists as a gate that, once crossed, a student shall never revisit. It is much more beneficial to all stakeholders to conceive of it as a recyclable system in which each level can be revisited on an as needed basis, and students may move from tier to tier, in either direction, as appropriate (Sugai & Horner 2009). In particular, once a student has reached the top tier of service delivery, the multi-tiered system can and should be reapplied, albeit on a smaller scale, as a means of ensuring that students continue to have their needs met in the most appropriate manner possible (see Figure 1). Fuchs (1996) has made the argument that two primary conditions exist for
effective special education; individualization and validation. Individualization issues are primarily a matter of designing intervention around the specific instructional needs of a particular student, where as validation primarily refers to reliance on empirically proven strategies as the basis for the designing and implementing of instructional methodologies. Although not explicitly saying so, what is essentially being described by Fuchs (1996) is an RtI approach to delivering special education services. When such an approach is combined with a multi-tiered system of service delivery for students who have already been placed within the top level of support services, what results is a highly effective approach to teaching and ameliorating problems with the most challenging of students.

One of the primary principles on which RtI has been built is the idea that different students will respond differently to the same or similar evidence based intervention strategies. This notion not only holds true when referring to students who demonstrate severe academic difficulties, but for those who demonstrate chronic and severe types of emotional and behavioral disabilities as well. As such, it should hold true that some students who reach the top tier of service delivery will respond to the Tier I universal curriculum, while others will respond better to selected or targeted Tier III interventions. Indeed, even within the top tier of service delivery, there are often further decisions to be made. Among them are questions of whether the student is having his or her needs sufficiently met, whether the method of service delivery allows a way for the student to be reintegrated back into the lower tiers, and whether the method of service delivery provides a scientifically valid (i.e., progress monitoring data) method for educators to make decisions regarding changes in placement.
The ability to objectively answer questions such as these will undoubtedly help to relieve some of the difficulties associated with team-based decision making where student centered issues such as proper placement and service delivery are of primary concern. When making decisions based on available data, the subjectivity that so often plagues team-based decision making procedures, leading to an overall ineffective process, no longer poses a problem. The data will speak for itself, and decisions as to the most appropriate placement and services for a particular student will essentially become self-evident. Data based decision making allows educators and education providers to feel confident that the students under their care have been provided services in the most appropriate manner possible, and that they have been placed in the most appropriate environment, whether it’s within a Tier I or a Tier IV setting. It also provides educators with an effective manner of documenting efforts to ameliorate student centered problems, which in turn provides information for future decision making as well as demonstration of educational accountability.

For students who do enter into the top tier of service delivery, the question that persists beyond that of how to provide the best possible educational delivery system is that of how to determine if and when that particular student has reached a point where he or she may be reintegrated back into the lower tiers. Although it would be faulty to assert that the sole purpose of special education is to catch students up to the levels of their general education peers, it stands to reason that some students who enter into special education should at some point reach a level of competence that would allow them to function better within the general education environment than in special education. To
conceive of special education as a system where, once qualified a student will never return, is to conceive of a system that clearly does not live up to its promise or intention. Not only would this reflect poorly on the perceived effectiveness of special education services as a whole, but perhaps even more importantly, it could potentially send the wrong message to students, and may lead them to question why they should even bother making an effort to improve at all.

This becomes particularly relevant when considering students who have entered into restrictive educational settings due to behavioral deficits or excesses as opposed to those with academic deficits. EBD students are more than twice as likely to be served within a separate public day school than special education students served under other categories, and three to four times more likely to enter into a private community day school setting (Stephens & Lakin, 1995). Students with special needs have overwhelmingly expressed their preference to be served in inclusive settings, sighting that they understood why they were receiving services, felt that services were beneficial, and that they did not feel stigmatized by resource room support (Crockett & Kauffman, 1999). It naturally follows that EBD students who are being disproportionately relegated to highly restrictive settings are often aware of their own desire to be reintegrated back into less restrictive settings. And while it can be a long and arduous task to catch those students who are experiencing academic deficits up to the point of reintegration, for students who exhibit extreme behavioral problems, intensive, but short in duration intervention strategies have been shown to help build social-behavioral skills to a point where they can function more effectively within less restrictive settings (Stephens &
Lakin, 1995). This would naturally lead to questions of how it can be determined that a student has made significant enough gains that he or she is ready to move back to lower levels of support? One answer can be found in the employment of RtI procedures, and the use of resulting data that would inherently provide educational agencies access to relevant information that could then be used to make informed data based educational decisions regarding the most appropriate placement for their students.

Although RtI has consistently been thought of as taking place within a multi-tiered system of supports, where the intensity of intervention procedures are increased as students move from one tier to the next, the notion of recycling those same procedures at each tier, and particularly within the highest tier, has yet to garner much attention. One of the primary purposes of this study is to advance the current research by investigating the viability and effectiveness of recycling a multi-tiered RtI approach to service delivery within the top tier (i.e., an intensive, restrictive educational setting for children with behavior problems) of the larger multi-tiered model. In addition, the study sought to address questions regarding the social validity of such an approach for school personnel who work with students within the top tier, and whether or not they demonstrated a clear preference for using a multi-tiered RtI behavioral support system over the traditional, non-RtI-based behavioral support system. A third aim of the research was to determine the percentage of students within the top tier setting who (a) responded to universal behavioral supports, (b) did not respond to universal supports, but did respond to secondary level supports, and (c) did not respond appropriately at any level of support. Also of interest were questions of whether data resulting from the employed behavioral
RtI model could be used to inform and justify the reintegration of student responders back into less restrictive education settings, while at the same time identifying non-responders who may benefit from more intensive alternative placements.

**Research Questions**

1. Do results provide compelling preliminary data that introduction of the behavioral RtI program to students being educated within the highly restrictive top tier setting lead to improvements in student behavior?

2. Do school personnel demonstrate a clear preference for the new behavioral model over previously employed procedures?

3. Can the resulting data be used to help make decisions regarding appropriateness of placement?
Chapter 2: Selected Literature Review

As discussed in the previous chapter, the primary purpose of the current study is to investigate the viability and effectiveness of implementing a more intensive, RtI based version of the multi-tiered public health model currently utilized in education. More specifically, the research focused on the viability of a new approach aimed at improving student outcomes for EBD students who have already been placed within a restrictive setting as a result of serious behavior problems. In addition, the research sought to provide evidence of the model’s effectiveness for helping educators evaluate appropriateness of placement, as well as its utility for helping provide data to aid in decision making procedures. The current chapter will further detail prior literature related to the study’s focus, with the intention of providing context for how it will add to the research base and contribute to the field of school psychology, and education as a whole.

Restrictive Settings

Kauffman (2001) aptly noted that the educational placement of students with emotional and behavioral disorders (EBD) would be one of the most pressing and controversial issues facing the 21st century. In fact, more than any other high incidence group, students with EBD are likely to be placed and educated within restrictive settings (Stephens & Lakin, 1995). Whereas the percentage of special education students educated in separate school environments decreased from 6% to 4% from 1990 to 2000 (U.S. Department of Education, 2005), a 13% increase in the number of EBD students placed in restrictive settings was reported between 1992 and 2002 (U.S. Department of Education, 2002). The fact of the matter is that large numbers of students with EBD are
educated in restrictive settings each year, and this will likely be the case so long as they engage in disruptive and aggressive forms of behavior that lead to undesirable or unsafe learning environments.

Although the restrictiveness of a setting exists along a continuum from the least to the most restrictive environment, for the purposes of this paper, the term restrictive setting is reserved for settings in which students are not able to interact regularly with their typically developing peers. In this way, restrictive is meant to describe those settings where EBD students are segregated from their non-EBD peers. Examples of restrictive settings meeting this definition include alternative day schools, non-public schools, residential treatment facilities, and self-contained programs on public school grounds (Kauffman & Smucker, 1995).

The placement of EBD students in restrictive settings is particularly troublesome in light of the research that has shown the poor outcomes for students who are placed into such settings (Kazdin, 1998; Mattison & Forness, 1995; Sack et al., 1987). Students with EBD who are placed in restrictive settings generally show a pattern of school refusal, academic failure, social maladjustment, and involvement with the criminal justice system (Kauffman, 2001). Reports published out of the Office of Special Education Programs (OSEP) suggest that youth with EBD are at greatest risk of school dropout, with slightly over half of the students ages 14-years and older dropping out of school (U.S. Department of Education, 2002). Also, there is growing evidence to suggest that students with EBD who are placed in alternative environments tend to socialize each other to higher levels of deviant behavior than would otherwise be the case (i.e., peer contagion
hypothesis) (Dishion & Andrews, 1995). To prevent such iatrogenic effects, it is important that increased attention be paid to the development of alternative settings for EBD students that do not simply seek to increase the restrictive nature of the educational environment, but instead rely on the systematic implementation of empirically validated remediation strategies. This assertion is consistent with the research by Handwerk, Field, and Friman (2000) and Boxer, Guerra, Huesmann, and Morales (2005), who found that programs with the appropriate structure and delivery of evidence-based interventions can prevent peer-contagion effects, or perhaps make the peer contagion effects work in the opposite direction, both with the end result of improving student behavior.

From a strict cost-benefit perspective, placement of students who are extremely disruptive to the general education learning environment into restrictive settings away from their peers makes sense. Consider the following argument. In the era of accountability that now defines education in America, teachers have a legal and professional obligation to deliver high quality instruction to ensure that students are meeting certain grade level standards (NCLB, 2002). Some students with EBD, however, severely hamper teachers’ ability to effectively deliver instruction, in effect hindering the learning of other students (Walker, Ramsey, & Gresham, 2004). Thus, the benefits of keeping a single student with challenging behaviors in the general education setting, in many instances, does not outweigh the costs in terms of the disruption to the classroom learning environment. This is particularly true when school personnel have previously implemented interventions with the intent of addressing a student’s disruptive behavior patterns.
When one considers this argument, it is not difficult to see that restrictive settings are not inherently flawed, and are in fact a necessary component of a fluid educational system. As such, criticisms of restrictive settings have not tended to focus on the basic nature or necessity of such programs, but instead have focused on a general lack of improved outcomes for students who are educated within them (Cartledge, 2005). Indeed there are many recognized benefits that restrictive settings offer beyond those found in general education settings, including smaller class size, extra layers of staff support, teachers who are better trained and prepared to meet the unique needs of the students (Kauffman & Wong, 1991; Lane, Wehby, Little, & Cooley, 2004), and teachers who are trained to modify curriculum and offer behavioral and therapeutic support beyond that found in traditional general education settings (Meadows, Neel, Scott, & Parker, 1994).

