Gains in Self-Efficacy: Using SMART Board Interactive Whiteboard Technology in Special Education Classrooms

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Introduction

Adolescence, the transition phase that joins childhood to adult life, is both the best of times and the worst of times. As developmental milestones and new responsibilities are met, society's social expectations increase. For most adolescents, the acquisition of new social behaviors is part of the natural growth process that includes adaptation to the social milieu (Laursen & Collins, 1988). Research has shown that the "typical" young person begins to proficiently decode nonverbal cues as young as ten years of age (Strand & Nowicki, 1999).

Contrary to these norms, students with emotional behavior disorders (E/BD) may not mirror this natural growth process due to the nature of their disability. In fact, the major distinguishing characteristic of students from this population is their inability to exhibit appropriate social behavior (Dunlap & Childs, 1996). This deficit is usually magnified by the inability of students with E/BD to develop or maintain social relationships with students and adults in the general education setting (Scott & Nelson, 1998). Because of this social deficit, these students endure peer rejection and isolation which, oftentimes, leads to aggressive behavior (McMahon, Wacker, Sasso, & Melloy, 1994).

Since the inception of special education in 1975, federal legislation has mandated that all students with special needs be educated in the least restrictive environment (Eber, Nelson, & Miles, 1997). Since the framers of this legislation failed to define the "least restrictive environment," the interpretation and implementation of the mandate has been left up to parents and practitioners. Consequently, the most prevalent least restrictive placement for students with special needs is the inclusion model (Fox & Ysseldyke, 1997). The premise driving the inclusion movement is that students with special educational needs will prosper in the general education classroom because they will acquire academic skills from teachers trained in each content area and, in addition, gain appropriate social skills modeled by their non-disabled peers (Moore, Cartledge, & Heckaman, 1995). While this setting has worked for many students with other disabilities, it has left the student with E/BD even more isolated. Predictably, these students will need more help then ever before.

Students with E/BD need to participate in training programs that would enable them to appropriately interact with peers outside of the special education setting (MacMillan, Gresham, & Forness, 1996) A major goal of such programs is for these students to acquire self-determination, responsibility, and independence, which are directly related to their ability to react appropriately to social cues and thus to increase their perceptions of self-efficacy in social environments. The construct of self-efficacy may be operationalized by pairing control of objects in the environment with a belief in the ability to cope (Bandura, 1997). Self-efficacy may be developed through a set of learning experiences in which the person: 1) is successful in an endeavor which produces conclusions about personal coping ability; 2) makes observations of models exhibiting successful behaviors which they choose to emulate; and 3) uses self-instruction to reproduce the behavior in subsequent situations.

The needs of students with E/BD who exhibit inappropriate social responses toward peers have not been addressed through a combined therapeutic/social skills intervention model. Therefore,

the present study combined counseling and social-skills training as a model for counselors, teachers and their students with E/BD.

Thorkildsen & Lowry (1997) contrasts the use of live interactive events with a passive linear-video model and finds student live interactive events more effective in working with students with special needs. In the present study, the use of the interactive whiteboard in special education classrooms afforded the opportunity to make the internal process of symbolization of perceived adequacy more concrete through prompting live interaction on the part of students. This was accomplished through students touching a whiteboard screen to choose among alternative vignettes portraying socially acceptable or unacceptable behaviors. This pragmatic device (construed by the present authors as an analog model of intra-psychic processes in which students exercise an internal locus of control while engaged in external decision-making, self-instruction, and self-monitoring) was utilized.

Through the decisions made in relation to scripted social interaction vignettes (portrayed in video clips with colorful, animated text prompts) and the discussion of choices, students drew conclusions related to their ability to respond with better coping strategies. Cognitive/behavioral counseling techniques were also introduced to process student choices so that self-attributions (related to successful positive choices) would occur and, therefore (the authors posited), self-efficacy would be increased.

Methods and Results

To determine the effectiveness of the SMART Board technology intervention on the social behavior of students with E/BD, a randomly selected sample of students, ranging in age from 11 to 16 years, were assigned to one of four experimental groups. Three of the groups received varying components of the independent variables of the SMART Board, social-skills training, and cognitive/behavioral counseling, while one group received no treatment, thus remaining constant. The total population consisted of 60 students enrolled in middle schools who completed participation consent forms.

