

## Effects of Cognitive-Behavioral Intervention on the School Performance of Students With Emotional or Behavioral Disorders and Anxiety

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*ABSTRACT: Despite widespread treatment success in clinical settings, anxiety disorders are rarely targeted for intervention in students with emotional or behavioral disorders (EBD) who exhibit them. This study examined the effects of a school-based anxiety intervention on the performance of 3 students attending school in a self-contained EBD setting. Using a single-subject, multiple-baseline design across students, this study examined changes in anxiety, maladaptive behavior, and academic engagement as functions of participation in the cognitive-behavioral anxiety intervention, FRIENDS for Life. All 3 participants showed improvement across all measures. Implications for the implementation of a school-based intervention for EBD students who experience high degrees of anxiety, as well as study limitations and directions for future research, are discussed.*

■ Students with emotional and behavioral disorders (EBD) exhibit a wide variety of behavioral and mental health needs (Individuals with Disabilities Education Act [IDEA], 2004; Kauffman, 2005). Among these are anxiety disorders, a category of mental health disorders typified by different forms of excessive fear and worry (Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision [DSM-IV-TR]; American Psychiatric Association, 2000). Approximately 14% of students with EBD meet the DSM-IV-TR diagnostic criteria for an anxiety disorder (Dery, Toupin, Pauze, & Verlaan, 2004; Garland et al., 2001).

Given the academic deficits generally exhibited by students with EBD (Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005), including those with internalizing disorders such as anxiety, it is perhaps not surprising that research has shown anxiety to have a detrimental effect on school performance. Students who experience anxiety report that they have difficulty concentrating and doing homework (Dobbs, Doctoroff, Fisher, & Arnold, 2006; Langley, Bergman, McCracken, & Piacentini, 2004) and are less likely to complete high school than their nonanxious peers (Van Ameringen, Mancini, & Farvolden, 2003). Anxious symptoms can predict later reading

and mathematical achievement (Ialongo, Edelson, Werthamer-Larsson, Crockett, & Kellam, 1994) and can be used to explain a proportion of variance in overall academic scores (Durbrow, Shaefer, & Jimerson, 2000). Teachers, as well as researchers, have noted anxiety's effects, describing anxious students not only as academically underperforming but underperforming to the same degree as students with externalizing behavioral difficulties (Benjamin, Costello, & Warren, 1990; Strauss, Frame, & Forehand, 1987).

In recent years, cognitive-behavioral therapy (CBT) has become a standard means of treating anxiety in children and adolescents (Compton et al., 2004; Kendall, 1994; King, Heyne, & Ollendick, 2005; Silverman, Pina, & Viswesvaran, 2008). As many as 70% of children with anxiety who complete CBT no longer meet diagnostic criteria for an anxiety disorder (Bernstein, Layne, Egan, & Tennison, 2005; Flannery-Schroeder & Kendall, 2001; King et al., 1999; Wood, 2006), an effect that has been replicated in large-group, small-group, individual, child-focused, and concurrent child and parent groups formats (Compton et al., 2004). These effects are long term in duration, with improvements that persist for up to 7 years (Barrett, Duffy, Rapee, & Dadds, 2001; Clark et al., 1999; Dadds et al., 1999;

Kendall, Safford, Flannery-Schroeder, & Webb, 2004). Moreover, the symptoms of anxiety that occur at school appear to respond both to clinic-based (e.g., Suveg et al., 2009; Wood, 2006) and classroom-based (e.g., Barrett & Turner, 2001; Bernstein et al., 2005; Dadds, Spence, Holland, Barrett, & Laurens, 1997; Lowry-Webster, Barrett, & Dadds, 2001) models of CBT intervention.

Despite the strength of findings regarding the effectiveness of CBT in treating children's anxiety, current research regarding school-based CBT presents a number of limitations that prevent generalization to students with EBD. First, existing studies have been conducted primarily in general education settings (e.g., Barrett & Turner, 2001; Bernstein et al., 2005; Strauss et al., 1987) and have excluded students taking psychiatric medication (e.g., Shortt, Barrett, & Fox, 2001) or those with severe behavior problems (e.g., Bernstein et al., 2005; Brown, McQuaid, Farina, Ali, & Winnick-Gelles, 2006). Second, existing studies have overwhelmingly used behavioral checklists and structured interviews, rather than direct observation, to evaluate changes in school behavior (Hoagwood et al., 2007; Schoenfeld & Janney, 2008). Lastly, existing research has focused almost exclusively on the psychosocial aspects of student behavior, rather than on changes in academic achievement (Hoagwood et al., 2007).

