

# **Effects of a Metacognitive Social Skill Intervention in a Rural Setting with At-Risk Adolescents**

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## **Abstract**

Ten at-risk students in a rural high school completed a social skills program based on metacognitive strategies and aligned with social and emotional learning principles. The intervention's primary goal was to stimulate the development of metacognitive strategies for internal locus of control in the students, rather than attempting to change their social behavior through external controls. The students completed *Behavior Assessment Scale for Children - 2<sup>nd</sup> Edition* (BASC-2), and their teachers also completed a BASC-2 for each student, both pre- and post-intervention. Using the ratings, the results indicated positive changes in the students' behavior and attitude, social interactions, and academics.

Katie was often described by teachers as "difficult." She is a bright student, but frequently interrupts in class and makes condescending comments to other students. Katie often points out that she is smarter than her teachers, and she disregards what they are trying to teach. Donald, on the other hand, has not uttered a word in class since the beginning of the semester. Donald's shyness and soft mannerisms have made him the object of cruel treatment from his peers. Even when spoken to, Donald rarely speaks. In class, the teachers have learned not to call on him or attempt to engage Donald in discussion. Sam has missed almost as much school as he has attended this semester. Sam always finds a reason to leave the school grounds, especially if an assignment is due.

Students everywhere, such as Katie, Donald, and Sam, demonstrate an observable need for social skill instruction, goal setting, self-confidence, and instruction in how to work with others. Katie, Donald, and Sam were fortunate to be in a high school that volunteered to participate in a research study focused on social skills instruction using a metacognitive approach. The purpose of this paper is to share the study's process, procedure, and, most importantly, the outcomes and impact of systematic instruction in social skills on each student's life. The authors hypothesize that the metacognitive social skills intervention will lead to a reduction in negative behaviors and an increase in pro-social behaviors exhibited by the participants at school.

## **Social Emotional Learning**

Since the mid-nineties, American students have reported higher rates of bullying, violence, drunk-driving, suicide attempts, and an unsafe feeling at school than adolescent counterparts of earlier decades (Batsche & Knoff, 1994; Henderson, 1994; "More students," 1995). In response to these pervasive school problems, social emotional learning (SEL) has gained prevalence in American schools and educational

research. Fueled by both grassroots and top-down efforts to reduce behavioral and psychological problems in school children, SEL provides a framework for defining and providing the consistent vocabulary and necessary skills for social skills instruction. Not only have SEL interventions burgeoned, SEL has emerged in state standards, educational research organizations, higher education institutions, commercially developed academic curricular materials, and teacher preparation programs (Hoffman, 2009).

Hoffman's (2009) review of the evaluation literature of SEL programs found that interventions are consistently linked to "teacher feelings of improved competence in the classroom, improved student behavior as measured by teacher's assessments and drops in discipline referrals, and increases in student academic achievement" (Hoffman, p. 535). A more recent meta-analysis of 213 universal SEL school-based interventions found that SEL programs increase positive outcomes in skills, attitudes, social behaviors and academic performance and reduce conduct problems and emotional distress for students who complete the intervention (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). While the link between SEL and academic achievement may not be obvious, Elias (2011) argued that improved academic achievement is a result of the SEL program's emphasis on (a) students building greater attachment, engagement, and commitment to school and (b) students reducing participation in risky behavior.

Social problem-solving skills, among other key competencies, can reduce adolescent health problems. A recent study of an SEL intervention for elementary students found that students who were able to identify the main issues in a given social problem, such as premarital sex, were less likely to report early onset engagement in sexual activity in the year following the intervention (Schonfeld et al., 2012). In addition, a social,

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emotional, and character development program called *Positive Action* reduced cigarette, alcohol, and marijuana use among 8<sup>th</sup> grade students as compared with a control group (Lewis et al., 2012). These results confirm the earlier findings of the positive health outcomes of SEL programs (Zins & Elias, 2007).