Considering all of the added benefits and additional supports associated with more restrictive settings, it can be difficult to imagine why the outcomes resulting from these programs are so poor. Part of the answer might have to do with the fact that, even though the constituent parts necessary for making restrictive settings the most appropriate settings for the needs of some students are already in place, what is missing is an overarching delivery model that integrates and synergizes available resources, thereby making the whole system greater than the sum of its parts. It is the contention on which the current research is based that a multi-tiered, RtI based educational program delivered to students who receive their education in restrictive settings may be able to meet this need, or at the very least, that it has the potential to increase the level of positive outcomes associated with students in restrictive settings above and beyond what has
previously been achieved under more traditional approaches. Moreover, just as the option to place certain students into restrictive settings should be reserved for situations where the ultimate goal is to maintain safe and orderly regular education learning environments and best meet student needs, every student educated within restrictive settings should be afforded the opportunity to be exited from restrictive settings back into less restrictive environments if and when appropriate. This is of course the intent behind the least restrictive environment clause (Rozalski, Stewart, & Miller, 2010). One of the benefits of infusing RtI principles and procedures into the delivery of services in restrictive settings is that educators will have, at their fingertips, individualized student data that will help inform and justify exiting decisions, or conversely, help inform and justify decisions regarding maintenance or increases in the intensity of intervention efforts.

When proposing a new system, it is also important to acknowledge that every delivery system, no matter how effective for meeting the needs of students, will not result in success for all students. There will always be those students who do not benefit from even the best intentioned, well thought out, and well delivered supports and services. Does this mean that educators’ best efforts have failed? While some may argue that the answer to this question is yes, it is often more useful to think of success or failure in terms of degrees. No one system will ever emerge as a panacea for the problems associated with educational delivery systems, just as no silver bullet exists for the problems associated with any socially based system. However, there is a simple edict that exists within every field of endeavor that states that, when a more effective and equally cost efficient way of conducting business emerges, it is the responsibility of all
stakeholders to embrace the new system and take advantage of it for all it is worth. That is, until the next innovation is introduced and a new way of doing business comes along, and the process of change begins anew.

Addressing Problem Behavior in Education

It has been a long held belief by educational institutions that the primary objective of education is the academic development of students. Issues of social-behavioral development have been considered a secondary concern after academic development (Severson, Walker, Hope-Doolittle, Kratochwill, & Gresham, 2007). In fact, the general feeling held by many in the field of education has traditionally been that issues of behavior and socialization are primarily the responsibility of parents and families and should not be the job of educational institutions (Walker, Ramsey, & Gresham, 2004). This philosophy in education is both at odds with the original conception of the public educational system in America, and at the same time, reflective of the social climate that prevailed throughout much of the 20th, and into the 21st century. One of the primary motivations for the development of compulsory public education originally stemmed from the realization that the America of tomorrow would inevitably lay in the hands of its youth. With this understanding in mind, public education systems were not only conceived of as a way of providing opportunities for individuals and groups to achieve higher levels of equality, but also as a way of preparing children and adolescents for the roles they would play in this developing nation (Kauffman, 1997).

While academic preparation undoubtedly provided a means for preparing individuals for the technological and industrial boom that largely transformed America
throughout the 20th century, in and of themselves, academic and intellectual development constitute only a portion of what is necessary to build a successful society. Perhaps even more important than economic and technological progress for the betterment of a society is progress in how people learn to behave and interact in a manner that leads to an overall improvement of social systems and civil society (Gresham, 1998). The traditionally held notion that the education system should not be held responsible for the social-behavioral development of children cannot be solely attributable to beliefs of educators and education providers. Rather, the belief that the individual’s family should be responsible for this aspect of child development has been reflected in commonly held beliefs of parents and family systems as well (Walker & Gresham, 2003).

As American society has continued to develop, it has moved into an era where social-behavioral problems have been recognized as forming the foundation for many of society’s ills. As such, there has been movement towards making educational institutions more responsible for the social-behavioral development of our nation’s youth. In particular, the last couple of decades have born witness to a shift in attitudes regarding the responsibility of educational systems for utilizing strategies and procedures that serve to address students’ behavior in an effective and non-punitive manner. Such approaches seek to teach students more desirable behaviors, or to manipulate environmental variables to reduce undesirable behaviors rather than primarily relying on punishment (Loeber & Farrington, 1998, 2001; Reid, Patterson, & Snyder, 2002). At the forefront of these procedures is a system of strategies known as Positive Behavior Support (PBS).
Positive Behavior Support

Positive Behavior Support (PBS) is a set of educational methods based on applied science methodology that seeks to further develop the behavioral repertoire of individual students, as well as help to structure the environment in such a way that both the individual’s quality of life is improved, and behavior related problems are kept to a minimum (Carr et al., 1999; Koegel, Koegel, & Dunlap, 1996). PBS can be thought of as an approach to managing behavior in a proactive manner rather than relying on reactionary strategies that have traditionally employed punitive tactics indicative of the “zero-tolerance” approach commonly employed in traditional school settings (Sugai et al., 2000).

Principles of psychology tell us that individuals are not “bad” by nature, and that they do not learn new behaviors in response to aversive consequences (Alberto & Troutman, 2001; Walker et al., 1996). While it can legitimately be argued that punitive strategies have been used to successfully reduce or eliminate undesirable behaviors in individuals, such approaches have not traditionally provided a means of teaching more desirable alternative behaviors, nor have they provided a means of structuring the environment so that undesirable behaviors become ineffective. Research conducted over the last several decades has demonstrated successful systems for addressing problem behaviors that employ proactive approaches for manipulating the teaching environment, and teaching socially acceptable behaviors in tandem with frequent positive reinforcement (Sulzer-Azaroff & Mayer, 1994). One of the primary purposes of PBS is to teach or improve upon those skills, or behaviors, that lead to success and satisfaction in
all aspects of life including school, work, social, recreational, community, and family settings. The support aspect of PBS refers to all the educational and system change methods that can be used to instruct, improve, and expand positive behavior or increase opportunities for the display of positive behavior (Carr et al., 2002).

Primary to the goals of PBS is the structuring of the environment in a manner that makes problematic behaviors irrelevant, inefficient, or ineffective while at the same time encouraging the expression of functionally equivalent replacement behaviors that help the individual attain the same goals as the problem behaviors, only in a more socially acceptable manner (Crone & Horner, 2003). When one considers the rationale behind PBS, as well as the strategies that make it up, it is easy to recognize that RtI and PBS share the same philosophical foundations and employ many of the same strategies. In fact, the procedures used under an RtI system are fundamentally the same as those prescribed by the PBS literature within the primary and tertiary levels of service delivery. It can be argued that both RtI and PBS arose out of the public health model, and that each represents a well established and effective Multi-Tiered Support System (MTSS) for delivering educational services in public education (Sugai & Horner, 2009).

Public Health Model

The public health model serves as a hierarchy of service delivery in many fields, but was originally developed as a medical model for addressing threats to public health such as communicable diseases, lack of medical knowledge, and hazardous living conditions (Woodside & McClam, 1998). Under the public health model, the individual is not considered to be the client as much as is society as a whole (Mason & Linnenberg,
As such, the goal of research under a public health framework is to address the root causes of illnesses and develop interventions to meet them. Given that the nature of illness and disease do not exist within a laboratory, but rather in the real world environment, the public health framework seeks to conduct research in applied settings where results can be directly generalized (Strein, Hoagwood, & Cohn, 2003). The primary characteristic of the public health model is its emphasis on prevention as the best type of intervention (Woodside & McClam, 1998). Each level in the model can be thought of as a preventative measure to keep individuals from reaching the next level.

The public health model is generally thought of as a three-tier system of increasingly intensifying services, each with its own prevention goals (Myers & Nastasi, 1999). Universal, or Tier I interventions are those that are implemented for everyone in a population. The purpose of the universal tier is primary prevention. Primary prevention entails the implementation of interventions on a proactive basis to keep problems from emerging; that is, to prevent harm (Walker, Ramsey, & Gresham, 2004). Selected, or Tier II interventions, are those that are directed at members of a sub-group at risk of becoming ill. Selected, Tier II interventions are designed to achieve secondary prevention goals. Secondary prevention refers to services that are designed to reverse harm to children who did not respond to the universal services and are presenting a pattern of maladaptive behaviors (Walker et al., 1996). And lastly, indicated, or Tier III interventions are those directed at individuals who already exhibit symptoms characteristic of illness. The aim of indicated, Tier III interventions is tertiary prevention. Tertiary prevention consists of interventions that are implemented with the purpose of reducing harm for the individuals
with the most severe, at-risk conditions (Strein, Hoagwood, & Cohn, 2003). Tertiary prevention represents the specific goal of the present research in that the purpose is to evaluate a multiple-levels-of-care model within a Tier III restricted setting in the field of education. Using the public health model as a heuristic, the field of education has adopted a similar philosophy for addressing the needs of students in its use of an RtI approach to service delivery (Merrell & Buchanan, 2006).

Response to Intervention (RtI): Key Features

Although many of the strategies that make up RtI methodology have been utilized by educators for many years, they have not always been conceptualized as the complete system approach to addressing school-based problems that is now known as RtI. Educators have often used different approaches to addressing the needs of different students. Informal assessment methods have routinely been used by teachers in order to inform the different instructional needs of their students, and progress monitoring in the form of measurement towards mastery criterion levels has been a commonly employed component of the standard educational delivery system (Fuchs, 1995). What makes RtI different is that it employs a whole systems approach that stresses the importance of systematic delivery procedures with built-in data-based decision making stages (Brown-Chidsey & Steege, 2005). In essence, RtI goes beyond pre-existing models by infusing a rigorous and systematic framework for making decisions about student needs and the appropriateness of educational programming along a continuum of services.

The first references to using an RtI-type approach to the identification of students with learning disabilities in the field of education began with the National Research
Council’s (NRC) investigation into the validity of the special education classification system (Heller, Holtzman, & Messick, 1982). The NRC’s investigation focused on three criteria; (a) the quality of general education programs, (b) the value of special education programs for producing valuable outcomes for students, and (c) the accuracy and consequential value of the assessment process for identifying student disabilities (Heller, Holtzman, & Messick, 1982). Since the NRC’s investigation, RtI has continued to gain support and popularity as a improved approach for identifying and addressing student problems, and in the 2004 reauthorization of IDEA (IDEIA, 2004), the statutes and accompanying regulations stipulated that an RtI type approach may be used for the identification of a specific learning disability (SLD).

