

# Class-Wide Curricular Modification to Improve the Behavior of Students with Emotional or Behavioral Disorders

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*ABSTRACT: We examined the effects of class-wide curricular modification on the engagement and challenging behaviors of students enrolled in a self-contained science class. Participants were six students between the ages of 13 and 14, all with labels of severe emotional disturbance in addition to a variety of other diagnoses. Class-wide curricular modifications consisted of providing opportunities for choice making and ensuring that activities were of high interest to students. Findings showed that the curricular modifications resulted in increased levels of engagement and decreased levels of problem behaviors. Results are discussed in the context of system-level behavior support within the school setting.*

■ School settings, like most social organizations, are composed of various systems and subsystems, including the school itself, specific settings within the school, the classroom, and the individual student (Bronfenbrenner, 1979, 1989; Plas, 1986). Recent models of behavior support within school settings (Horner & Sugai, 2000; Sugai et al., 2000) have focused on developing discrete interventions targeted at each of these systems. The cornerstone of this model is that support is locally responsive to the characteristics and needs of each system and is proactive, positive, and instructive.

Because this multisystem approach to behavior management is comprehensive and contextually related, it is both effective and efficient (Colvin, Kame'enui, & Sugai, 1993; Sugai & Horner, 1999). Specifically, intervention at the school-wide level generally eliminates a substantial number of the problems a typical school encounters (e.g., Nakasato, 2000; Sadler, 2000; Taylor-Greene & Kartub, 2000). Thus, the need for more intensive individual student interventions is diminished. In addition, intervention focuses on teaching behaviors appropriate for various school contexts and typically relies on assessment information that details variables associated with desirable and undesirable behavior. This

assessment-intervention match greatly increases the likelihood that intervention will result in desired behavior change (Dwyer, Osher, & Warger, 1998; Lohrmann-O'Rourke, Knoster, Sabatine, Smith, Horvath, & Llewellyn, 2000).

This emerging model of behavior support has been accompanied by a growing literature of both empirical and nonempirical testaments to its effectiveness and utility. However, most of the literature has focused on school-wide or individual systems. For example, the Forum of a recent issue of *Journal of Positive Behavior Interventions* (Fall 2000) depicted the efforts and experiences of school-wide behavior support at seven different schools. Likewise, numerous studies have documented the use of functional behavioral assessment and positive behavior support in school settings for individuals with various disabilities exhibiting a wide range of behavioral challenges (e.g., Durand, 1999; Ervin, DuPaul, Kern, & Friman, 1998; Harding, Wacker, Cooper, Asmus, Jensen-Kovalan, & Grisolano, 1999; Horner, Sprague, O'Brien, & Heathfield, 1990; Kern, Childs, Dunlap, Clarke, & Falk, 1993; Umbreit & Blair, 1997). Far fewer studies have documented the application of positive behavior support strategies for specific settings (Kartub, Taylor-Greene, March, & Horner, 2000) or for classrooms within the larger school system. Thus,

the focus of this study was intervention at the class-wide level.

Historically, class-wide behavior management has assumed a variety of forms. Many strategies promote general approaches, such as establishing rules, applying contingencies consistently, providing positive feedback, and following through with instructions and expectations (e.g., Sprick, Garrison, & Howard, 1998). These strategies may rely on token economies to reward adherence to expectations or punish infractions. Alternative approaches focus on teaching students to manage their own behavior (e.g., Kern, Dunlap, Childs, & Clarke, 1994). These approaches are often highly effective; however, they are generally implemented independent of the ongoing curriculum.

With respect to curriculum-related approaches, research and training practices have long emphasized the role of effective instruction on engagement and learning. For example, strategies such as active participation and cooperative learning result in improvements in behavior and learning (Garner & Heward, 1994; Mathes, Fuchs, & Fuchs, 1997; Qin, Johnson, & Johnson, 1995). Yet, these types of approaches have seldom been emphasized at the class-wide level when addressing the behavior of students exhibiting emotional or behavioral challenges. Instead, behavior problems in the classroom are generally greeted with increasingly rigid systems of behavior management (Knitzer, Steinberg, & Fleisch, 1990; Smith & Farrell, 1993) or punitive teacher responses (Nelson & Roberts, 2000; Shores, Gunter, & Jack, 1993), strategies that are ineffective with this population of students.