In selecting a program for high-need students, the participating school desired a social skills curriculum focused around the five learning competencies and embodying the high-quality components as defined by the Collaborative for Academic, Social, and Emotional Learning (CASEL). The school chose *Metacognitive Approach to Social Skill Training—Revised* (MASST-R) due to its prior effectiveness in small group settings with high-need students. This study serves as part of the program evaluation component (Sheinker, Sheinker, Holder & Whetstone, 2008).

## Metacognition

Metacognition is defined as one's knowledge or beliefs about cognition and appraisal, monitoring, and regulation of thinking (Barahmand, Abolghasemi, & Jahanmohammadi, 2008). Two components structure the current understanding of metacognition: (a) knowledge of cognition and (b) regulation of cognition (Baker, 1989; Schraw & Dennison, 1994). Knowledge of cognition involves understanding one's abilities, having several processing strategies, and knowing when to use the strategies. Regulation of cognition involves the application of the strategies, monitoring performance, and adjusting strategies according to performance feedback (Nelson & Narens, 1990).

Metacognition allows for interpersonal sensitivity, perceiving what other people are thinking, wanting, and feeling. Poor interpersonal sensitivity causes individuals to make incorrect interpretations of other's behaviors and, thus, increases the likelihood of behaving inappropriately in social situations (Ames & Kammrath, 2004). Numerous researchers (Ames & Kammrath; Hodges, 2003; Swann & Gill, 1997) found that individuals with poor metacognition are less accurate at interpreting the thoughts and feelings of others than their confidence suggests. Fortunately, training in metacognitive self-monitoring can improve an individual's predictions of the thoughts and feelings of others and can more closely align actual accuracy with the individual's perceived accuracy. With metacognitive self-monitoring, individuals can adjust their behavior if it is not producing the desired response from others; thus, with better self-monitoring, interpersonal sensitivity and social interaction also improve (Ames & Kammrath).

Metacognition also has an important influence on learning by providing students with knowledge of how well they understand the information and the strategies required for task performance. Individuals use self-regulation to focus on planning ahead and self-monitoring to track and make adjustments to their strategy and behavior (Zimmerman, 1986; Zimmerman, Bandura, & Martinez-Pons, 1992). Students with high metacognitive ability alter studying behaviors to align with the perceived expectation for performance (Entwistle & Entwistle, 2003; Ross, Green, Salisbury-Glennon, & Tollefson, 2006). This strategy adjustment contributes to learning and academic success (Zimmerman, 1986; Zimmerman et al., 1992).

Metacognition provides instruction for strategy choice and implementation as well as an awareness of content mastery. Tobias and Everson (2000; 2002) found individuals who can detect knowledge gaps have a greater likelihood of academic success than do individuals who lack this ability. One explanation for this phenomenon is that metacognitive individuals can devote more time to studying the material they have not yet mastered, while those who struggle with metacognition may not know what content, or how long, to study in order to reach mastery (Hacker, Bol, Horgan, & Rakow, 2000; Isaacson & Fujita, 2006). Thus, metacognitive knowledge monitoring can contribute to academic success (Hacker et al., 2000; Isaacson & Fujita, 2006; Tobias & Everson, 2000, 2002). In addition, programs seeking to improve metacognitive abilities have been found to increase student learning (White & Frederiksen, 2005). By extension, the ability to acknowledge gaps in social skills also can be remedied through a metacognitive framework.

Metacognition also improves behavior. Self-monitoring requires individuals to pay attention to (a) behavior, (b) patterns of when specific behaviors tend to occur, and (c) consequences of behavior (Hume, Loftin, & Lantz, 2009). Metacognitive interventions teach students the difference between appropriate and inappropriate behavior (Kamps & Tankersley, 1996) by focusing on the salient features of the targeted behavior instead of irrelevant aspects of the environment (Hume et al.). These interventions inform the students of the impact of their behavior, how to monitor their own behavior, and to adjust it using self-relevant reinforcement. Improvements in self-monitoring have brought about increases in pro-social behavior. Due to its metacognitive and SEL components, the MASST-R program was a good fit for the goals and students at the participating school.