There are several key features that must be in place in order for an RtI system to be successful. First and foremost, high quality classroom instruction within the general education setting is vital. As such, it is important that curricula and classroom practices are selected based on demonstrated effectiveness to improve student outcomes (Brown-Chidsey & Steege, 2005). Without high quality, empirically validated instruction it becomes very difficult to determine whether a valid problem exists. The best way of assessing quality of instruction is to compare students from different classrooms in terms of their learning rates and achievement levels.

Universal screening for academic and behavioral problems is also a key feature of RtI. Universal screening is imperative for identifying those students who do not adequately respond to high quality classroom instruction. RtI procedures are typically thought of in terms of a multi-tiered approach to problem identification and remediation.
Under such an approach, universal screening is the first step for determining which students are, and which students are not, responding to universal support strategies. Universal screening data provides educators with a system for proactively identifying at-risk students who are in need of additional support and will likely benefit from increased school supports prior to them reaching a point where they have fallen significantly behind the progress of their peers (Fletcher et al., 2002). Students who are identified as at-risk for future problems can then receive additional, proactive intervention strategies in order to help keep them from developing further problems.

After a student has been identified as having a problem, or being at-risk for future problems, he or she is systematically exposed to empirically validated intervention strategies coupled with frequent and ongoing progress monitoring (Fuchs, 2002). Whenever an intervention is implemented, school staff can look to progress monitoring data in order to determine just how effective the intervention is for any particular student, and to modify procedures as appropriate. Carefully defined data are collected on a daily or weekly basis as a means of providing an on going record of the student's response to the intervention. The value of progress monitoring under an RtI model cannot be understated. If RtI is a data based decision making system, then progress monitoring provides the data by which decisions are made.

While it promotes perseverance and high expectations for students, progress monitoring also has the ability to inform instruction so teachers are better equipped to help their students achieve higher outcomes (Coyne, Kame’enui, & Simmons, 2004). Frequent progress monitoring has also been shown as a valuable tool for helping teachers
to gauge their own progress in regards to their overall effectiveness (Deno, 2003). Similarly, progress monitoring data provides the students themselves with an easy to understand method of perceiving their own progress. Perhaps most importantly, however, progress monitoring procedures send a powerful message to students that they will be worked with and changes will be made to help them achieve the highest outcomes possible (Quenemoen, Thurlow, Moen, Thompson, & Morse, 2004). A meta-analysis conducted by Fuchs and Fuchs (1986) found that systematic progress monitoring over time produced an average gain of .7 standard deviations for monitored students vs. non-monitored students. Additionally, when behavioral strategies were used in conjunction with progress monitoring strategies, Fuchs and Fuchs (1986) found that effect size approached 1.0. Other studies have found that ongoing assessment information that is related to instruction, partnered with systematic methods for evaluating the assessment information, allows teachers to make informed decisions about when a student’s progress is unsatisfactory and adjust instruction more frequently to help their students achieve better outcomes (Fuchs, Deno, & Mirken, 1984; Jones & Krause, 1988).

Another key feature that is intrinsic to a successful RtI system is the collection of treatment integrity data. Treatment integrity is not only important for decision-making purposes, but it additionally builds a system of accountability into the delivery of services. Without an understanding of the degree to which particular interventions were implemented as intended, decisions regarding changing the student’s placement, altering the intervention strategies, and determining the effectiveness of services cannot be made (Telzrow & Beebe, 2002). Intervention procedures are designed, implemented, and
assessed with treatment effectiveness in mind. However, without measures of treatment fidelity to keep the individuals who are responsible for intervention delivery accountable, any evaluation as to the effectiveness of treatment cannot be considered reliable (Gresham & Lopez, 1996). Measures that indicate the level of integrity with which interventions have been delivered will provide data that allows educators the ability to determine whether changes in behavior, or lack there of, can legitimately be attributed to the treatment rather than some unknown factor (Gresham, 1989). Staff members other than the classroom teacher often have an important role in completing fidelity measures, which are usually an observational checklist of critical teaching behaviors.

Evidence Based Standards

A cornerstone of all RtI procedures is a reliance on “high-quality” intervention procedures. High-quality refers to procedures that have evidence of scientifically proven effectiveness. Scientifically proven means that there is reliable evidence that the program or practice works (U.S. Department of Education, 2003). Over the course of the last decade, educational research has focused more and more on the importance of relying on evidence-based intervention strategies when addressing the academic and behavioral needs of students (Brown-Chidsey & Steege, 2005). National policies such as the No Child Left Behind (NCLB) Act and the Individuals with Disabilities Education Improvement Act (IDEIA, 2004) have stressed the necessity of using scientifically proven practices for all teaching and intervention procedures. In light of this fact, the National Research Council (NRC) has pointed out that the heterogeneous nature of problems addressed in education, as well as the multiple strategies used to address them,
require the use of several methodologically different procedures (Shavelson & Towne, 2002). In recognition of the importance of establishing guidelines for qualifying practice as “high-quality” the Council for Exceptional Children (CEC) put together a task force to examine four methodologically different types of research used in education: experimental group, correlational, single subject, and qualitative designs. The result of the CEC task force is a grouping of quality indicators for research informing evidence-based practice in both general and special educational contexts (Gersten et al., 2005).

In addition to the CEC and NRC’s recognition of the importance of scientifically based practice in the field of education, in 2002, Division 16 of the APA and the Society for the Study of School Psychology, partnered to form their own task force to establish what constitutes an evidence-based intervention (Kratochwill & Stoiber, 2002; Task Force on Evidence-Based Interventions in School Psychology, 2003). The result was a set of criteria for evaluating and classifying interventions for four research methodology types: between-group research, single-subject research, qualitative research procedures, and confirmatory program evaluation. Criteria identified for documenting the efficacy of particular interventions centered on nine key features: (1) measurement, (2) comparison group, (3) primary/secondary outcomes significant, (4) educational/clinical significance, (5) durability of effects, (6) identifiable intervention components, (7) implementation fidelity, (8) replication, and (9) implementation at a school- or field-based site. The movement towards evidence-based practice in recent years by educational policy makers clearly demonstrates its importance as a critical element in the effort to improve the overall delivery of services in both general and special education settings. Similarly, the
goal of RtI is to produce better outcomes through decisions that are predicated on students’ responses to high quality interventions. Such high quality interventions are based on an enormous database of peer-reviewed research that has linked particular programs and interventions to improved student outcomes. The research presented in this paper utilized evidence-based interventions taken from this body of research at each stage of the intensive, multi-tiered service delivery process. Thus, although the utilized model may currently lack empirical support as a stand-alone intervention, the model can be thought of as being empirically supported in the sense that each of the constituent parts, from the assessment protocol to the intervention strategies, were all drawn from this body of empirical literature.

Evidence-Based Interventions

When universal screening or progress monitoring results show that a particular student either demonstrates, or is at risk for, academic or behavioral problems, that data can then be used to guide the development and implementation of appropriate interventions or other supplementary supports. When choosing intervention strategies to help students who have resisted Tier I support, and who are in need of more intensive Tier II interventions, it is important to choose interventions that have demonstrated a strong body of evidence to support their use. The goal when implementing any evidence-based intervention is to increase the intensity of the learner’s instructional experience. When the problem of concern is one that is behavioral in nature, one must consider the various empirically validated intervention strategies and choose one based on the nature of the presenting problem. For the purposes of the current research, several evidence-
based interventions were selected for implementation at the secondary, or Tier II, level of service delivery. They included behavioral/contingency contracting, school-home note systems, systematic self-monitoring strategies, behavior-specific praise, and check-in-check-out strategies.

Behavior contracting. Behavior contracting, or contingency contracting, is an evidence-based intervention strategy in which student goals and procedures for achieving them are detailed in a written document (DuPaul & Stoner, 2002). Behavior contracting can be thought of as an “if… then” agreement between educators and students. If the student performs the desired behavior, and refrains from engaging in undesirable behavior, then an agreed upon reinforcer will be delivered on the agreed upon time schedule. One of the primary benefits of contingency contracting is that the student is involved in the development of the contract in a non-coercive negotiation that ultimately leads to a voluntary agreement with all parties being provided with informed consent (Sulzer-Azeroff & Mayer, 1991). Behavior contracts are effective in enhancing the performance of quality of pro-social behaviors and decreasing the occurrence of competing problem behaviors (Elliot & Gresham, 1991).

School-home notes. Home-based reinforcement programs can lead to behavioral improvements in the school environment by allowing students to earn privileges in the home based upon at-school behavior (DuPaul & Stoner, 2002). In order for school-home intervention procedures to be effective, however, it is vital that the lines of communication between the school and home environments remain open (Pelhem & Waschbusch, 1999). Research has demonstrated that school-home note systems can
increase opportunity to give and receive feedback, lead to increases in student engagement as well as increases in on-task behavior (McCain & Kelley, 1993).

Self-monitoring. Self-monitoring, or self management, is a strategy used to improve in-class behavior, and requires that the student monitor and evaluate his or her own behavior on an ongoing basis throughout the course of the day (DuPaul & Stoner, 2002). Components of self-monitoring may include student input in the selection of goals, self-monitoring of behavior, the selection of procedures for behavior change, feedback from the teacher, and reinforcement for good behavior (Sulzer-Azeroff & Mayer, 1991). Reinforcement is usually delivered in the form of privileges that are provided in exchange for points that the student has earned (Rhode, Morgan, & Young, 1983). The ultimate goal of a self-monitoring intervention is to eventually build within the student the skills necessary to accurately evaluate and appropriately alter his or her own behavior in the classroom without needing to receive continual feedback or reinforcement from the teacher (DuPaul & Stoner, 2002).

Behavior-specific praise. Behavior-specific praise is a form of behavioral reinforcement which seeks to clearly identify the behavior that is being praised to the individual being praised (Reinke, Lewis-Palmer, & Martin, 2007). Praise has been determined to be an effective naturalistic, nonintrusive, teacher intervention strategy for classroom management (Sutherland, Wehby, & Copeland, 2000). However, if not used correctly, praise intervention strategies have the potential to cause more harm than good. Brophy (1981) points out that in order for praise to be most effective, it should be
contingent on performance of a specific desired behavior, specify the particulars of the accomplishment, and provide informative feedback to the student.