The current study builds on past research by addressing the three areas of deficit described above. First, it focuses on students with EBD rather than students in general education, without exclusions for psychiatric medication or severity of behavior; second, it measures academic engagement in addition to psychosocial behavior; and finally, it uses both direct observation and indirect measures to evaluate behavioral and academic change. Specifically, the study examined whether, after completing a CBT program designed to decrease anxiety in children, students with anxiety who have been identified as EBD would:

1. exhibit a change in anxiety at school, as measured by the Child Symptom Inventories IV (CSI-IV) teacher rating scale;
2. exhibit a change in academic engagement, as measured by direct observation; and
3. exhibit a change in appropriate school and classroom behavior, as evaluated by classroom teachers within classroom token economies.

## Method

### Participants and Setting

The study was conducted in a private school for students with emotional or behavioral needs, Grades 1 through 12, in the Southwestern United States. Students spent approximately half of each school day with same-age peers. During the rest of the day, math and language instruction was conducted in academically homogenous multiage groups. Each classroom accommodated 8 to 14 students; operated using the standardized student rules, expectations, and privilege level system; and was staffed by one certified special education teacher and two instructional assistants.

Participants were recruited from the program's fourth- through sixth-grade classrooms. First, teachers were asked to nominate students who they felt exhibited a marked degree of anxiety, resulting in a list of 11 students. These nominations were then narrowed to students who had exhibited significant levels of anxiety on a school-administered psychological measure less than 1 year old, such as the Behavior Assessment System for Children, second edition, available in students' special education file. Ten nominated students met the criteria for generalized anxiety. Of these students, the first 3 to supply completed parental permission forms were selected as participants.

All participants were male, attending sixth grade. Two were Caucasian, and 1 was Hispanic. All took daily psychiatric medication (further medical information was confidential and not available to the authors). All had attended the school for at least 1 full year and continued to participate in school-based counseling sessions that had been in effect prior to the study. According to the most recent IQ test administered by the school psychologist and Woodcock-Johnson III testing summarized in the text of their individualized education plans, participants exhibited the following learning characteristics.

Participant A was 11 years old and classified as EBD. His grade-level functioning was at third grade in reading and fourth grade in math, and his reported IQ was 107. Participant B was 11 years old and classified as EBD. His grade-level functioning was at fourth to fifth grade in reading and third grade in math. His reported IQ was 98. Participant C was 12 years old and classified as EBD with additional accommodations for a learning disability related to reading.

**TABLE 1**  
**Description of the Topics Included in Intervention Sessions of the FRIENDS Program**

Session	Topic
1	Rapport-building Introduction to the purpose of the program
2	Identification of specific situations that each student found frightening Introduction of the idea that one's thoughts and feelings affect how one behaves
3	Exploration of individual responses to anxiety
4	Relaxation training
5	Introduction of the concept of self-talk Identifying self-talk in anxiety-provoking situations
6	Modeling and practice for modification of noncoping self-talk Development of problem-solving strategies for anxiety management
7	Review of the skills and their use in a four-step plan for coping with anxiety
8	Self-evaluation and self-reward following attempts to manage anxiety
9	A review of the skills and their use in the four-step plan
10	General review and practice

His grade-level functioning was at third-grade level in reading and fifth-grade level in math. The most recent school psychologist report in his file reported an IQ of 91.

### Intervention

The FRIENDS program is a cognitive-behavioral curriculum for anxious children that can be administered in whole-class, small-group, or individual format (Barrett, 2004a). The program was developed from the Coping Koala Group Program (Shortt et al., 2001), which in turn was adapted from Kendall's *Coping Cat Workbook* (Kendall, 1990; Morris & March, 2004). The FRIENDS program has demonstrated efficacy in clinical trials as well as in educational settings (Australian Academic Press, 2007) and has been supported by the World Health Organization (WHO) in policy documents on the prevention of mental health disorders (WHO, 2004). The topics presented in each intervention session are provided in *Table 1*.