## Methods

### Participants

Located within commuting distance to a large metropolitan city, the small community where this study took place had one high school that served the surrounding rural area. Students in the high school participated in a variety of school-based and extracurricular activities; yet, there were students who did not feel involved or engaged in the typical high school program. These students, frequently without a niche or peer group, often were identified as at risk or high need due to their limited social interactions or inappropriate social behavior within the school setting. Ten students, identified as "at-risk" were provided the opportunity to participate in a year-long research study involving social skill instruction using a metacognitive approach. The special education director and superintendent researched the MASST-R program and identified the high school as an instructional/research site.

The building principal and assistant principal selected the high school students based on a review process conducted internally with input from classroom teachers. Whether students were identified as having a disability (as defined by IDEA) was not a factor in selection for the research/social skill project. Rather, the principal identified those students who were frequently in the office for various classroom behavior concerns (e.g., refusal to comply with teacher directions, insolence and foul language, unprepared for class, tardy,

disrespect to teachers). Additional information provided by the assistant principal and counselor contributed to the student selection. In consideration were concerns with truancy, failing grades, repeated retention, at risk for meeting graduation criteria, and poor performance on state and district assessment. In addition, classroom teachers had the opportunity to recommend students who would benefit from the social skill program.

Compiling all the information from the variety of sources yielded a group of 10 participants identified by teachers and administrators as being the most in-need of a behavioral intervention. The 8 male and 2 female participants ranged between 14 and 19 years. The grade placement was from ninth grade through junior year. The selected group of participants had repeated office referrals for truancy, foul language in class, disrespect to teachers and students, refusal to complete assignments, fighting, aggression in the hallways, and rude behavior in class. All of the participants were considered "at risk" for academic failure. During the study, one participant left due to a family relocation, and one additional participant joined the class per principal recommendation.

A highly qualified, experienced, and certified special education teacher facilitated instruction. The participants met as a group with the facilitator every day for 40 min throughout one academic year. The social skill instruction alternated with study skill instruction and study time. The participants completed all 70 lessons from the MASST-R. The facilitator received 2 days of in-service training prior to implementation. To ensure fidelity of implementation, a member of the research team observed the classroom at least three times during the year. Each observation provided feedback to the facilitator, as well as an opportunity for the participants to voice their perceptions of what they were learning.

## MASST-R

MASST-R is organized around a series of interactive SEL modules. The modules include (a) Self-Awareness, (b) Social Awareness, (c) Self-Management, (d) Relationship Skills, and (e) Responsible Decision Making. Each lesson follows a structured teaching model of awareness, direct instruction, guided practice, independent practice, and evaluation. As tools for the facilitator, there is a teaching lesson plan, as well as a fully scripted guide. MASST-R contains several features, including journals and graphic organizers that are designed to assist the facilitator and to benefit the students.

MASST-R was developed using research based principles of quality teaching as well as the tenets of SEL. A crosswalk of MAST-R with Social Emotional Learning, Positive Behavior Interventions and Support, Response to Intervention, National Health Education Standards, Character Education, and 21<sup>st</sup> Century Outcomes is available online (<http://www.seslearningsystems.com/products.htm>). The researchers provided the study described in this article to the publisher as part of ongoing validation of the instructional materials.

## Data

The quantitative data collected for this study were pre-post results of the Behavior Assessment System for Children-II (BASC-2; Reynolds & Kamphaus, 2004). The BASC-2 is a mental health examination that tests a student's ability to cope with changes in the school environment, as well as whether he or she has any externalizing, internalizing, and school problems. How the components of the BASC-2 relate to the information taught in the MASST-R intervention is described in Table 1. The BASC-2 has high internal consistency ( $\alpha = .90$  to  $\alpha = .97$ ), strong test-retest reliability ( $r = .80$  to  $r = .97$ ), and consistent interrater reliability ( $r = .71$

**Table 1.**

*Relationship Between BASC-2 Components and the MASST-R*

BASC-2 Composite Scales and Sub-Scales	Brief Description	Relationship to MASST-R
Hyperactivity sub-scale	Constantly active state Difficulty concentrating on task Impulsive and aggressive behaviors Difficulty concentrating on task Impulsive and aggressive behaviors	Self-regulation permits student to focus on task in socially appropriate manner
Conduct Problems sub-scale	Repetitive and persistent aggressive and violent behaviors against other students	Self-awareness notifies student of the effect of their behavior and the ability to control it
Externalizing Problems composite scale	Hyperactivity, Conduct Problems, and Aggression sub-scales Failure to follow the rules Bullying behavior	Self-regulation allows the student to control behavior and act in a socially appropriate manner