Check-in-check-out. Check-in-check-out, the behavioral education program, and check and connect are a group of intervention strategies that rely on close monitoring of student performance through the use of a mentor, or monitor, who functions as a case manager of sorts by regularly monitoring progress made by the student (Sinclair, Christenson, Lehr, & Anderson, 2003). One advantage of the check-in-check-out intervention is that the student is able to choose the adult in the environment who will serve as a mentor. Once a mentor has been chosen, a set of behavioral goals and objectives are defined, and progress towards them is closely monitored. Every morning, the student will check in with his or her mentor to review daily goals for proper behavior. At the conclusion of the day, the student checks back in with the mentor in order to review how the day went. The intervention is designed to improve problematic behavior through the use of ongoing feedback and encouragement on the part of the mentor. The check-and-connect program has also been shown to be effective for reducing the number of students who drop out of school. One study found that 61% of students at-risk for school drop-out who were involved with the check-and-connect program graduated from high school or got their GED, vs. 43% of students who were in the control group (Sinclair, Christianson, & Thurow, 2005).

Functional Behavior Assessment

FBA has been advocated as a more sophisticated approach to assessment than traditional behavior assessment, since it has the potential of leading to more effective
Interventions developed from a traditional behavioral assessment paradigm are typically based on the topography of behavior, or what the behavior looks like. This approach often leads to the same intervention being implemented for behaviors within the same topographical response class. On the other hand, under an FBA approach, two students who engage in topographically similar behaviors could receive vastly different interventions, because it is quite possible that the problem behavior serves a different function for each student. For example, one student could engage in disruptive classroom behavior in the form of talking to peers because he wants to avoid doing an academic task, whereas another student in the same class could be talking disruptively to peers because he wants to get attention or recognition from his peers or the teacher. In such a situation, the intervention strategies would differ depending on the function of the student’s behavior. This matching of intervention strategy to behavior function is what FBA advocates argue to be the key element of designing more effective interventions (DuPaul & Ervin, 1996; Sugai et al., 2004).

Functional behavior assessment has been defined as a systematic process for identifying events that reliably predict and maintain behavior (Crone & Horner, 2003; Iwata et al., 1982; O’Neill et al., 1997). The primary aim of a functional behavior assessment is to develop a hypothesis regarding the function or purpose the problem behavior serves for the individual in order to match particular intervention strategies to behavior function (Witt & Noell, 2000). FBA uses a variety of methods for gathering information about antecedents and consequences, including indirect and direct methods. Indirect methods are removed in time and place from the actual occurrence of the
behavior. They include interviews, behavior rating scales, and archival records. Direct
methods, on the other hand, assess behaviors at the time and place of their occurrence.
This involves direct observation of antecedents, behaviors, and consequences. Direct
observation is often used in the context of an FBA to confirm the results from the indirect
methods. Crone and Horner (2003) describe three types of FBA that can be performed
that correspond to the level of need of the student and the amount of staff involvement
required for assessment: simple FBA, full FBA, and functional analysis. Functional
analysis is subsumed under functional behavior assessment and it refers specifically to
the experimental manipulation of environmental factors to observe their effects on the
occurrence and nonoccurrence of the target behavior in order to derive a causal
hypothesis regarding the underlying function of the target behavior. All other forms of
FBA are considered to be descriptive rather than causal.
Chapter 3: Method

Researchers from the University of California, Riverside, as part of a federally funded research grant, Project REACH, were approached by staff of one of the schools involved with the grant and asked to develop and implement a behavioral RtI program at their school site. Although this was beyond the scope of Project REACH’s aim or intention, the researchers agreed to become involved with the development and implementation of the on-site behavioral RtI program as a means of maintaining a meaningful and collaborative relationship between the university and the school site. The resulting research data presented here is a product of that collaboration. Although Project REACH personnel had been working with the community day school for several years prior the implementation of the behavioral RtI program, the research that is presented here focuses only on aspects of that relationship that pertain to the development and delivery of the behavioral RtI program.

The implementation of the behavioral RtI program was commenced with the collection of social validity and behavioral rating scale data. These scales included the Student Risk Screening Scale (SRSS), the Social Skills Rating Scale (SSRS), the School Intervention Rating Form (SIRF), and the Children’s Intervention Rating Profile (CIRP). These data were collected as a means of establishing pre-intervention levels of student behavior, as well staff and student perceived levels of treatment acceptability as it related to the schools existing model for addressing behavior problems. SRSS measures were used to determine which students did and did not respond to the universal system of supports. Non-responders then graduated into the second tier of supplementary supports.
Students who failed to respond to secondary support strategies then graduated into the third tier of supplementary support. Decisions involving the entrance into and exit from particular tiers were based upon data regarding degree of goal attainment (e.g., visual analysis of change in level, and trend of behavior) treatment integrity, and social validity considerations. Decisions regarding student response to particular intervention and modification to intervention strategies were made only after said intervention had been in place for a minimum of three to four weeks. Procedures were implemented such that each student graphed his own behavior and monitored his own progress toward goal attainment with the help and guidance of a school staff member (Fuchs & Fuchs, 1986). Students met with staff members on a weekly basis to graph and evaluate their progress, as well as to discuss what areas of their behavior needed to be focused on for improvement.

Participants

Participants included 32 primary level students from a single community day school for youth with behavior problems indicative of a diagnosis of conduct disorder. Students were placed in the community day school as a result of extreme behavior difficulties that resulted in expulsion from their home schools within the district. Students who enter into community day school programs typically have exhausted the available resources found on a traditional comprehensive campus. The types of behaviors that led to placement at the community day school utilized as part of this study included extreme defiance towards authority, chronic disruption of the learning environment, violent episodes directed towards peers, and an excessive number of office discipline referrals.
and suspensions. The school exists as part of a large urban Southern California school district, and is comprised of three separate classrooms with 9-12 students per room. Classrooms were broken down by grade level, with the first containing second and third grade students, the second containing fourth and fifth grade students and the third containing fifth and sixth grade students. The school follows a traditional school year, with the end of the academic year occurring in late June. All participants were male, and came from socioeconomically disadvantaged families. Ethnic breakdown for participants includes 50% African American, 44% Hispanic, and 6% Caucasian (See Table 1).

Measures

Student Risk Screening Scale (SRSS). The SRSS (Drummond, 1993) is a screening instrument developed to help identify at-risk students and is comprised of seven items that have been identified in the research literature as most indicative of antisocial behavior patterns (Severson, Walker, Hope-Doolittle, Kratochwill, & Gresham, 2007). School personnel rated their students on all seven items using a 3-point Likert type scale, with total scores ranging from 0-21. Scores ranging from 9-21 indicate high risk, while scores ranging from 4-8 indicate moderate risk, and scores from 0-3 indicate low risk status. Prior research has demonstrated that the SRSS has adequate psychometric properties (Drummond, Eddy, & Reid, 1998).

Social Skills Rating System (SSRS). The Social Skills Rating System (SSRS) (Gresham & Elliott, 1990) is a multi-rater norm-referenced instrument designed to identify social competence and adaptive behavior in children across three domains - social skills, problem behaviors, and academic competence. Norms are based on a large
national sample of 4,000 boys and girls aged three to eighteen years, throughout the USA, including learning disabled, behaviorally disordered and other minorities. The SSRS Manual (1990) provides technical evidence for reliability and validity, internal consistency, test-retest reliability, inter-rater reliability, content validity, social validity, criterion-related validity, and construct validity.

**School Intervention Rating Form (SIRF).** The SIRF is a measure of social validity that was adapted from the Treatment Acceptability Rating Form (TARF-R) (Reimers & Wacker, 1988) and used as a means of evaluating treatment acceptability for school site staff. The teacher SIRF contains seven items. Items are scored on a 3-point Likert type scale. SIRF measures were collected before and after treatment implementation.

**Modified Children’s Intervention Rating Profile (CIRP).** A modified version of the CIRP was utilized to measure treatment acceptability for student participants. The modified CIRP contained four items that were scored on a 6-point Likert type scale. CIRP measures were collected before and after treatment implementation.

**Daily behavior report cards (DBRC).** Following the recommendations by Chafouleas, Riley-Tillman, and McDougal, 2002, Daily Behavior Report Cards (DBRCs) were developed to serve as both an intervention and a progress monitoring instrument. Chafouleas et al. (2002) defined DBRCs as “performance-based recording procedures used to collect teacher ratings of a student specific to a predetermined set of behaviors” (p. 540). The DBRCs were viewed as highly acceptable by the school staff because they
required little time on the part of teachers and could also be used as a school-home note system. Thus DBRCs represented the progress monitoring component used in the study.

Treatment Integrity. In addition to measuring student progress over time, it was important to develop measurement procedures to assess the integrity with which the interventions at each tier of service delivery were implemented. Treatment integrity data were collected on a daily basis using self-report checklists. The Tier I and Tier II systems of support were broken down into each of the intervention components. Staff completed the checklists by marking “yes” or “no” as to whether the intervention components were implemented with integrity. A percentage of total intervention components implemented was then calculated to represent the degree to which each tier of supports was implemented as intended.

Tiers of Support

Tier I. Tier I consisted of universal supports to which all participants were exposed. These included whole class social skills instruction, good behavior game strategies, classroom token economy, and a system of school rules that all students were exposed to and that were embedded within the social skills curriculum. Social skills instruction was delivered to all classes on a weekly basis in the form of whole class instruction and small group follow up. Social skills lessons focused on discrete behavioral skills that were then reinforced by school staff throughout the week, and after. In addition to a point system employed by staff, a token economy was built into the social skills curriculum in the form of tickets that were delivered by teachers and aides based on proper demonstration of targeted social skills. Each week, the student from each class
who had earned the most tickets received his choice of a prize from a prize bag. Also included as part of Tier I supports for each student was access to weekly activities such as off campus lunch, team sports, and swimming, based on their performance and points earned through demonstration of appropriate behaviors.

**Tier II.** Tier II supports were provided for students who did not adequately respond to the universal supports provided as part of Tier I. A multiple-gating procedure was employed to identify students who were in need of Tier II supports. The first gate consisted of gathering interview data regarding individual student progress and teacher identification of students who would be good candidates to receive additional layers of support. The second gate consisted of evaluating data gathered from the SRSS. The SRSS traditionally utilizes a total raw score of 9 to 21 to indicate that a student is at high risk for behavior problems. However, considering the nature of the student population used for the study, and the fact that each student had already been relegated to a highly restrictive setting due to their behaviors, a higher cutoff score was selected to differentiate between students who were responding and those who were not. As such, students who demonstrated a score of 16 or higher on the SRSS were considered to be at the highest risk and in need of additional supports. These students were exposed to selected interventions that were chosen based on their empirical merit, as well as their ease of use. Each of the selected interventions are evidence based. As such, the rationale for using them in combination was that, in conjunction they would represent an intensified level of intervention that would align with the proposed aim of the study of...
evaluating the efficacy of employing an intensified version of the RtI problem solving model within a highly restrictive top tier setting.