The influence of curriculum on student deportment has received increased attention in recent years. A number of recent studies have demonstrated that curricular modifications can increase engagement and decrease problem behavior. One such modification is choice making. In the context of educational tasks, choice-making opportunities have been offered in a variety of formats, including choice of activities (Cole, Davenport, Bambara, & Ager, 1997; Powell & Nelson, 1997; Umbreit & Blair, 1997), choice of materials (Harding, Wacker, Cooper, Millard, & Jensen-Kovolán, 1994), and choice of task sequence (Kern, Mantegna, Vorndran, Bailin, & Hilt, 2001). Several relatively recent studies have demonstrated that choice can have a positive and powerful influence on student behavior

(Kern, Vorndran, Hilt, Ringdahl, Adelman, & Dunlap, 1998).

Another curricular modification demonstrated to have a positive influence on classroom behavior pertains to the level of student interest inherent in academic activities. Several studies have shown that incorporating areas of student interest into nonpreferred activities can result in behavioral improvements (e.g., Kern et al., 1993). For example, in a study by Clarke and colleagues (1995), one participant's typical handwriting assignment required him to copy pages from a handwriting book. After he identified Nintendo as a preferred leisure activity, the researchers substituted a handwriting activity requiring him to copy rules from a Nintendo game booklet for the conventional handwriting assignment. When the handwriting assignment incorporated Nintendo, the researchers observed reductions in the student's disruptive behavior and increases in desirable behavior.

Although the effectiveness of such curricular modifications has been documented in the literature, applications have been limited to individual demonstrations. As several researchers have pointed out, within a system model of behavior support, individual intervention may not be prudent when a number of students within a classroom setting experience behavioral difficulties (Colvin et al., 1993; Sugai & Horner, 1999). Under these circumstances, intervention targeted at the class-wide level may be more economical. In the current study, problem behaviors and moderate levels of academic engagement were noted among all students enrolled in a middle school science class. Thus, we examined the applicability and effectiveness of modifying the curriculum to provide choice-making opportunities and high-interest activities simultaneously across all students in the class.

## Method

### Participants and Setting

All of the students enrolled in a middle school class served as participants. The class was selected for the study because observations indicated that numerous students had difficulties with engagement and disruptive behavior. The class was composed of six boys between the ages of 13 and 14. All of the students had a label of severe emotional disturbance in addition to a variety of other diagnoses. All fell

**TABLE 1**  
**Participant Information**

<i>Participant</i>	<i>Age</i>	<i>Diagnosis</i>	<i>Medications</i>
Alex	13	SED, CD, ADHD, bipolar disorder, intermittent explosive disorder	Adderall (30mg/day)
Barry	14	SED, LD, ODD, ADHD	None
Tom	14	SED, ADHD, anxiety disorder, mood disorder	Prozac (20 mg/day) Buspar (20 mg/day)
Daniel	14	SED	None
Tyler	13	SED, LD, ADHD, mood disorder, posttraumatic stress disorder	Clonidine (0.2 mg/day) Tegritol (300 mg/day)
Craig	14	SED, mild MR, depressive disorder	Depakote (1000 mg/day) Risperdal (6 mg/day) Buspar (100 mg/day)

*Note.* ADHD = attention deficit hyperactivity disorder; CD = conduct disorder; LD = learning disability; MR = mental retardation; ODD = oppositional defiant disorder; SED = serious emotional disturbance.

within the average range of intellectual functioning, with the exception of one student who was described as having mild mental retardation. The participants were prescribed a variety of medications, which were held constant throughout the study. Table 1 describes specific participant information.

The study took place at a university-affiliated approved private school serving students with severe behavioral challenges. All students attending the school were excluded from their home schools because of persistent and serious behavior problems. The study was conducted during science class, which was held daily between 11:00 and 11:40. The classroom was staffed by two individuals who were enrolled in a master's degree program in special education. One of the teachers had 1 year of prior teaching experience while the other had 2 years.

### **Dependent Variables, Measurement, and Interobserver Agreement**

Engagement and destructive behavior served as the dependent variables. Engagement was scored if the student's eyes were on the teacher or task materials and the student was completing work in accordance with the teacher directions or instructional requirements. The classroom behavior management system allowed students to "take time" by self-requesting a brief break (up to 5 min) from the

ongoing activity. Engagement was not scored when a student was taking time. In addition, engagement was not scored when the teacher required the student to leave the activity as a result of problem behavior. Destructive behavior included aggression (e.g., hitting, pinching, biting another), disruption (e.g., throwing objects, banging objects forcefully), destroying property, cursing, screaming, spitting, or leaving the classroom without permission.