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Externalizing Problems composite scale	Hyperactivity, Conduct Problems, and Aggression sub-scales Failure to follow the rules Bullying behavior	Self-regulation allows the student to control behavior and act in a socially appropriate manner
Anxiety sub-scale	Constant worrying or uneasiness Excessive rumination about past events Fear and avoidance of anxiety-provoking things or events	Self-awareness notifies the student that his/her worries are harmful and helps him/her to control it
Attention Problems sub-scale	Difficulty following instructions or routines Interrupting others frequently Difficulty self-monitoring Difficulty working on and completing assignments	Self-regulation helps student to focus on the task at hand without interrupting others
Learning Problems sub-scale	Difficulty receiving, integrating, storing, or communicating information	Self-regulation contributes to the processing and communicating of information
School Problems composite scale	Attention and Learning Problems sub-scales Irrational fear or panic about going to school Constant complaints of physical illness	Self-awareness helps the student to see harm of anxiety and to behave in a socially appropriate manner
Atypicality sub-scale	Socially unacceptable behaviors differing from those of peers (e.g., living in a fantasy world)	Self-regulation allows the student to control behavior and act in a socially appropriate manner
Behavioral Symptoms composite scale	Atypicality and Withdrawal Symptoms sub-scales Seeking out and willingness to meet and make new friends	Self-regulation allows the student to control behavior and act in a socially appropriate manner

**Table 1.** (Continued)***Relationship Between BASC-2 Components and the MASST-R***

BASC-2 Composite Scales and Sub-Scales	Brief Description	Relationship to MASST-R
Social Skills sub-scale	Interaction and communication with peers and adults Communicating and cooperating with people in a socially constructive and appropriate manner	Self-regulation permits student to communicate in a socially appropriate manner
Leadership sub-scale	Being decisive when making decisions and working under pressure	Self-awareness helps student to focus on the task and to make the best decision
Functional Communication sub-scale	Communicate his/her thoughts, ideas, feelings, and information	Self-regulation permits student to communicate in a socially appropriate manner.
Adaptive Skills composite scale	Adjust to changes in the situation or task in a socially appropriate manner	Self-awareness helps student to focus on the task and to adapt when necessary

to  $r = .80$ ; Reynolds & Kamphaus). The facilitator completed one BASC-2 teacher report for each of the 10 participants before beginning the MASST-R curriculum and again after the curriculum had finished. The teacher rating measure consists of five composite scales: (a) Externalizing Problems, (b) Internalizing Problems, (c) School Problems, (d) Behavioral Symptoms Index, and (e) Adaptive Skills. Each composite scale consists of a number of subscales, comprising 13 subscales in total.

In addition, the researchers collected narrative data using two post-intervention debriefings. They conducted a semi-structured interview at the end of the year with 9 of the 10 students who participated in MASST-R. The interview asked participants to respond to questions about their experiences with the curriculum and any effects it has had on their lives. In a separate interview, the instructor reflected on his perceptions of program effectiveness. The researchers video recorded and transcribed verbatim both interviews. The relationship between BASC-2 components and the MASST-R can be found in Table 1, and the semi-structured interview tools can be found in Appendix A.

### **Analysis**

To investigate the effects of the MASST-R intervention on student behavior, the researchers used paired-samples  $t$  tests to compare the pre- and post-intervention data on teacher-reported BASC-2 scales. They analyzed the qualitative data obtained from the transcribed interviews for emergent themes using an *emic* coding scheme. *Emic* coding is an inductive process that uses the words of the participants to

develop theories and themes; thus, the results of this type of qualitative analysis revealed themes that emerged from the student participants rather than those developed externally.