Intervention sessions were conducted by the lead author, who was self-trained in the use of the curriculum. Sessions occurred twice a week and lasted approximately 30 min, varying occasionally based on school scheduling requirements. They were conducted in a one-to-one format with each participant, in a small office near the classroom, and followed the structured workbook that is a part of the FRIENDS materials (Barrett, 2004b). A total of 12 sessions were held for each participant.

The present study adapted the FRIENDS program in several ways. First, because of a combination of time constraints and scheduling conflicts, the parent involvement and homework assignment portions of the program were omitted. Although including parents in anxiety intervention is certainly optimal, previous research has demonstrated that improvement can occur with little or no parental involvement (Bernstein et al., 2005; Kendall, 1994). Second, the intervention manual was implemented in a flexible rather than rigid manner. The programmatic sequence and strategies were maintained, but minor variations in presentation (e.g., supplementing printed scenarios with further examples drawn from each student's responses, modifying worksheet vocabulary to match participant reading abilities, and continuing material from the previous session if it was not completed in the prior meeting) were permitted based on each student's needs and interests. Apart from these adaptations, the FRIENDS program was implemented as written.

### Dependent Measures and Data Collection

*Student anxiety.* The CSI-IV was filled out twice by each student's teacher: once prior to baseline and again after the conclusion of the intervention approximately 3 months later. The CSI-IV is a teacher and/or parent report inventory of behavioral symptoms developed for use in clinical, research, and school settings (Gadow & Sprafkin, 2002; Gadow,

Sprafkin, Salisbury, Schneider, & Loney, 2004). Although the questionnaires were completed in their entirety, only the generalized anxiety subscale was referenced in this study.

**Academic engagement.** Participants' academic engagement was measured by direct observation during daily math instruction and gathered by doctoral students specializing in EBD at a nearby university. Each 20-min observational period consisted of eighty 15-s intervals, each of which contained 13 s for observation and 2 s for data recording (intervals were timed using a programmable pocket-sized timer, set to vibrate mode). Engagement was scored if (a) the student's eyes were on the teacher, task materials, or appointed speaker and (b) the student was completing work in accordance with instructional requirements for the duration of the interval. Engagement was not scored in the absence of this combination of behaviors. Superfluous motor activity such as pencil tapping, fidgeting, or moving about the classroom did not affect scoring of engagement so long as the above criteria were also met. Engagement was not scored if a teacher required the student to leave the activity as a result of problem behavior. Data collection on academic engagement occurred three times per week.

**School-appropriate behavior.** The participants' classrooms shared a behavior rating system in common that was in place across the school campus. Teachers used an adapted form of Character Counts!, a commercially available behavioral point system, to assign a numerical point value to the behavior of each student across several domains (e.g., trustworthiness, citizenship) at the end of each class period and to award a corresponding behavioral level that determined access to various privileges within the classroom and school. The study tracked teacher reactions to daily participant behavior by means of this point system. An increase in the average daily points awarded to a given student served as an indication that the teacher considered the student's behavior to have improved, whereas a decrease in average daily points indicated that the teacher considered the student's overall behavior to have worsened.

**Social validity.** The study incorporated social validity by using an intervention for which parents and children have expressed a high level of satisfaction (Barrett, Shortt, Fox, & Westcombe, 2001). In addition, teacher opin-

ions of the intervention and its effects were measured by means of the Intervention Rating Profile for teachers (IRP-15; Martens, Witt, Elliot, & Darveaux, 1985), administered at the conclusion of the study. The IRP-15 contains 15 statements that address various aspects of intervention acceptability. Respondents complete the statements by indicating their level of agreement or disagreement with each item on a 6-point Likert-type scale, resulting in a total score ranging from 15 to 90. Higher scores indicate a greater degree of acceptability.

## Experimental Design

A single-subject, multiple-baseline design across students was used to examine the effects of intervention on academic engagement and school-appropriate behavior. Single-subject designs look for systematic variance of dependent variables that occurs with the manipulation of a chosen independent variable (Horner et al., 2005; Tawny & Gast, 1984), in this case, systematic variance in academic engagement and behavior occurring with exposure to cognitive-behavioral intervention for anxiety. Because the effects of reversal conditions on CBT have not been established, the use of a multiple-baseline design in this study retained the useful qualities of a single-subject design without threatening the behavioral gains that participants experienced during intervention. The third dependent measure, teacher-reported symptoms of student anxiety, served as a pre-post measure of student anxiety and was taken prior to baseline and again after the intervention phase.