Five trained observers collected data. Three of the five observers served as primary data collectors because they were naïve to the study's purpose and phase changes. Two of the data collectors were aware of the study's general purpose, but not phase changes. These individuals were used only to collect interobserver agreement data. None of the primary data collectors interacted with the teachers regarding the study, nor were the data outcomes shared with the teachers until the study ended.

Data were collected across consecutive 10 s intervals. Engagement was scored if a student was engaged in accordance with the definition during at least half of the 10 s interval. Disruption was scored if it occurred any time during the interval. In order to observe all of the students in the classroom, a rotational system was used whereby each student was observed for 1 min (6 consecutive 10 s intervals). For example, Student 1 was observed for 1 full min, then Student 2 was observed for 1 full minute, and so forth, until all students in the

class were observed. The sequence was then continuously repeated until the class period ended. The order in which students were observed was randomized each session.

At the beginning of the class period, once students were seated, the teacher reviewed the class rules and expectations prior to presenting the daily lesson. Data collection began when the teacher initiated science instruction and ended when the bell rang, signaling the period termination, or when the teacher indicated that the lesson was over, whichever came first. The duration of daily data collection averaged 28 min (range, 21 min–35 min). Because the purpose of this study was to examine the effects of the intervention on a class of students rather than on an individual student, data were not collected if more than three students were absent. This occurred on two occasions during the course of the investigation.

Interobserver agreement for the dependent measures was assessed during 29% of the observations, distributed across experimental conditions. Agreement was calculated by dividing the number of intervals with agreement plus disagreements and multiplying by 100%. Agreement for engagement averaged 94% (range, 89%–100%), and for disruptive behavior it averaged 81% (range, 0%–100%). Low interobserver agreement on two occasions resulted from two or fewer intervals with occurrences of disruptive behavior.

### **Procedural Fidelity and Social Validity Measures**

To determine the type of activities presented and to assess procedural fidelity, data collectors recorded the ongoing class-wide activity on the data sheets during baseline and intervention. Data collectors indicated the nature of the activity (e.g., teacher lecture, group question and answer) at the initiation of the lesson. If the activity changed during the lesson, the nature of the new activity was coded in the 10 s interval that the change occurred. Data collectors also coded implementation of the independent variable by indicating each occasion that a choice was provided to the students and each activity that incorporated student interests. Data indicated that the independent variables were never implemented during baseline and that choice was implemented at least one time during 100% of the class sessions and a high-interest activity was

included during 100% of the class sessions during intervention.

As an additional measure of procedural fidelity and to assist the teacher in ensuring that curricular modifications were implemented, each day prior to the lesson the teacher completed a log documenting the manner in which high-interest activities were incorporated into the lesson and the type of choices offered. During each lesson, data collectors noted the type of activity that was provided (including activity changes) and any type of choice that was given during the interval it occurred. These data were then compared with the teacher logs to evaluate the actual implementation of planned high-interest activities and choices (i.e., frequency and type). Comparison of these data indicated 100% teacher implementation of planned activities and choices and 100% consistency with intervention protocols.

To assess students' opinions of the intervention, each student independently completed a Class Evaluation Sheet on a daily basis at the end of each class period throughout baseline and intervention. The evaluation asked, "How much did you like class today?" Students were instructed to circle a "0" corresponding to "I didn't like it," a "1" corresponding to "It was OK," or a "2" corresponding to "I liked it a lot."

After the study was completed the classroom teacher responsible for lesson planning and instruction completed the Teacher Acceptability Rating Form-Revised (TARF-R) (Reimers & Wacker, 1988). Questions not relevant to the current study were omitted before the teacher was asked to complete the form; thus, the questionnaire administered contained 12 questions. Each question required a response on a 5-point Likert-type scale. An open-ended section of the questionnaire encouraged the teacher to provide any additional information regarding the intervention.

### **Procedures**

#### **General**

Throughout baseline and intervention, one classroom teacher was responsible for preparing and presenting a daily science lesson, while the other provided assistance to students having specific difficulties. Topical units, lasting approximately 2 weeks, were presented and included subject matter such as the rain forest, pollution, and predatory animals. Long-

term instructional goals corresponding to the overall unit and short-term goals consistent with daily lessons were held constant.