Figure 1
Levels of Independent Variables by Group

INDEPENDENT VARIABLES	I	II	III	IV
Interactive White Board	X			
Counseling	X	X		
Social Skills	X	X	X	
Class Protocol	X	X	X	X

Treatment for the groups consisted of facilitation of social skills training and a model of cognitive/behavioral counseling provided by special education teachers who were trained by the two authors. The first author utilized a social skills training model from *Teaching Students Social Behaviors that Generalize* (Helms-Breazeale, 1998) to train teachers. The same teachers were trained by the second author in counseling skills utilized in the *My Own Special Club Manual* (Little Blanton, 1999). These skills included communication skills, conflict resolutions skills, problem-solving skills, and appropriate probes to elicit student self-reflection and self-attribution.

Scripted social skills vignettes showing acceptable and unacceptable behaviors were modeled on

video by student peer mediator volunteers who completed participation consent forms. The models for the video vignettes were persons perceived as school leaders because they had been selected by school counselors to work as peer mediators. A CD-ROM was created that captured the peer mediators in video vignettes with text that elicited choices of approval or disapproval from treatment group individuals. The peer mediators modeled targeted interactions in the general education setting which were scripted to show appropriate and inappropriate responses.

The special education students made choices related to appropriate/inappropriate responses by touching the SMART Board to stop the action. In this way, E/BD students were able to process social interactions in a "safe" environment where they could make social mistakes, process peer reactions, draw conclusions about more appropriate interactions, and rehearse (both internally and externally) the more effective behaviors. Thus, the participants were afforded the opportunity of adding new social skills to their repertoire of behaviors in the presence of the contextual stimuli that commonly cue the exhibition of such behaviors, as well as in the setting events that typically reinforce those behaviors (Baer & Wolf, 1970). Thus, while the treatment group students utilized the SMART Board in making their selections, they were exercising control over the choices and the interaction, as discussion took place related to appropriate or inappropriate behavior choices. Meanwhile, peer mediation student interactions, portrayed on the CD-ROM., modeled further interactions that prompted E/BD student positive behavior.

Students were trained in problem-solving and conflict resolution skills utilizing the *My Own Special Club Manual* (Little Blanton, 1999). The manual prompted students to think about the benefits of effective communications, to practice listening and responding appropriately to classmates, to role-play appropriate/inappropriate topography of behavior, to reflect on the results of the different behaviors, and to draw conclusions about which behaviors were most effective in interacting with other students. The same process was utilized to examine how to appropriately confront others when differences arise, how to negotiate problem resolution, and how to generalize the problem-solving process to other areas of one's life. Contents of the manual were arranged to move students to greater levels of skill accomplishment as they attained tokens that denoted different stages of club membership. In this case, the tokens were green, red, and blue ribbons to show differential levels of skill attainment.

Pretreatment and post-treatment evaluations were completed by all participants. The formal measurement instruments included a modified version of the ten item *General Perceived Self-Efficacy Scale* (Schwarzer & Jerusalen, 1993) and a shortened social skills interaction checklist, extrapolated from the *Scale of Job Related Social Skills Checklist* (SSP) (Bullis and Davis, 1996). To ascertain the maintenance and generalization of effects beyond the treatment period, teachers and parents of the students completed a pre/post modified version of the SSP Scale. Students receiving treatment also completed a pre/post modified version of the SSP Scale.

The *General Perceived Self-Efficacy Scale* was first developed by Matthias Jerusalem and Ralf Schwarzer in 1981. The scale is a ten item, Likert-type scale that purports to measure a belief in personal competence in the face of a variety of stressful situations. High reliability has been shown in numerous research projects where it has yielded internal consistencies between *alpha* = .75 and .90. It has shown both convergent and discriminant validity in positive correlations with self-esteem and optimism and in negative correlations with anxiety, depression, and physical symptoms (Schwarzer & Jerusalem, 1993).

Completed scales were analyzed using a one way analysis of variance (ANOVA) to support or negate the null hypothesis that the mean of the differences between the pre/post evaluation scores would be the same. The ANOVA negated the null hypothesis by confirming that for the experimental groups, the means of the differences of both evaluation scales were not the same. The post-evaluation scores were higher. The ANOVA results were statistically significant at the $p. < .001$ level.