## Procedures

**Baseline, intervention, and postintervention.** Intervention for the first participant began once a stable baseline was achieved. Intervention for subsequent participants was initiated sequentially after the immediately preceding participant had demonstrated three data points in the desired direction of change and completed FRIENDS session 5. This postponement to a minimum of five sessions ensured that data points counted toward change would postdate initial sessions that focused on establishing interventionist-participant rapport rather than introducing the concepts of the intervention itself. During postintervention, data collection continued for school-appropriate behavior and academic engagement, but

the intervention sessions, having completed the FRIENDS program, were discontinued.

Interobserver agreement (IOA) data were collected by doctoral students specializing in EBD at a nearby university, during alternating observation sessions, for a total of 55% of sessions during all phases. IOA was calculated by dividing the number of intervals in agreement by the total number of intervals and multiplying the result by 100, and it averaged 93% overall with a range of 84% to 99%.

To prevent changes in the behaviors of interest due to the presence of the study, rather than the intervention itself, information regarding the purpose of the study was controlled. The lead data collector knew when implementation began, but the observers conducting IOA did not. Although it was generally known in the school that the study offered an anxiety intervention program to participants, neither the teachers nor the participants were told that academic engagement was a variable of interest. In addition, academic engagement was not mentioned or discussed during CBT sessions.

*Treatment integrity.* To verify that sessions followed the topics and sequence of the FRIENDS program, the authors developed a checklist of the major and minor activities unit (e.g., Understanding Feelings role-play, Control Center worksheet) completed in each. In each session, the interventionist checked off items as they were completed, and immediately after each session, a second party checked this list against the completed worksheets in each participant's FRIENDS workbook. This verification found that all intervention activities were completed for all students, with the following exceptions: Student A did not complete the second half of Session 5, Activity 3 (facing the fear of talking in front of an assembly), and Student C requested and was provided with copies of the homework sections for Sessions 8 and 9.

To ensure that the submitted checklists corresponded to actual session content, treatment fidelity was further monitored by random visits of approximately 5 min each in 40% of intervention sessions, in which a second party verified that the checklist and materials in use corresponded to each other and that the topic of conversation between participant and interventionist corresponded to a conversational prompt given for the activity in the FRIENDS manual. On all occasions, this visit found the researcher and student to be engaged in the activity noted on the checklist.

## Results

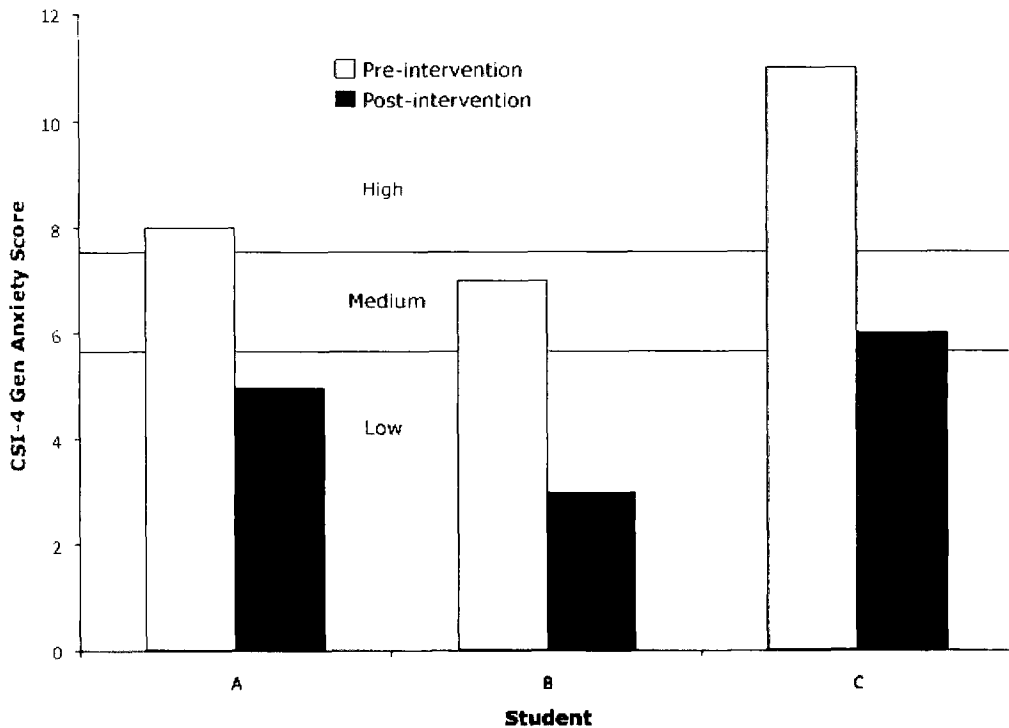
Data analysis consisted of visual inspection, along with the calculation of descriptive statistics such as the range, mean, and median rates of behavior across phases and the percentage of nonoverlapping data points (PND). The effects of intervention on participant anxiety, academic engagement, and school-appropriate behavior are shown in *Figures 1 through 3*.