Student intervention teams consisted of two graduate student researchers, the student’s teacher and classroom aide, and the school counselor. The team met regularly to discuss and evaluate interventions before during and after they were implemented at the Tier II level. Tier II interventions were considered “default interventions” in that they were not functionally based, but were instead selected based upon their demonstrated effectiveness and empirical merit for addressing problem behaviors. Tier II interventions included behavioral/contingency contracting, school-home note systems, systematic self-monitoring strategies, and check-in-check-out strategies.

Initial behavior contracts were designed to last 1-2 weeks depending upon the nature of the student and the severity and intensity of his behavior. The duration of each contract was selected so as to maximize the likelihood that the student would succeed in accomplishing his goals and earn his selected reinforcer. As part of the contracting procedures, students were asked to make a list of items that they found desirable (i.e., basketball, t-shirt, music CD) and then asked to choose one item to be delivered if they met the behavioral goals specified in their contract. Each time that a student was successful, a new contract was developed, and the duration of the contract was extended by one week. Each of the other Tier II intervention strategies utilized as part of the study were employed on a daily basis.

Behavioral/contingency contracting is a reinforcement-based intervention that has been proven to be highly effective in changing a wide range of student problem behaviors
(Lassman, 1999). In essence, the behavioral contract establishes a contingency between desirable behavior and the positive reinforcement delivered to the student. In addition, because the student is involved with the development of the contract, providing input into the conditions that are established for earning rewards, the student is more likely to be motivated to abide by the terms of the behavior contract than if those terms had been imposed by someone else.

The school-home note intervention consisted of a set of daily behavioral goals and objectives on which the student is evaluated by his teacher (Cox, 2005). Every day the student brings home a form that denotes how well he performed on his goals and objectives, and gives it to his parent(s) to be signed and returned to school the next day. This system allows for open and ongoing communication between the home and the school as a means of bridging the gap between the two primary environments in which the student exhibits behavior. For the purposes of the current research, the daily behavioral report cards that were filled out for each student as part of the secondary level of support were sent home to be signed and returned to the school, in essence functioning as a school-home note. It is important to note that the degree to which a parent is involved and invested plays an important part in the success or failure of utilizing school-home notes as an intervention. Cox (2005) found that the level of parent involvement was directly related to the degree of success achieved through school-home collaboration.

Self-monitoring interventions consist of a set of goals and objectives that constitute desirable behaviors that the student is asked self-monitor at regular intervals over the course of the day (Shaprio & Cole, 1994). At several times over the course of the
school day (i.e., at the end of each period, before lunch and before going home, etc.), the student will evaluate his own performance on a set of predetermined behavioral criteria. Once he has self evaluated his behavior, the teacher then assesses the students evaluation to check for accuracy, and in turn provides feedback to the student. Results of self-monitoring strategies translate into points that the student is able to use to gain access to preferred activities or other reinforcers. Self-monitoring strategies are also useful to combine with behavioral contracting by using the points that can be earned to set goals and determine if they have been achieved.

Check-in-check-out, the behavioral education program, and check and connect are a group of intervention strategies that rely on close monitoring of student performance through the use of a mentor, or monitor, who functions as a case manager of sorts by regularly monitoring progress made by the student (Sinclair, Christenson, Lehr, & Anderson, 2003). One advantage of the check-in-check-out intervention is that the student is able to choose the adult in the environment who will serve as a mentor. Once a mentor has been chosen, a set of behavioral goals and objectives are defined, and progress towards them closely monitored. Every morning, the student will check in with his or her mentor to review daily goals for desirable behavior. At the conclusion of the day, the student checks back in with the mentor in order to review how the student did that day, discuss what could have been better, give praise for appropriate behavior, and discuss what the student should think about focusing on the following day. The intervention is designed to improve problematic behavior through the use of ongoing feedback and encouragement on the part of the mentor in order to help crystallize
understanding of expected behavior on the part of the student, and help build behavior momentum in a positive direction.

**Tier III.** Tier III supports consisted of the implementation of empirically validated behavioral intervention strategies based on functional assessment (FA) data. Functional assessment is a systematic set of procedures that seek to identify factors in the environment that contribute to behavioral problems exhibited by students (Elliot, Witt, Kratochwill & Stoiber, 2002). Issues of context, intent, antecedents, and consequences are taken into account when assessing the function of behavior. Based on data obtained from the FA, behavior support plan is developed to delineate the specific plan the staff would need to implement in order to reduce rates of problem behavior and encourage pro-social responding. As part of the behavior support plan, individualized social skills training is embedded to teach appropriate replacement behaviors that the student could use to have his needs met in an acceptable manner. Any student who reached the Tier III setting would attend a 30- to 45-minute social skills training once per week. Staff would be provided with descriptions of each specific skill focused on during the weekly social skills training so they could encourage the student to use the skill and reinforce the student for using it within the natural setting.
Chapter 4: Results

The purpose of this study was to investigate the implementation of a multi-tiered behavioral RtI program for improving the behavior of EBD students who had already reached the highest tier of support within a traditionally conceived of RtI framework. The research sought to assess the efficacy of the program for promoting changes in student behavior, the social validity of the program, and whether or not the resulting data could be used to help guide decisions regarding student placement. Comparisons were made between student behavior prior to and after implementation of the behavioral RtI program. Attrition rates were zero, with 32 participants at the start and the finish of the study. Perceptions of students and school personnel in regards to the new program verses what had previously been employed were compared to evaluate whether a clear preference emerged for the behavioral RtI program. Presented first are results comparing pre-and post- levels across problem behaviors, social skills and academic competencies, and treatment acceptability. Presented second are single-subject design data for three randomly selected students for the purpose of demonstrating experimental control and response to treatment upon phase change from Tier I to Tier II supports.

Do results provide compelling preliminary data that introduction of the behavioral RtI program to students being educated within the highly restrictive top tier setting lead to improvements in student behavior?

Student Risk Screening Scale (SRSS). A paired-samples t-test was performed to evaluate the change in pre-post scores on the SRSS scale for assessing problem behaviors. Results indicate that the implementation of the behavioral RtI program led to a
significant decrease in SRSS scores from Time 1 \((M=14.06, SD=1.52)\) to Time 2 \([M=11.22, SD=2.12, t (31) = 7.17, p = 0.001]\), signifying that the level of risk for students developing externalizing behavior disorder significantly decreased after the introduction of the RtI model. Standardized mean difference effect sizes were calculated using the paired-sample t-test value to assess the magnitude of effect produced by the behavioral RtI program. The paired-sample t-test value was used because it corrects for the correlation between the pre and post scores. The following formula was used to calculate effect sizes (Rosenthal & Rosnow, 1991):

\[
\frac{M_{post} - M_{pre}}{(SD_{post} + SD_{pre})/2}
\]

The effect size associated with changes in behavior measured by the SRSS was 1.56. According to guidelines set by Cohen (1988) this effect size would be considered large, indicating that decreases in problem behavior would be apparent to the casual observer (See Table 2).

**Social Skills Rating System (SSRS).** Paired-samples t-tests were performed to evaluate changes in pre-post subscale scores on the social skills, problem behaviors, and academic competence scales from the SSRS. Given the fact that multiple comparisons were performed, a family-wise Bonferroni adjustment was performed to maintain the Type I error rate at an acceptable level (Tabachnick & Fidell, 2001). A family was conceived of as the group of analyses performed for each dependent variable. A Bonferroni adjustment was calculated by taking the traditional .05 alpha level and dividing it by the number of analyses performed within the family. To interpret a test
statistic as significant, the corresponding p-value must be less than the Bonferroni adjusted alpha value. In the case of the SSRS there were three separate t-tests calculated as part of the SSRS family, which corresponds to a Bonferroni adjusted alpha value of \((.05/3=) .017\). Therefore, to conclude that there was a statistically significant effect, the p-values associated with these tests would have to be less than .017. Consistent with the hypotheses that guided this research, results indicated that there were significant effects for each of the scales. Specifically, the introduction of behavioral RtI program was associated with a significant improvement in social functioning from Time 1 \((M=83.50, SD=8.78)\) to Time 2 \([M=89.31, SD=8.45, t (31) = 5.10, p = 0.001]\), significant reduction in problem behaviors from Time 1 \((M=115.2812, SD=8.75559)\) to Time 2 \([M=111.3438, SD=5.63749, t (31) = 3.47, p = 0.002]\), and a significant improvement in academic competence from Time 1 \((M=86.7812, SD=13.51399)\) to Time 2 \([M=89.8750, SD=12.31508, t (31) = 3.43, p = 0.002]\). Standardized mean difference effect sizes were again calculated using the paired-sample t-test value to assess the magnitude of effect produced by the Behavioral RtI program for each of the three scales (See Table 3). The effect sizes for the social skills, problem behaviors, and academic competence scales were 1.83, 1.25, and 1.23, respectively. According to Cohen’s (1988) guidelines, these effect sizes are considered large, which means that the change in social skills, problem behaviors, and academic competence would be clearly noticeable to the average person observing the students before and after the implementation of the Behavioral RtI program (See Table 3).
Do school personnel demonstrate a clear preference for the new behavioral model over the previously employed procedures?

School Intervention Rating Form (SIRF). Paired-samples t-tests were performed to evaluate changes in pre-post scores on the SIRF single item questions that addressed treatment acceptability, willingness to engage in program, perceived reasonability of program, appropriateness of program for addressing problem behaviors, effectiveness of behavioral program, desirability of behavioral program, and perceived acceptability of program for other staff members. Given that there were eight separate t-tests calculated under the SIRF family, a Bonferroni adjusted alpha value of (.05/8) .006 was used to evaluate whether a statistically significant effect existed. Results indicate that school staff preference for the Behavioral RtI program over the previously used system was significant for treatment acceptability from Time 1 (M=2.60, SD=1.26) to Time 2 [M=5.40, SD=1.08, t (9) = 7.203, p = 0.001], for perceived reasonability of program from Time 1 (M=3.20, SD=1.62) to Time 2 [M=5.00, SD=0.94, t (9) = 3.857, p = 0.004], for appropriateness of program for addressing problem behaviors from Time 1 (M=2.90, SD=1.52) to Time 2 [M=4.60, SD=0.69, t (9) = 4.019, p = 0.003], for effectiveness of program from Time 1 (M=2.50, SD=1.18) to Time 2 [M=4.80, SD=0.63, t (9) = 4.641, p = 0.001], for desirability of behavioral program from Time 1 (M=2.40, SD=1.35) to Time 2 [M=4.60, SD=0.84, t (9) = 3.836, p = 0.004], and for perceived acceptability of behavioral program for other staff members from Time 1 (M=2.50, SD=1.27) to Time 2 [M=5.00, SD=0.67, t (9) = 5.238 = 0.001]. Willingness to engage in program was not
found to be significant using a Bonferroni adjusted alpha level of .006 from Time 1 ($M=5.40, SD=1.43$) to Time 2 ($M=6.00, SD=1.155$, $t(9) = 2.250, p = 0.05$) (See Table 4).