This investigation showed the following results for students with E/BD who participated in the SMART Board intervention. In the academic setting, they yielded significant increases in their self-esteem, appropriate peer relations, and overall self worth. In the home environment, they had a significant increase in their social and self-effacious skills, but many of them did not express an improved self-concept. This could widely be attributed to their feelings of inferiority with their parents. So even though these feelings were not strongly affected by this training, the home environment has many extraneous forces that could not be controlled during this investigation. In the future, investigating the SMART Board and the other training tools in or for this setting would be beneficial.

Conclusions

The data from the groups treated with SMART Board + Social Skills Training + Cognitive/ Behavioral Counseling supports student positive movement toward the long-term/short-term goals of the study. Those goals included:

1. Students would resolve conflicts in a less aggressive manner;

2. Students would check immediate impulsive responses to stimuli and use "self-talk" to instruct themselves in how to respond more appropriately; and

3. Students would experience a greater perception of control over themselves and the environment after having been exposed to simulated activities that provided them with personal interaction from which to draw conclusions about their ability to shape their responses more positively.

The SMART Board technology had a significant effect on the first group's acquisition of appropriate social behavior(s) for several reasons. First, this technology provided student interaction. So the students got to see where their choices in different situations would lead them. Also, research shows that if students have the opportunity to view someone they "like" or "respect" perform a behavior they need acquire, then they stand a much better chance of acquiring that behavior. So secondly, the SMART Board allowed the students to watch peer leaders prompt and perform the appropriate behaviors, which made the ownership of those behaviors much more enticing. Third, research also has shown that people with short attention spans can attend to any situation as long as it is on a television or computer screen. The SMART Board provided these students with this type of viewing. Finally, the SMART Board technology was new to these students. This novelty made their training more interesting.

The treatment groups having only two treatment variables of Social Skills Training + Cognitive/Behavioral Counseling, or just social skills training, also made gains. However, the data showed a considerable decline in scores of overall measures of efficacy self-attribution. No effect was shown in the control groups.

The study, initiated in one semester, has many limitations. Skills have not been tested for long-term generalization to other settings. The premise of the study that generalization of training in social skills would be expedited through addition of counseling skills and the SMART Board device, which would give special education students a more pragmatic sense of control over their environments and a greater sense of the possibility of self-control, needs further study over time and over a greater range of student ages and classroom sites. Further study of the effects of teacher training (to deliver social skills training with counseling and with the SMART Board) that extends over a longer period of time and affords a supervised practicum is needed. In addition, a

study needs to investigate the general perceived self-efficacy of teachers related to their belief in their ability to effect behavior changes in students with E/BD.

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Biographies

Dr. Becky Helms-Breazeale has a PhD (1998), specialist certification (1996), and an MEd (1994) in special education from the University of Georgia and a BA in psychology from California State in Sacramento (1987). She has a diverse background in special education and research in both public and private school settings. She is currently an assistant professor of special education in the area of emotional behavior disorders (EBD) at Augusta State University. Prior to this position, she devoted over a decade of service to educating students with EBD, specific learning disabilities (SLD), and intellectual disabilities (ID). She taught these students in both public and private school settings with service delivery models that ranged from inclusive classrooms, where she co-taught with general educators, to an environment where the students were completely self-contained, totally segregated from their mainstream peers. This wide variety of service has helped Dr. Helms-Breazeale combine practical application with research methodology so the experimental endeavors she pursues continue to enrich the educational environment.

Dr. Bonnie Little Blanton has a PhD in counselor education from the University of South Carolina (1995), a master of science in counseling from Southern Illinois University, and a BS in Education from Kent State University. She has a broad background in education, counseling, and research in both public and private institutions and in private practice. She is a licensed professional counselor and a nationally certified counselor.

She has professional experience in the following positions: as an assistant professor in counselor education at Augusta State University for the past six years; as a school counselor in middle and high schools; as a high school director of counseling; as an elementary school administrator; and as a human relations consultant and a curriculum specialist for a federally funded human relations project in a large southeastern school district. She also taught in public and private schools for many years as a math and science teacher in elementary and middle schools in Ohio and South Carolina.

Her research interests include the areas of adolescent career development, therapeutic skill development, supervision of graduate-level counselor education students and technology for enhancing the delivery of counseling skills. Her present teaching expertise includes core counselor education courses, educational psychology, and related courses in psychology and communication skills. She has designed career development activities for high school students and consulted with school districts and state departments of education in planning and implementing staff development and continuing education courses for school counselors in the areas of supervision of counselors, career counseling, and brief counseling. Dr. Bonnie Little Blanton is listed in Who's Who Among America's Teachers.