### Anxiety

*Figure 1* presents preintervention and postintervention teacher ratings of participant anxiety, as reported on the generalized anxiety subscale of the CSI-IV. Prior to intervention, Students A and C exhibited generalized anxiety in the high range, with scores of 8 and 11, respectively, whereas Student B received a score in the high-moderate range. At the conclusion of intervention, all participants were rated in the low (Students A and B) or low-moderate range (Student C), with an average decrease of 4 points.

### Academic Engagement

The academic engagement of participants was calculated by dividing the number of intervals in each observation session in which the student exhibited engagement by the total number of intervals for that session. As indicated in *Figure 2*, all 3 participants increased the percentage of time engaged in academic tasks over the course of the intervention. Student A exhibited a 19% increase in engagement, from a mean of 78% of intervals academically engaged during baseline to a postintervention mean of 93%. Student B exhibited a 41% increase in engagement, from a mean of 63% during baseline to a postintervention mean of 89%. Student C exhibited a 40% increase in engagement, from a mean of 64% during baseline to a postintervention mean of 90%. To compare student engagement before, during, and after intervention, PND (Scruggs, Mastropieri, & Casto, 1987) was calculated for each participant by dividing the number of points that exceeded the highest baseline point by the total number of data points in the intervention condition and by dividing the number of points that exceeded the highest baseline point by the total number of data points in the postintervention condi-



**Figure 1. Preintervention and postintervention participant scores on the generalized anxiety subscale of the CSI-IV.**

tion. All participants exhibited upward trends with some overlap during the intervention phase (with PNDs of 83%, 75%, and 67%, respectively), but no overlap by postintervention data collection (PND = 100%).

### School-Appropriate Behavior

Figure 3 presents the average weekly points and weekly levels each homeroom teacher assigned to the participant in his or her classroom during baseline, intervention, and follow-up phases. All students showed an increase in the percentage of daily points and behavioral levels their teachers assigned to them over the course of the intervention. The daily points awarded by Teacher A to Student A increased from a mean of 80% points during baseline to a post-intervention mean of 95%. The daily points awarded by Teacher B to Student B increased from a mean of 71% points daily during baseline to a postintervention mean of 88%. The daily points awarded by Teacher C to Student C increased, from a mean of 74% points daily during baseline to a postintervention mean of 89%. These increases were accompanied by corresponding changes in assigned behavioral levels. There