## **Results**

### ***Quantitative Results***

The researchers were interested in the students with the most significant problematic behavior in the school. They selected the specific sample size used in the study based on the desired power and effect size. Because they conducted this study as a pilot study into the effects of MASST-R on problematic student behavior and not to make generalizations from it onto the general student population, the small sample size should not be a problem. A future study will include a larger sample size and will determine the generalizability of the study's findings.

Although the intervention program had a sample of 10 participants, unexpected circumstances allowed the data for only 7 participants to be included in the analysis of the quantitative data. During the course of the program, one of the participants moved away from the school district, and another participant did not start the program until the second semester of the school year. Because this participant joined the program late, no beginning data were collected for this participant. In addition, one participant was suspended during the day of testing and did not complete the program, so there were no post-intervention data for this participant. Because the researchers were interested in the effects of MASST-R on problematic student behavior, they included only those

students for which they had both pre- and post-intervention data in the analysis.

The analysis of the teacher's ratings of each participant's behavior suggests that there were significant positive behavioral changes after the intervention implementation. Using the teacher-reported means for 7 of the participants, 4 of the 5 composite scales show significant differences: (a) Externalizing Problems, with significant subscales Hyperactivity, and Conduct Problems; (b) School Problems, with significant subscales Attention Problems and Learning Problems; (c) Behavioral Symptoms Index, with significant subscale Atypicality; and (d) Adaptive Skills, with significant subscale Atypicality. In addition, the Anxiety subscale scores show a significant change following the intervention implementation.

Three of the composite scales, which were significantly different before and after the intervention, are associated with decreases in observed negative behaviors. In each case, the participants performed the negative behaviors less frequently following the intervention than they did before the intervention. These findings suggest that the intervention contributed to a decrease in the occurrence of negative behaviors the participants exhibited as reported by the teacher. The remaining composite scale, Adaptive Skills, indicates an increase in positive student behaviors. For each of the associated significant subscales, the participants performed positive behaviors more frequently following the intervention than they did before the intervention. Table 2 shows the average pre- and post-intervention scores for the negative behavior scales on the BASC-2 along with their associated t values.

The first composite negative behavior scale is Externalizing Problems, which includes the Hyperactivity, Aggression, and Conduct Problems subscales. The Externalizing Problems composite scale is typically associated with the failure to follow the rules and bullying behavior. Bullying behavior involves physically or emotionally harming other students. For the Externalizing Problems composite scale, results showed a significant difference in the teacher ratings of the externalizing behavior of the participants prior to and following the intervention. The teacher indicated that participants followed the rules more often and bullied the other students less after completing the intervention than they did before the intervention. In addition, the two subscales of Hyperactivity and Conduct problems showed statistically significant differences in pre- and post-testing conditions.

The composite scale concerning School Problems includes attention and learning problems, and it involves having a fear or panic about going to school. Behaviors related to School Problems include constant complaints of having a physical illness, an unwillingness to leave home, and tantrums. For the School Problems composite scale, the results indicated a significant difference in the scores across the pre- and post-testing conditions. In addition, both the Attention Problems and Learning problems subscales indicated significant differences in pre- and post-testing conditions.

The Behavioral Symptoms Index composite scale showed a significant difference in pre- and post-testing conditions. The Behavioral Symptoms Index includes both Atypicality and Withdrawal behaviors, with Atypicality being the only subscale that demonstrates significant changes for this study. Atypical behaviors revolve around socially inappropriate

behaviors, given the situation. For example, if another person knocks some books from the student's hand, a typical behavior would involve picking up the books and maybe muttering something to the person under his or her breathe. The student is annoyed, but his or her future is not jeopardized by the response. An atypical response to the situation would be to chase after the person and to physically assault him or her until someone has to separate them. This response would then produce legal trouble and serious ramifications. The participants exhibited fewer atypical behaviors following the completion of the intervention than they had prior to it.

The scores from the Anxiety subscale demonstrated a significant difference in pre- and post-testing conditions. Anxious behaviors include constant worrying or uneasiness, excessive rumination about past events, and fear and avoidance of anxiety-provoking things or events. The participants were calm, ruminated less frequently, and exhibited less fear and avoidance of anxiety-provoking events following the intervention than they did prior to it.