Overall results indicate a significant preference by staff members for the behavior RtI program over previously used procedures with a significant change in overall SIRF scores from Time 1 ($M=21.50, SD=8.14$) to Time 2 ($M=35.40, SD=3.06$, $t(9) = 5.734, p = 0.001$). Standardized mean difference effect sizes were calculated using the paired-sample t-test values to assess the magnitude of effect produced by the Behavioral RtI program for each of the areas measured by the SIRF, as well as overall program differences. Effect size for overall difference was 1.95, while effect size was 2.39 for treatment acceptability, .46 for willingness to engage in program, 1.41 for perceived reasonability, 1.53 for appropriateness for addressing problem behaviors, 2.54 for effectiveness of program, 2.01 for desirability of program, and 2.58 for perceived acceptability by other staff. Using Cohen’s (1988) guidelines, all effect sizes, with the exception of that associated with willingness to engage in program, which approached a moderate effect size, were found to be large. The insignificant p-value and smaller effect size associated with the willingness to engage in program variable can most likely be explained by the fact that staff members’ willingness to engage in the previously used procedures was measured to already be high (i.e., $M=5.40$). As such, the magnitude of difference associated with adopting a new behavioral program (i.e., $M=6.00$) was not as significant as it was in each of the other measured areas. The large effect sizes associated with each of the other areas measured by the SIRF indicate that school staff strongly
preferred the new RtI based behavior program over the previously employed model (See Table 4).

**Modified Children’s Intervention Rating Profile (CIRP).** A paired-samples t-test was performed to evaluate the overall change in pre-post scores on the modified CIRP for assessing treatment acceptability from the students’ perspective. The modified CIRP consisted of 4 items, each rated on a 6-point Likert type scale. Average scores were then computed and used to calculate changes from pre to post intervention. Results indicate that the students’ acceptability of the behavior support program implemented in the restrictive setting significantly improved after the introduction of the behavioral RtI program with CIRP scores from Time 1 ($M=7.88, SD=2.87$) to Time 2 [$M=13.84, SD=4.71$, $t(31) = 7.52$, $p = 0.001$]. Specifically, they reported that the behavioral RtI program was more fair, more likely to help other students with similar problems, better able to handle the types of problems exhibited by the students, and more likely to help them improve their own behavior. Standardized mean difference effect size was calculated using the paired-sample t-test values to assess the magnitude of effect produced by the behavioral RtI program for CIRP scores. Effect size for overall difference was 1.58, which according to Cohen’s (1988) guidelines is considered large, indicating that students had a clear preference for the behavioral RtI program over the previously used program (See Table 5).
To what extent can the resulting data be used to help make decisions regarding appropriateness of placement?

**Single-subject designs.** Progress for individual students who moved from Tier I to Tier II level of supports was evaluated using daily behavioral report card data. The Tier II intervention package consisted of behavior contract, Check in/Check out, self-monitoring, and school-home note system. These interventions were implemented as a package. Therefore, one cannot tease out the effects associated with each one. Rather, one can conclude that the package as a whole resulted in reliable changes in students’ problem behaviors. In order to evaluate the efficacy of Tier II intervention strategies, a multiple baseline design was employed to demonstrate that changes in behavior were the result of intervention implementation rather than extraneous variables. Implementation of Tier II intervention strategies was staggered for 3 students in order to establish experimental control and that the addition of Tier II supports was responsible for changes in students’ social emotional functioning. Each of the 3 students was randomly selected from groups of students who had moved from Tier I to Tier II support levels within approximately similar time periods. Prior to implementation of Tier II intervention, the experimenters looked to establish a steady rate of behavior so that changes in behavior patterns could be attributed to changes in the interventions being delivered (Kennedy, 2005). Although there was a larger degree of behavioral variability for one of the students (i.e., Freddy) prior to the introduction of Tier II supports than with the other two students, given the applied nature of the research, the experimenters determined that the importance of intervening outweighed prolonging implementation until a steadier
behavior pattern could be established. Results demonstrate that experimental control was established, with each student showing a significant change in response to treatment upon phase change from Tier I to Tier II support strategies (See Figure 2).

It should be noted that single-subject design would have been used to evaluate the efficacy of Tier III intervention strategies for students who failed to respond to Tier II interventions. However, only one student who took part in the study demonstrated a lack of response to Tier I and Tier II support strategies, and was subsequently moved into Tier III supports. Upon phase change, the student’s attendance began to waver, and as a result, meaningful intervention implementation was not possible. The study was concluded before an adequate amount of data could be collected to evaluate the student’s response to Tier III supports.

**Effect Size.** Three different effect sizes were used to assess the magnitude of the effect produced by Tier II intervention strategies relative to baseline: percent of nonoverlapping data points (PND), percent change from baseline (PCB), and nonparametric Cohen’s d. The PND is the percentage of data points in the treatment phase over the highest point of the distribution in the baseline phase (or below the lowest point of data points in the baseline phase if the undesirable behavior is expected to decrease after the intervention is introduced) (Scruggs & Mastropieri, 1998). The PND approach has the following advantages: (a) as it is a nonparametric approach, it can be free from the constraints of the assumptions of parametric statistics; (b) it is easy to calculate directly from graphic displays; and (c) it is easy to interpret qualitatively, as a PND of 90% and higher indicates highly effective, 70% to less than 90% represents
moderate (or fair) effect, 50% to less than 70% indicates mild or questionable effect, and below 50% is considered as an ineffective treatment. This interpretation was based on previous comparisons of the PND scores by visual analysis (Scruggs et al., 1986). The PND effect sizes were .75, 1.00, and .90 for Marlon, Freddy, and James respectively. Using the guidelines established by Scruggs et al. (1986), these would be considered moderate for Marlon, and large for Freddy and James.

PCB provides an index of the amount of change in the desired direction after baseline. PCB can be expressed as the percent decrease or increase from baseline depending on whether one is looking for a reduction or increase in the dependent behavior (Gresham, 2005). PCB is calculated by using the following formula:

\[
\% \text{change} = \frac{|M_{\text{baseline}} - M_{\text{intervention}}|}{M_{\text{baseline}}} \tag{1}
\]

The PCB formula contains the absolute value parameter as a means of avoiding negative values and accommodating dependent variables that should increase as a function of the intervention, like pro-social behaviors. Without doing so, the above stated formula would produce a negative value because the larger mean of the intervention phase would be subtracted from the smaller mean of baseline. PCB effect sizes were calculated to be .52, .81, and .87 for Marlon, Freddy, and James respectively, indicating that problem behaviors were decreased by 52 to 87% once the students were exposed to Tier II support strategies.
The nonparametric Cohen’s $d$ resembles the nomothetic version whereby it indicates the amount of difference in intervention phase from baseline in standard deviation units. The following formula is utilized to calculate $d$:

$$d = \frac{M_{\text{baseline}} - M_{\text{intervention}}}{SD_{\text{baseline}}}$$  \hspace{1cm} (2)

Cohen’s $d$ effect sizes were 5.46, 2.45, and 2.00 for Marlon, Freddy, and James respectively.

**Interoobserver Agreement (IOA).** IOA data were collected on 20% of occasions. Two observers (a teacher and a paraprofessional) rated the same students using the DBRCs that included an event-based recording scheme. The teachers and paraprofessionals were trained how to collect event recording data. Across all IOA comparison occasions, results revealed that IOA was 88% with a low of 65% and high of 100%, which indicated that the observers’ ratings demonstrated adequate agreement to be considered reliable. Variability in observer agreement could not be attributed to any particular variable, and was therefore considered to result from error or observer drift. Because the same procedures were used to assess behavior for all students throughout the duration of the study, regardless of what tier they were in at any given time, these IOA statistics apply to both group based and single case data.
Chapter 5: Discussion

This study represents preliminary research whose aim was to evaluate the promise of using a behavioral RtI program to organize and deliver services in restrictive educational settings for students with EBD. A multi-tiered behavior management system was developed and implemented that incorporated evidence based intervention strategies of varying intensity to help ameliorate behavior problems for students who had already been placed within a highly restrictive community day school setting. Prior to implementation of the behavioral RtI program, the community day school lacked a systematic proactive approach to behavior management, instead relying on more traditionally employed reactive strategies. These included the use of punishment, removal from the classroom environment, suspension, time outs, and the granting or withholding of access to preferred activities based upon student behavior. By contrast, as part of the behavioral RtI program, students were exposed to a systematically designed and implemented comprehensive intervention package that included universal supports for all students, as well as secondary and tertiary levels of support for those students who did not demonstrate adequate response to lower level intervention strategies.

Staff members were evaluated in terms of whether they found the program acceptable in terms of manageability, and whether they found that it led to a higher degree of desirable student behavior patterns, both of which are contributing factors to problems such as student dropout rates and teacher burnout. Although there exists a good deal of evidence to support the efficacy of behavioral RtI for preventing and remediating problem behavior within general school settings (Barnett et al., 2006; Crone, Hawken, &
Horner, 2010; Gresham, 2004; Fairbanks, Sugai, Guardino, & Lathrop, 2007; Riley-Tillman, Chafouleas, & Briesch, 2007) there has not been as much attention paid to the utility of such an approach for EBD students who are educated within alternative educational settings. In addition, the notion that a multi-tiered intervention system can effectively be utilized within the smaller context of an individual tier has not yet been explored. The relevance of the study can be more readily conceived of when one consider the sizable body of literature indicating uninspiring services and outcomes for EBD students who are placed within restrictive educational settings (Denny, Gunter, Shores, & Campbell, 1995). With this in mind, the findings of the study will be discussed in terms of the thematic questions that guided it. First, results of the study provide preliminary evidence that the newly conceptualized multi-tier behavioral intervention program utilized within a highly restrictive setting led to improvements in student behavior. Second, both students and staff demonstrated a preference for the multi-tiered behavioral program over the previously employed system of procedures. And third, the program did result in data that could be used to evaluate both individual student and group behavior, as well as aid in making educational programming and placement decisions.

Multi-tiered intervention for improved student outcomes.