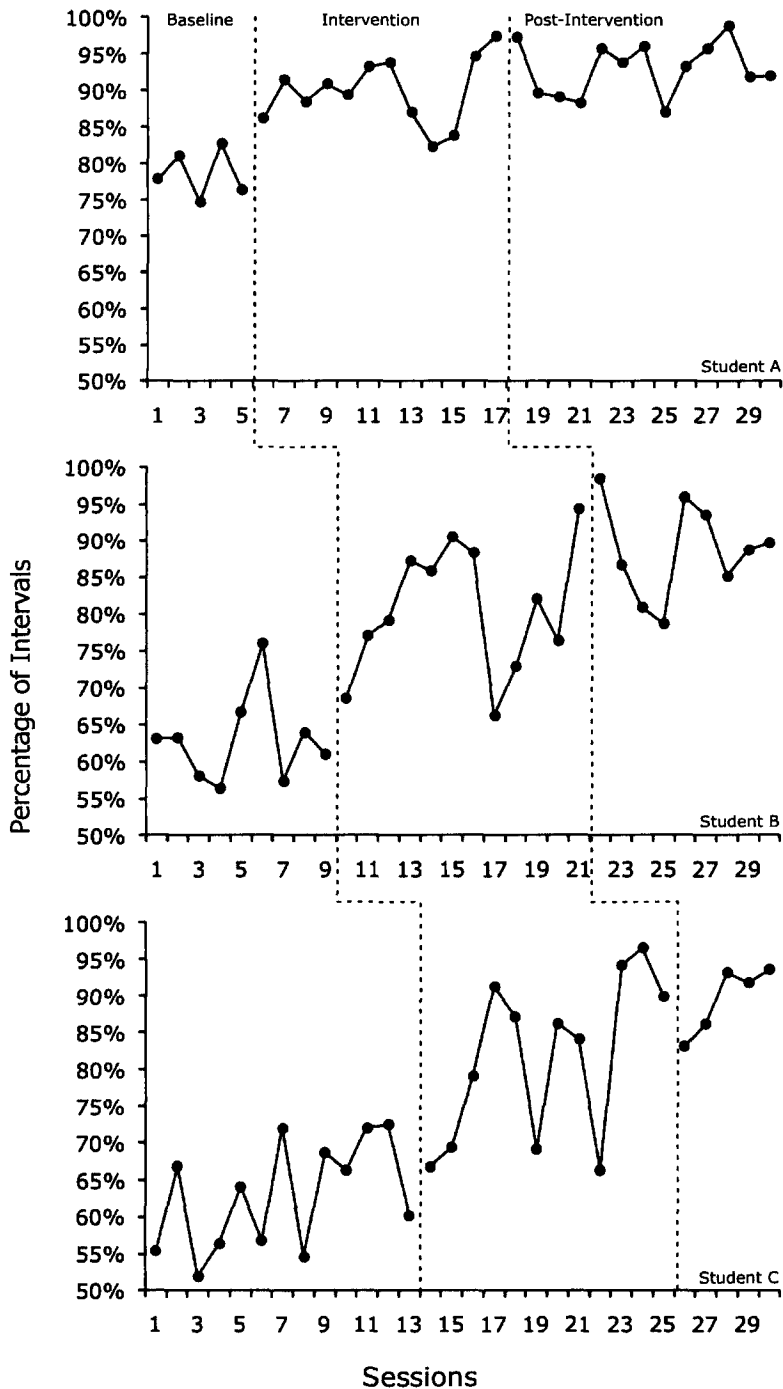
were no overlapping data points (PND = 100%) between baseline and postintervention.

### Social Validity

Teacher reactions to the intervention, as measured by the IRP-15, ranged from 69 to 84, indicating a high level of intervention acceptability. Both teachers and students voiced the desire to continue to participate in the intervention beyond the end of the study itself. In addition, Student A's performance level by study's end had allowed him to initiate the process of leaving the self-contained setting and return to his local public school.