In addition to significant decreases in negative behaviors, the teacher ratings indicated an increase in positive behaviors. Table 2 shows the average pre- and post-intervention scores for the positive behavior scales on the BASC-2 along with their associated t values.

The composite scale that increased following the intervention pertained to Adaptive Behaviors. Adaptive behaviors include the ability to adjust to changes in the situation or task in a socially appropriate manner. Leadership, Social Skills, and Functional Communication are subscales on the Adaptive Behaviors composite scale and showed significant differences for this study.

In summary, the teacher reported significant changes in the participants' behavior on the BASC-2. As hypothesized, the post-intervention scores indicated a drop in negative behaviors and a rise in more socially appropriate behaviors in the participants following the completion of the MASST-R program. This finding suggests that the program might be helpful in treating students with problematic and disruptive behavior.

### *Post-intervention Debriefing Results*

The interview data for this study provided insight into how the participants felt the MASST-R program influenced them. These data supported and explained the significant effects detected in the teacher-reported BASC-2 scores. In addition, these results supported stronger positive outcomes than the quantitative data. These interviews captured more sensitive changes in student perceptions and behaviors than the BASC-2. The post-intervention interviews with the 9 participants revealed six common themes that were tracked as *emic* qualitative codes. The emergent codes were (a) applicability of curriculum to daily life, (b) bonding and building trust with peers, (c) improved communication, (d) reduced conduct problems in school, (e) increased motivation for academics, and (f) improved overall social skills.

The participants credited MASST-R as the driving force for improving grades in their classes. The MASST-R motivated the participants to improve. One participant reflected, "I think it motivates us students . . . Slowly through the year when we went through organizational and motivational skills, I kind of improved a lot." Another participant supported this

**Table 2.***Teacher Rating of Negative Behaviors on BASC-2*

Composite and Subscales	Pre-test		Post-test		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Externalizing Problems	58.29	5.71	52.14	8.13	3.82	< 0.01
Hyperactivity	66.60	8.12	57.14	10.92	4.80	< 0.01
Conduct Problems	55.00	6.51	49.90	7.80	2.80	0.03
School Problems	60.86	4.53	55.00	3.70	6.43	< 0.01
Attention Problems	63.57	6.97	56.90	6.54	4.16	< 0.01
Learning Problems	56.43	5.47	52.42	2.44	2.54	0.04
Behavioral Symptoms Index	62.71	7.63	56.00	8.85	4.32	< 0.01
Atypicality	57.57	9.07	51.14	7.35	4.21	< 0.01
Anxiety	54.43	8.38	46.43	11.76	3.50	0.01

**Table 3.***Scores of Positive Behaviors on BASC-2*

Composite and Subscales	Pre-test		Post-test		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Adaptive Skills	42.14	6.20	47.57	6.90	5.20	< 0.01
Social Skills	43.43	4.50	50.29	5.50	6.23	< 0.01
Leadership	42.29	5.80	46.00	6.46	2.49	0.05
Functioning Communication	43.14	12.35	50.43	10.18	3.39	0.02

connection, “You feel better about yourself and that motivates you to do better in school because you have to fix this (points at self) before you fix that.” In addition, the MASST-R program helped this participant plan for the years to come, “[MASST-R] helped me think about my future. I actually have motivation to do my homework.”

The study participants also identified the MASST-R curriculum as applying to their daily lives. It connected to what they viewed as important; the class was relevant, and the skills they developed could be used in a variety of situations they commonly faced. As one participant succinctly put it, “It’s been a real life changer for me. It’s helped me out with a lot of things in my life.” Another participant explained, “Yeah, it’s everyday learning... It’s ‘how you can relate it to what

you’re doing right now?’ . . . He [facilitator] helps us with our issues and he rolls that into a lesson. It’s not that it’s a lesson that doesn’t relate to what we’re doing.”