The results, although preliminary in nature, indicate that the application of RtI principles and procedures can provide a useful framework for delivering services within restrictive educational settings for students with EBD. Results further indicate that the behaviorally based RtI program led to improved outcomes over the previously used procedures for improving social skills, reducing problem behaviors, and increasing
academic competencies. In fact, the program was successful enough to lead to two students demonstrating improvements in behavior and pro-social skills to a degree that warranted reintegration into a general education setting on a comprehensive campus. In addition, data resulting from the study was used to identify one student who was unsuccessful at each of the three tiers of service delivery, and who demonstrated behavior patterns typical of a student with an emotional disturbance (ED), indicating that he was most likely inappropriately placed in the community day school.

Educational research in the area of multi-tiered intervention systems commonly relies on the guideline that, under ideal circumstances, approximately 80% of students will respond to supports provided through the lowest or universal tier (Brown-Chidsey, Bronaugh, & McGraw, 2009). This is significant in that it assumes that approximately 20% of students are expected to not respond to universal support strategies and, as such, can be expected to need additional, higher level, support strategies in order to be successful. Of the 20% of students who move into the secondary tier it is commonly thought that, under ideal circumstances, approximately 15% will respond successfully. If these percentage guidelines were to be met, that would mean that approximately 5% of students who are exposed to a multi-tiered intervention system would be expected to move into the highest, most restrictive, tier of supplementary supports (Walker et al., 1996). In the case of the current study, the students who participated would be considered to already be part of this 5% who require the most intensive system of support within one of the most restrictive settings.
The notable difference between the behavior RtI program employed as part of this study and traditionally employed models is that once students reach the highest tier of service delivery, they are once again exposed to a multi-tiered system of service delivery where, if one were to apply RtI statistics from the broader public health model, approximately 80% of students might be expected to respond to intensified-Tier I supports, 15% might be expected to respond intensified-Tier II supports, and 5% might be expected to demonstrate need for intensified-Tier III supports. However, given the lack of research in this specific area, the percentage of students who respond at each level of an “intensified” behavior RtI program may in fact vary greatly from the percentage of students who respond at each level of a general behavior RtI program. In the case of the present study, however, results indicate that out of 32 participants, 22 (69%) successfully responded to Tier I supports, while 10 students (31%) were moved into Tier II supports, and 1 student (3%) was moved into Tier III supports. These results indicate that an intensified multi-tiered model of service delivery employed within the highest tier of the broader RtI model can successfully employ a continuum of care that accounts for a considerably high response rate from students who are often thought of as the most difficult to teach due to behavior difficulties.

Multi-tiered intervention and social validity.

Results of this study indicate that school personnel preferred the behavioral RtI program over the previously used model in all areas measured. Treatment acceptability measures indicated that staff felt the new program was more effective for addressing problem behaviors, was easier to implement and deliver, and lead to more desirable
outcomes. These findings have important implications when considering issues of teacher burnout, student retention, and student drop out.

Teacher burnout occurs when the stress associated with teaching leads teachers/educational professionals to leave education and seek employment in alternative fields. Burnout has been defined as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981). And as the field of education has moved into the age high stakes testing, additional pressure has been placed upon teachers to demonstrate improved student outcomes, while at the same time having to manage increasingly difficult student behaviors, resulting in teachers leaving the profession in greater numbers than ever before (Marvel, Lyter, Peltola, Strizek, & Morton, 2006). Utilizing survey data, Kokkinos, Panayiotou, and Davazoglou (2005), found a significant correlation between teacher burnout and the antisocial and oppositional behaviors demonstrated by the students that they taught. This is particularly disheartening when one considers that as teachers become more burned out, their efficacy conversely declines, which in turn leads to increases in problem behaviors among students, and decreases in student learning, all of which continues to cycle until teachers see no other option but to leave the field all together (Plank, Bradshaw, & Young, 2009).

In addition, research has shown that special education teachers, including those who work primarily with EBD students, have higher stress levels associated with their jobs than general education teachers (Billingsly & Cross, 1992). Teachers and staff who work within highly restrictive settings, serving those students who have been resistant to
all lower level support strategies, regularly face an even higher level of stress in the form of more severe, more deeply entrenched, and more treatment resistant levels of student problem behavior. One way to combat the cycle that leads to teacher burnout and the poor student outcomes associated with it is to provide teachers with empirically validated, systematic approaches for dealing with problem behaviors that can be implemented with minimal invasiveness. Results of the present study appear to indicate that the behavioral RtI program employed not only holds great promise for improving student outcomes, but also for relieving some of the risk factors that lead to teacher burnout as well. Specifically, results of the study indicate that students’ problem behaviors decreased, while academic functioning and pro-social behavior increased. In addition, treatment acceptability results indicate that teachers found the implementation of the behavioral RtI program to be reasonable, appropriate, and effective.

Treatment acceptability was also evaluated from the perspective of student participants. Students who took part in the study rated the behavioral RtI program significantly higher than the unsystematic approach that the community day school had previously employed. Students reported that the behavioral RtI program was more fair, more likely to help other students with similar problems, better able to handle the types of problems exhibited by other students, and more likely to help them improve their own behavior. These results are important for the reason that students are more likely to remain engaged in programs that they find appropriate, reasonable, and acceptable. And the more willingly engaged a student is with any given intervention strategy, the more likely that the intervention will meet with success. The success or failure of intervention
strategies holds great implication for the overall life outcome of EBD students. When intervention programs, such as the one employed in this study, are successful in remediating severe behavior problems and teaching prosocial skills, the likelihood for students remaining in school, attending college or trade school, finding gainful employment, and avoiding involvement with the criminal justice system, are all greatly improved. The implications offer great benefit to all parties involved. The individuals who are on the receiving end of intervention are afforded the opportunity to reach a higher degree of happiness and success, while society at large is spared the ill effects of the alternative.

**Multi-tiered intervention and alternative educational settings.**

One of the basic edicts of the special education system is that all students, regardless of their disability, should to the maximum extent possible be educated with their non-disabled peers within the educational environment that they would normally attend if they did not have a disability (IDEA, 1997; IDEIA, 2004). This idea of educating students in the least restrictive environment (LRE) was developed as a means of guarding against the discriminatory practices that were commonplace prior to legislation such as the Rehabilitation Act of 1973, the Education for All Handicapped Children Act (EAHCA) of 1975 which become the Individuals with Disabilities Education Act (IDEA) in 1997 and then the Individuals with Disabilities Education Improvement Act (IDEA) in 2004, as well as the Americans with Disabilities Act of 1990 (Katsiyannis, Yell, & Bradley, 2001; Yell, Katsiyannis, & Hazelkorn, 2007). Although LRE issues are always taken into account for students who have been found eligible for
special education and related services, this is often not the case for students who have been found to demonstrate conduct disorder type behaviors, yet do not qualify for special education, and therefore do not fall under the umbrella of protective clauses built into special education legislation. Too often these students are relegated to increasingly restrictive settings with little hope of reintegration back to less restrictive educational environments (Kaufman, 2001).

When considering restrictive settings, it is helpful to conceive of them as existing on a continuum. In the case of restrictive settings for behaviorally challenged students, this continuum may include separate classrooms situated on comprehensive campuses, separate school sites within a larger school district, non-public schools (NPSs), and even residential placement programs (Kauffman & Smucker, 1995). Each of these may be thought of as more restrictive than the last and considerably more restrictive than the average general education classroom environment. When one considers how students move from one behavior-based restrictive setting to the next, a question arises as to where the procedural safeguards and structure of checks-and-balances exist within this system? How can educational systems serve these students in a manner that is fair and that provides them with skills and opportunities to grow and improve and begin moving back towards less restrictive settings? One aim of the current study was to investigate whether a multi-tiered behavior intervention system could effectively help students with significant behavior problems improve their behaviors to a degree that they could move back into a less restrictive setting. And in fact, two of the study’s participants were recommended to move back to their respective home schools by the conclusion of the
study. In addition, it is the belief of the researchers that if the study had not concluded when it did, that over time more participants would have demonstrated improvements in behavior that would have resulted in them being moved to less restrictive settings.

Results of the current study also appear to provide persuasive evidence that significant improvements in behavior can be attained even with some of the most behaviorally challenging students within one of the most restrictive types of educational settings. Additionally, results suggest that a multi-tiered behavior intervention system can provide a system for determining if and when students are ready to move from one tier of service delivery or another, whether it be from one “intensified” tier to another, or from one “general” tier to another. It must also be pointed out that although this research focused on using a behaviorally based RtI system within a highly restrictive setting, there is no reason to believe that the same or a similar program would be any less effective if utilized within less restrictive settings. And if, in fact, the same or a similar behaviorally based RtI program were utilized within less restrictive settings, then it would be safe to presume that some students would respond at a lower level and not ever face the need to move further along the continuum of restrictive settings.

Research conducted by Lane, et al. (2005) looked at the commonly assumed belief that emotionally and behaviorally disordered (EBD) students placed at each level of the restrictive setting continuum are fundamentally different from students at other levels of the same continuum in academic, behavioral, and social domains. Results of their research, however, revealed that EBD students who were educated within self-contained classrooms (i.e., a less restrictive setting) demonstrated stronger academic
skills than those educated within self-contained schools (i.e., a more restrictive setting).

In addition, although behaviors were reportedly different among the two groups, significant differences in social skills were not found to exist. Implications, both practical and ethical, can be drawn from this research that warrant further consideration.

First, the correlational relationship between academic competence and externalizing behavior problems has long been recognized (McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008; McIntosh, Horner, Chard, Dickey, & Braun, 2008). It is well understood that students who struggle the most with academic tasks are more likely to act out than their non-struggling peers (Borriga, Doran, Newell, Morrison, Barbetti, & Robbins, 2002; McEvoy & Welker, 2000; Montague, Enders, & Castro, 2005). If we consider the findings of Lane, et al. (2005) in light of this fact, then it appears that the less academically advanced EBD student is, by definition, more likely to move into a more restrictive setting. And if this is the case, we must consider that students in the more restrictive self-contained school sites tend to demonstrate poorer academic skills for no other reason than the educational delivery model is sub par when compared to that delivered in a traditional comprehensive campus, even if it is within a self-contained classroom. If this is true, then the implication is that the EBD students who are most in need of academic and/or behavioral supplementary services are the ones who are most likely to be moved into the settings where these services are least accessible.

If behaviorally based RtI programs such as the one employed in the current study can be used to effectively manage maladaptive behavior patterns for students in restrictive settings, or students at risk of moving to higher levels along the continuum of
restrictive settings, then the resources saved in terms of time, energy, and focus can be reallocated towards improving academic competencies for these same students. In this sense, a well designed and implemented behavioral RtI program can essentially free up otherwise spent resources to foster more effective learning environments rather than environments where behavior management is primary and student learning is secondary.