### Discussion

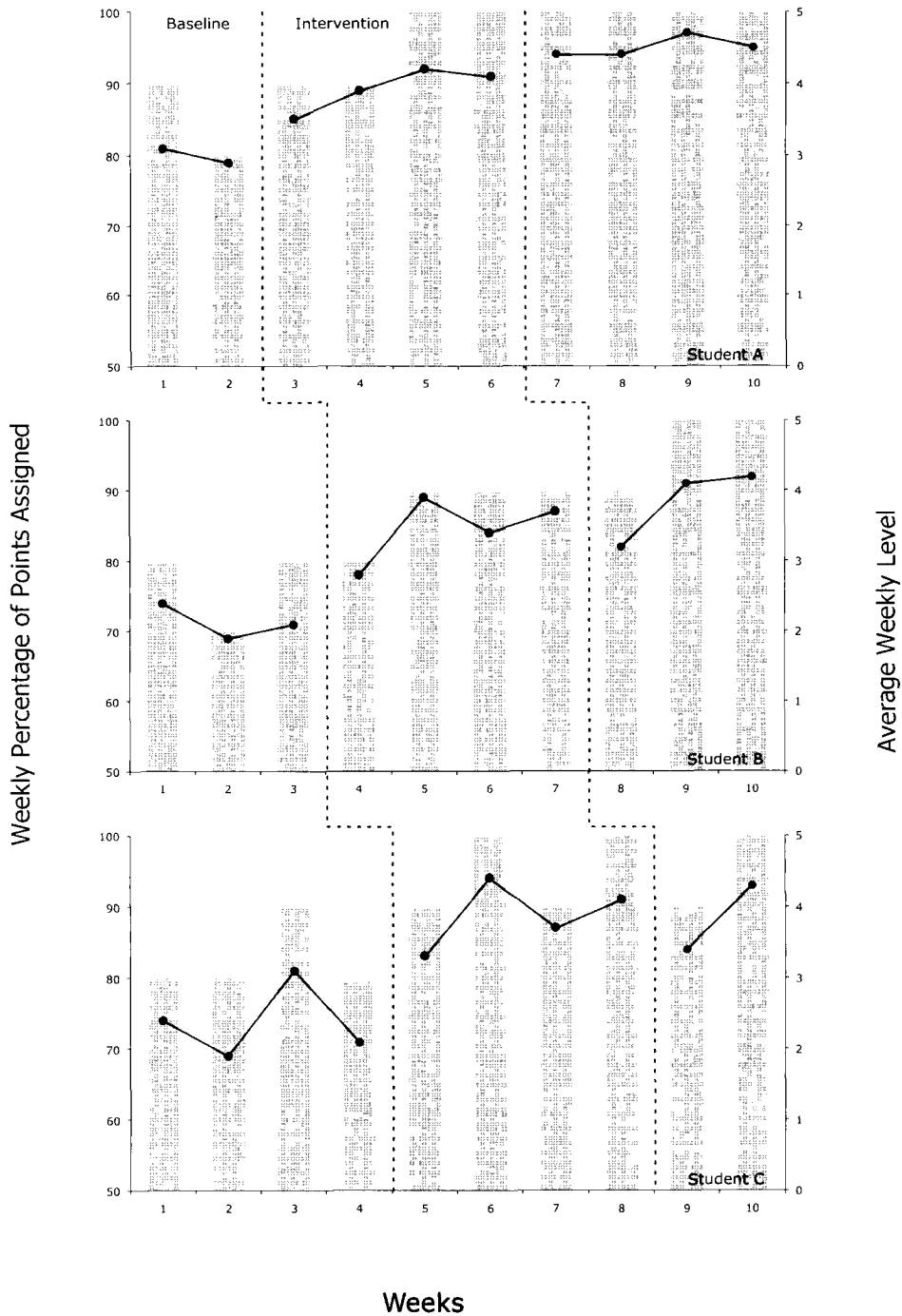
As part of a longer-term interest in improving academic outcomes for students with behavioral disorders, this study used an intervention approach to examine the effectiveness of CBT on anxiety, inappropriate behavior, and academic engagement. Three students with EBD who exhibited generalized anxiety participated in a cognitive-behavioral intervention that diminished their anxiety and



**Figure 2.** Percentage of intervals participants exhibited academic engagement across baseline, intervention, and postintervention conditions.

concomitantly improved both their behavioral performance and academic engagement at school in a way that both teachers and students considered a positive experience. These results are consistent with previous research regarding

both the effects of anxiety on school performance and on the effectiveness of CBT as an intervention for anxiety in children. Anxiety has been found to affect a wide array of academic and social outcomes at school (e.g.,



**Figure 3. Weekly point performance and behavioral level assigned by instructional staff across baseline, intervention, and postintervention conditions.**

Dobbs et al., 2006; Durbrow et al., 2000; Jalongo et al., 1994), many of which (e.g., difficulty concentrating, reading and math achievement) may well be related to academic engagement. Similarly, these results contribute to the body of research that has found clinic-

and classroom-based CBT in general education settings to be effective in diminishing anxious symptoms in children and adolescents (e.g., Barrett & Turner, 2001; Bernstein et al., 2005; Dadds et al., 1997; Lowrey-Webster et al., 2001), extending the effects of CBT to



school-based applications with anxious students identified as EBD and adding direct observation to the ways in which improvement has been measured. It is, to the authors' knowledge, the first study to report the direct effects of such intervention on students with EBD.

This said, it is important to note that the current study did not measure academic achievement directly. Report cards and other teacher-assigned grades in the host school were determined as much by behavioral achievement and trying as by mastery of academic material, and as such, any reported increase would have served as little more than a second measure of improved behavior. Similarly, the annual schedule and wide variety of variables associated with performance on school-administered achievement tests renders them far more suited to evaluation under a randomized, large-group design than the multiple baseline used in this study. As such, meaningful examination of the effects of anxiety on a direct academic measure, such as GPA, remains to be completed.