One of the strongest themes from the qualitative interviews was the apparent bond the class shared. Over the course of the intervention, the participants developed strong trust in one another, which allowed them to open up and feel comfortable experimenting with new ideas about themselves. The participants were able to share and work on their communication skills because they felt a sense of community in their classroom. One participant explained, “In this class, we all didn’t respect each other or trust each other at the beginning of the year . . . But they slowly earned my respect and trust and I’ve earned theirs. And it was hard to do, but it was

worth it." Another participant supported this feeling of trust for each other: "What I really like about this class is that this group of people that I've come close to know, which I appreciate, is that you can trust them. I have not heard a single thing that I have said in this classroom that has been said outside of this classroom."

Improved communication is a key component of social-emotional learning. One of the most powerful examples shared during the class interview was when the participant with selective mutism spoke up willingly on behalf of the program. He was able to articulate the confidence and inclusion he now feels in the school. Another participant talked about how his trust for his classmates facilitated deeper levels of communication, "I think this is only the third time I have ever told anybody what's really happened in my life. It's definitely helping a little bit in getting the stuff out that's been in here [motions to heart]."

All of the participants chosen for this intervention were selected due to poor history in school conduct and repeated behavior problems. The participants' teacher was able to identify the MASST-R program as helping the participants improve in-school behavior. He reported, "We did see a big decrease in the number of office referrals over the course of this year. Looking at the beginning of September of 2010 when we started to June of 2011 now, the referrals have decreased for office discipline issues. It ran the gambit of things from noncompliance in the classroom to physical assaults and there has been a huge decrease in those behaviors."

Social skills have been linked to a large number of desirable outcomes in academics and beyond; at its core, MASST-R strives to improve social skills by using metacognitive thinking and self-awareness. One participant demonstrated understanding of the importance of self-evaluation and how it relates to many aspects of student life, "I think this class helps us recognize those problems as well as helps us figure out how to fix them. It helps us know what's socially acceptable. Hiding in a corner . . . doesn't help you blend in and isn't really good. Your grades aren't going to be affected by that, but your friends are going to be affected by that. It helps us recognize what we can do to fix problems like that." Last, a participant reflected on the impact this program and his perception of the social purposes of schooling: "I was just one of the kids who wanted to blend into the background and not be seen. Now I actually go up front to make as many friends as I can."

## Discussion

Over the course of one school year, this study provided 10 at-risk students with the opportunity to develop metacognitive awareness and progress in their social skill development. The outcome of the data supports the effectiveness of using metacognition as the framework for social skill instruction as well as the importance of consistent time set aside to develop deficit skills.

The teacher-reported BASC-2 results were overwhelmingly supportive of the changes that occurred throughout the school year, which were likely in part attributable to the MASST-R curriculum. Participants exhibited fewer hyperactive behaviors and were more task-focused following the

intervention than prior to it. The teacher indicated that the participants performed fewer behaviors related to conduct problems following the intervention than they did prior to it. Participants were less emotionally and behaviorally abusive toward their fellow students after learning appropriate social responses through the intervention. The participants exhibited fewer symptoms of having an irrational fear or panic about going to school after completing the intervention. The participants experienced fewer attention problems after learning constructive and appropriate strategies from the MASST-R program. The participants demonstrated fewer behaviors related to learning problems and exhibited fewer atypical behaviors following the completion of the intervention than they did prior to it. The participants ruminated less frequently and exhibited less anxiety, likely in part because the intervention taught socially constructive and appropriate responses to anxiety-provoking situations.

The observed significant differences on the Adaptability scales means the participants were better able to adjust to changes in the situation or task once they had completed the intervention than they were before it. The intervention promoted socially constructive and appropriate responses to changes in the situation or task. The participants behaved in more socially appropriate ways and the participants showed more leadership behavior following the completion of the intervention than they did prior to it. The participants were better able to communicate in a functionally appropriate manner after the intervention than they were before undergoing the intervention. Thus, the intervention may have helped the participants to communicate clearly their thoughts, feelings, and knowledge and to produce socially appropriate responses to questions. Overall, an increase in the participants' metacognition seems to have contributed to an increased self-awareness of behavior.

The participants reported a change in perception about themselves and in their engagement in school. The facilitator reported changes in student outcomes that positively impacted not only their success in school but also in the future. In summary, increasing self-awareness allowed participants to interact with others effectively and adaptively, and it provided them with the skills needed to succeed.