Although students who have been identified as having emotional or behavioral disorders, and who typically demonstrate antisocial behavior patterns, account for only 8 to 9% of special education students, they represent approximately 25% of students being served in separate restrictive educational setting. In addition, as many as 50% of students being served in residential care facilities are identified as having emotional or behavioral disorders. These numbers clearly demonstrate the degree to which behaviorally maladaptive students are disproportionately represented within the most restrictive of educational setting (Stephens & Lakin, 1995). As such, the development and utilization of effective service delivery models within these restrictive settings may provide one of the last lines of defense for guarding against conduct disordered youth growing into antisocial adults. Regrettably, more often than not, service delivery models employed within restrictive educational settings have not met the challenges associated with successfully educating this population of students.

Research has shown us that EBD students are more likely to be placed and educated in restrictive settings than any other high incidence disability group (Stephens & Lakin, 1995). And although there has not been a noted increase in positive outcomes associated with this group of individuals, there has been a steady increase in the number
of EBD students who are educated in restrictive settings. The US Department of Education (2002) reported a 13% increase in the number of EBD students placed in restrictive settings between 1992 and 2002. Unfortunately, as the number of EBD students placed in restrictive settings continues to rise, the percentage of successful student outcomes continues to fall. Approximately 65% of EBD students are unable to pass grade level competency exams, and approximately 60% drop out before graduating high school (Chesapeake Institute, 1994). Walker, Ramsey, & Gresham (2004) report that of the EBD students who drop out of school, 73% are arrested within 5 years. Those that do enter the workforce tend to experience higher rates of unemployment for longer periods of time, demonstrate difficulty holding on to employment, and generally earn less money than individuals from other disability groups and their non-disabled peers (Wagner, D'Amico, Marder, Newman, & Blackorby, 1992). In addition, individuals with EBD experience more difficulty establishing or maintaining meaningful personal and/or professional social relationships, and are more likely to be arrested and incarcerated.

When one considers the high proportion of EBD students who are educated within highly restrictive settings, and the extremely poor outcomes associated with this group of individuals, it becomes clear that different approaches must be considered and explored. Effective behavior management techniques coupled with prosocial instructional strategies, within a system that is responsive to the unique needs of the individual, constitutes one such approach. The current study demonstrates one such model with promising results. Furthermore, the development and implementation of effective behavior intervention systems for EBD students not only holds promise for improved life
outcomes for the students themselves, but for all the people they will interact with over the course of their lives, and indeed for society as a whole. When considering the increased likelihood that these individuals have for committing criminal or violent acts, and subsequently entering into the criminal justice system where they will continue to drain community and societal resources, the development of effective intervention systems delivered to school age children and adolescents would appear to not only be responsible from a social perspective, but from a fiscal perspective as well. It is important to recognize that restrictive educational settings, in and of themselves, are not inherently flawed. On the contrary, restrictive educational settings hold great potential to serve as vehicles for promoting positive social change on both individual and societal levels. They are a necessary component of a comprehensive educational system, and when developed and delivered in a suitable manner, utilizing intervention strategies that have been demonstrated to be appropriate and effective, they constitute a great asset to the educational system as a whole. The alternative would be to expect that the general education setting is the least restrictive environment (LRE) for every student, and that the general education teacher should be equipped to address every type of behavior problem and learning difficulty that a student may exhibit. The very existence of alternative learning environments that specialize in addressing specific types of problems is evidence in itself that such alternative education programs are necessary. However, it is not enough to simply create an alternative educational setting and establish a set of guidelines of how students will qualify to enter them. We must pay mind to how the unique needs of the students who enter these programs can be met, what guidelines will be used to evaluate
the success or failure of the programs, and where we find ineffective programs that serve little more than to house students, explore alternative methods of service delivery.

Limitations

Despite several positive findings from this study, there were several limitations that should be taken into consideration. First, given the nature of the situational variables surrounding the research (i.e., time constraints, desired outcomes by school personnel, ethical concerns, and issues of relationship building with site personnel), it was not feasible to implement the behavioral RtI program while accounting for a control group. The impetus for the development and delivery of the RtI program was born out of necessity for addressing real behavior problems that were being demonstrated by actual students within an applied setting. When school personnel requested assistance in coming up with ways to address these problems, they were looking for effective and efficient procedures that would lead to meaningful and lasting changes in behavior. Although the researchers recognized an opportunity to implement and evaluate an alternative delivery model, school personnel were not interested in evaluating a new system of service delivery, but rather in improving the individual performances of students and the overall ecology of the school environment. As such, moving forward in a manner that provided school personnel with immediate help was essential to building and maintaining a positive relationship between the school site and the university researchers. In addition, given that participants were primary grade children who already demonstrated serious maladaptive behaviors, and who were at risk for developing even more severe antisocial behavior patterns, to withhold treatment from some students in order to demonstrate
experimental control was deemed to be unethical. This fact was especially salient given that the timeframe to complete the research was limited.

Lack of a control group, and accordingly, lack of random assignment, may raise concerns regarding the resulting data and associated conclusions of the research. Although the aim of the study was to provide a preliminary evaluation of the effectiveness of a new system of service delivery within restrictive settings, and measures were used that provided data as to changes between baseline and treatment, it can ultimately be argued that lack of random assignment and a control group lessen the importance of findings. If it had been feasible to rely on more rigorous research methods, the results would allow one to draw more robust conclusions that changes in behaviors exhibited by students were attributable to treatment and not some other unaccounted for variable(s).

Another limitation with the current research may be found the sample size used to evaluate the effectiveness of the program. The aim of the research, at least from the perspective of the researchers if not the school site personnel, was to develop, implement, and evaluate a new pilot program for addressing the behavior problems of students within a highly restrictive setting. While the sample size utilized in the study is sufficient to evaluate the effectiveness of the program on a smaller scale, in order to draw inferences as to how it would generalize across varying populations in various types of settings, a substantially larger sample size would be necessary. Results of the study do, however, provide compelling evidence to justify further research that would seek to expand upon
the scope of the current study to include multiple school sites or even school districts, thereby increasing the overall number of participants and further validating the research.

In the case of the one student who moved through each tier of intervention without successfully changing maladaptive behavior patterns, the study concluded before adequate time was allocated to measure response to intervention within the intensified Tier III setting, and before formal assessment for the possible presence of an emotional disturbance could be conducted. However, the behavioral RtI program employed as the basis of this study did result in data that indicated that this particular student was likely misplaced within the community day setting which was comprised of students who demonstrated behavior more indicative of conduct disorder rather than emotional disturbance. As such, the behavior based RtI program utilized as part of this study demonstrated an ability to identify at least one student for whom California’s social maladjustment clause may not apply, and who would likely benefit from a full scale assessment to determine eligibility for special education services.

Another limitation is that, due to the nature of the service delivery system, it is difficult to attribute changes in behavior to any one particular intervention strategy. Intervention strategies were delivered in a packaged format with the intent of providing an intensified intervention delivery system. For students who moved from Tier I into higher Tiers, the number of intervention strategies being delivered ranged from 1 to 6 at any given time. Due to the multi-tiered approach, positive changes in behavior that occurred must to be attributed to the success of the system as a whole, rather than to the implementation of one particular intervention strategy or another. This fact may lead to
questions as to whether a different package of intervention strategies would have led to different results.

One final limitation can be found in the fact that the study came to an end without follow up measures to determine whether changes in student behavior continued beyond the conclusion of the study. Administration of follow up measures, anywhere from three to six months after intervention, would provide information as to the lasting effects of the behavior intervention program. However, it must also be pointed out that, under ideal circumstances, and if the program was implemented as it is intended to be, student intervention would not cease as abruptly as it did in the study. Students would move from tier to tier with layers of support, and progress would be monitored to inform if and when such moves would be appropriate. For those students who do reach the goal of being reintegrated back into a more traditional educational setting, a system of supports would be set in place to aid in the process. Once these students have made a smooth transition, and supports have been lowered to a minimal level, and an appropriate amount of time has passed, only then would follow up measures be appropriate to evaluate maintenance of behavior change.

Future Considerations

One important area for future consideration can be found in the amount of time that the researchers spent with on-site staff helping to train, coordinate, and provide feedback. Researchers met with staff anywhere from 3-8 times weekly to assist with all aspects of the implementation and maintenance of the behavioral RtI program. They also served as part of the multidisciplinary decision making teams for each of the students.
This amount of face time was feasible given that the research constituted a pilot study that took place on a single site, with limited staff, and a manageable number of participants. However, when considering future replication with larger samples, across multiple sites, or even entire districts, the amount of time that implementers would be able to spend with specific staff, on any given specific site, would likely be substantially limited by comparison. In fact, researchers of the current study imagine, that if replicated on a larger scale, a collaboration model would be employed where each school site would designate a team of appropriate staff members (i.e. teacher(s), administrator(s), counselor(s), nurse, school psychologist, etc.) to be trained, who would then be responsible for training the broader staff component at each of its own sites. The program implementers (i.e. those who would serve in the capacity that the graduate student researchers did in the current study) would then be available to serve as consultants with on-site leadership teams to help troubleshoot any problems that may arise.

Future research should seek to evaluate the effectiveness of the behavioral RtI program utilized in this study across various types of restrictive settings such as opportunity classrooms, non-public schools (NPSs) and even in special day classes (SDCs). In addition, future research should seek to evaluate the long term effects and outcomes associated with the delivery of multi-tiered behavioral intervention programs for students placed within restrictive settings. This is particularly true for students who move back into less restrictive settings. Do the skills they develop as part of the program generalize to less restrictive settings? Randomized control studies should also be conducted in order to establish the effectiveness of the program compared to traditional
models of service delivery within restrictive settings. And finally, given the heterogeneous nature of restrictive settings, efforts should be made to conduct a large scale study that involves several school districts, from culturally and socioeconomically diverse regions, in order to determine the effectiveness of the program in contextually different restrictive settings.
References


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Individuals with Disabilities Education Improvement Act, 20, U.S.C. Ch. 33, Sec 1400 (2004).


Koegel, R. L., Koegel, & Dunlap, G. (Eds.), Positive behavioral support (pp. 3-30). Baltimore: Brookes.


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* Significant using a Bonferroni adjusted alpha level of .006.
Table 5  
*Pre & Post CIRP Data*

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Figure Caption

*Figure 1.* Recycled RtI model.
Figure Caption

*Figure 2.* Multiple Baseline Graph across Participants Receiving Tier II Interventions