Although the behavioral change exhibited by participants is in and of itself not surprising—many established techniques, such as social skills intervention or the implementation of a simple schedule of reinforcement, might well have achieved similar results—the fact that change was the result of a cognitive-behavioral anxiety intervention held at school has its own significance. Not only does this suggest that CBT can be adapted to school settings, but it also highlights its untapped potential to quickly and easily address counterproductive behavior patterns exhibited by anxious students. The intervention used in this study was neither led by professionals formally trained in the use of CBT (the interventionist, although possessing a strong background working with students with EBD, was self-taught in the use of the FRIENDS curriculum) nor implemented in full accord with best practice (e.g., parental involvement, an important feature in CBT for children, was eliminated), and yet, meaningful results were achieved over a relatively short period of time. The success of this fairly limited form of intervention raises the question of just how effective a more robust effort might be: one that took advantage of CBT-trained staff, or created teacher-led interventions that might be incorporated and generalized into existing classroom structures, or integrated family and community into the intervention process, or

was otherwise used to help students whose academic and behavioral difficulties at school are a result of anxiety.

### Limitations and Future Direction

Although the data resulting from this study are illuminating, a number of important factors limit their interpretation. First, the study measured anxiety in its participants using a single, teacher-rated measure. Although the CSI-IV is a well-established instrument, it is generally wiser to incorporate multiple sources, such as parents, other adults, and the students themselves, when evaluating behavioral need. Next, the strength of its results cannot be compared with effect sizes in the wider CBT literature. Although the effect sizes that are often reported for clinic-based CBT (e.g., Ishikawa, Okajima, Matsuoka, & Sakano, 2007) make it tempting to equate past clinical results and the effects of this intervention, the numerical effect sizes calculated in single-subject research do not correspond either to each other or to those used in group designs and cannot be used for comparison purposes (Mathur, Kavale, Quinn, Forness, & Rutherford, 1998; Parker et al., 2005). Finally, time limitations precluded incorporating any follow-up data beyond the 3-month duration of the study. Although long-term benefits of CBT intervention have been reported in other populations of children (Kendall et al., 2004), this study can make no claims regarding the durability of treatment effects.

An important first step to exploring the implications of this research is to verify and extend its results. The external validity of single-subject research is established through replication across different participants, different conditions, and/or different measures of the dependent variable (Horner et al., 2005), and certainly, replication in this case is both necessary and desirable. Expanding participant demographics beyond the student age, gender, and ethnicity represented in this study might uncover new ways to adapt anxiety intervention to students with diverse backgrounds. Similarly, the incorporation of a variety of settings could explore the degree to which these intervention effects touch on such areas as social skills or disruptive behavior. Future investigations might also establish parameters for parental involvement, implement CBT intervention across home and school settings, isolate the salient features of successful intervention, incorporate a direct measure of

academic achievement, or work to build a classwide anxiety prevention tool for self-contained classrooms.

## Conclusion

In the United States, the single defining characteristic that determines whether a given behavioral difficulty qualifies a student for special education services is that of academic performance (Russo & Osborn, 2008). Other behavioral symptoms may be frustrating to the school and community or detrimental to a child's overall well-being, but these difficulties become a school matter only if they affect a student academically (IDEA, 2004). The fallacy in this distinction lies in the inherent assumption that a high degree of anxiety, a condition that has widespread effects on the daily functioning of those who experience it, can exist without affecting a child's performance in the setting where they spend most of their waking hours, namely, in school. We hope that the association between anxiety and academic behavior in students with EBD found by this study will spark greater interest in interventions for students with anxiety disorders in school settings in general and in settings for students with EBD in particular.

If public schools are to fulfill their mandate to both educate the nation's children and prepare them for productive adulthood, they require—and deserve—all the tools for success that educational research can provide. Although further research is needed to determine the scope and durability of effects, school-based cognitive-behavioral interventions for anxiety have the potential to provide new opportunities to foster personal growth and academic success in students with EBD who experience the effects of anxiety at school.

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#### MANUSCRIPT

Initial Acceptance: 3/09/09  
Final Acceptance: 8/03/09