Overall, while the results generated by the BASC-II are impressive, limitations to these findings exist with the nature of the instrument. Because the BASC-II is a self-report measure of teacher perceptions and observations, the measurement may be subject to rater bias. Also, in most ways, the student and teacher post-intervention debriefing supported much greater changes in the behaviors of the participants than the BASC-II indicated. This may signal a degree of construct underrepresentation with the BASC-II. Future research on the effects of metacognitive social skills interventions should consider using an instrument that more objectively and closely measures the intended construct.

While the results of the current study are promising, they are limited in scope and generalizability. These findings provide supporting evidence for designing an experimental study. It also would be beneficial to broaden the student sample to an entire classroom or grade level within a school. Further research should show the MASST-R curriculum could be taught at a school-wide level. Future studies may want to

use the BASC-2 as well as other standardized tools that can measure student behavior. A tool that is sensitive to students' self-awareness of their own behavior would provide valuable information.

For Katie, Donald, and Sam, the year spent with MASST-R was a success. At the conclusion of the program, Katie had higher grades than she previously had experienced. Although she did not have passing grades in all classes, she explained that her 20% average had risen to 60%. She felt better about herself and her academic progress. Teachers reported a decrease in the number of interruptions in class and fewer incidences of condescending remarks to peers. Donald spoke up in class. In fact, when a couple of students were

picking on him in the hallway, rather than passively accepting the taunts, he turned on his heel and told the other students to leave him alone. Donald's use of colorful language should have earned him a behavior referral, but teachers were so impressed with his self-advocacy that a verbal reprimand and follow up conversation was the only punishment meted out. Sam claimed that he now has friends in school and a strategy to achieve his goals. He attends school regularly and did not have a behavior referral during the second semester. It is clear that, for these three students (as well as the seven others in the study), improved social skill competency, knowledge of strategies, and a network of friends has made a difference in their school experience.

## Appendix A

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### Semi-structured Interview Tools

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*Guiding questions to facilitate discussion with group of students:*

1. What do you believe the purpose was for the MASST-R program? Why did we do it?
2. It's interesting because you guys have talked a lot about the network and your bonding and how it makes you feel about yourself. Throughout the program one of the things we wanted to look at was your behavior in school. How many of you had behavior issues of any kind last year or in the past?
3. Has this class and program decreased your behavior issues? Have you had less behavioral referrals and problem behaviors this year from the past? Why has that happened?
4. When we started this, we talked about several things that were our goal. First we talked about relationships and discipline/behavior referrals and our last goal was academics. What changes have you made in your approach academics? What have you done that this has helped guide you in that direction?
5. Throughout the course of this year you all talked about four meta-cognitive strategies. They all started with "self." Who can tell me what one of them is and what does it mean?
6. Self-awareness is a piece of social-emotional learning. We called it self-direction. When you do self-direction, what does that mean?
7. What if you're on that path and we do a little self-evaluation and we realize that this isn't the path for me? We do a....
8. And you talk about what you need to do to fix it. Along the way, how do you know you're making progress? You're going to self-...
9. What does it mean when you self-monitor?
10. Was there any lesson or activity that stands out to you or was a favorite?
11. I notice that there is something on the wall over there from this class. What was it about?

A: *"It was about identifying ourselves with words and adjectives we could use to describe ourselves."*

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12. So how do you feel about how you described yourself? If you think about this time last year and how you would describe yourself and this time this year, do you see your description as changing?
13. If you would give a piece of advice to a student who might have the opportunity to take this class, and if you were going to say one thing to someone about taking this class, what would you say?

## **Appendix A (Continued)**

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*Guiding questions to facilitate short discussion with instructor(s):*

1. Tell us a little bit about what you did with this program and the changes you've seen with the students from the beginning to the end.
2. Earlier in the year when I came, we had a conversation about their office discipline referrals. Could you talk about who these kids were and how they got picked and how that discipline/behavior stuff has changed over the year?
3. What would you say was your greatest challenge this year?
4. Is there anything else you want to add?

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