In addition, a classroom behavior management system was in place, which was held constant throughout all phases of the study. The system provided reinforcement in the form of points for adherence to five classroom expectations (i.e., being prepared, being respectful, being responsible, keeping hands and feet to self, following directions). Students could earn points at the end of each class period that they could later exchange for items in the school store. Points were administered by the teacher during Level 1 of the system; however, when students progressed to Levels 2 through 4, they managed their own behavior and self-rewarded points.

The first or second author provided teacher direction for implementing baseline and intervention procedures 1 day before the onset of each phase. Neither investigator collected data, and neither was present during observation sessions.

### **Baseline**

During the baseline phase, the classroom teacher was directed to maintain his traditional curriculum with respect to activities and presentation style. Baseline observations revealed that, typically, subject matter throughout the lessons was presented via teacher lecture, question and answer, written assignment (e.g., worksheets), or a combination of these formats. All lesson activities were teacher directed and selected. All students completed the same assignments in the same format (e.g., completed worksheets, wrote answers to textbook questions), with some minor accommodations made to account for learner differences.

### **Intervention**

During this phase, the teacher was directed to implement two primary curricular modifications. These were providing opportunities for choice making and incorporating high-interest activities into each lesson. Choices were provided in a number of ways throughout the lesson. At the onset of the lesson, students were presented with a choice of two different activities (e.g., check air pollution experiment or begin land pollution experiment, watch recycle video or begin litter experiment, review posttest for ecology unit or take pretest for pol-

lution unit). The class voted on the initial activity, and the activity receiving the majority of student votes was conducted. When a new group activity was initiated during the daily lesson, students were again provided a choice in the same manner as the initial activity. Group choices involved a choice of activity, materials, or task sequence (i.e., "Shall we do this first, or second?"). Group choices typically occurred two or three times during each lesson.

Individual choices were also provided during each daily lesson. This choice-making opportunity typically pertained to the manner in which individual work was completed. For example, when practicing or demonstrating knowledge, students were given the choice to practice at the computer or with a peer. Students were also given choices of topics or materials within lessons, such as choice of whether to take notes on the behavior of predator or prey during a video, choice of biome to research, or choice of materials for pollution activity. Individual choices were typically offered once toward the end of each lesson.

High-interest activities were also a part of the intervention. High-interest activities were identified based on the teacher's prior observation of activities that rendered high levels of engagement, student-voiced preferences, and students' personal experiences that could be connected to the topic. Examples of high-interest activities incorporated into lessons during the intervention were hands-on experiments, identifying pollution in the students' own neighborhoods, and developing their own trivia questions pertaining to the unit topics.

### **Return to Baseline**

During this condition, the traditional curriculum with regard to lesson activities and teacher presentation style was reinstated. Specifically, using baseline observations to guide us, we directed the teacher to implement lessons in the same manner as in baseline.

## **Results**

The results are displayed in Figure 1. During the initial baseline phase, engagement was variable, ranging from 27% to 78% (mean = 57%), with a slight downward trend. When the intervention was introduced, engagement increased, ranging from 61% to 100% (mean = 87%). Upon return to baseline, decreases in engagement were observed, with a range

from 48% to 78% (mean = 63%). During the final intervention phase, engagement again increased, ranging from 85% to 95% (mean = 89%).

Decreases in destructive behavior were also observed when intervention was in place. The initial baseline phase resulted in occurrence of destructive behavior during an average of 8% of observational intervals (range, 0%–33%). During the first intervention phase, destructive behavior decreased to a mean of 1% of intervals (range, 0%–3%). After returning to baseline, destructive behavior increased, averaging 12% of intervals (range, 0%–36%). During the final intervention phase, no destructive behavior was observed.

Student ratings tended to be high across all experimental conditions. However, slight increases were seen during the intervention phases. The mean student rating during baseline phases combined was 1.54, while the mean rating during intervention phases combined was 1.89.

The TARF-R, completed by the classroom teacher, indicated overall satisfaction with all aspects of the intervention. For example, on a 5-point Likert-type scale, with "5" indicating the most positive rating, the teacher responded "4" to questions pertaining to acceptability of the intervention, willingness to use the intervention in the future, reasonableness of the intervention, effectiveness of the intervention, and satisfaction with the intervention. The only negative rating was in response to the question "How much time in comparison to typical planning is needed each day for you to carry out this intervention?" The teacher responded to this question with a "4," indicating that more than an average amount of time is necessary for planning. In an open-ended section of the evaluation, the teacher indicated that it was "not always easy to think of high-interest activities/choices for some of the material." The teacher also indicated that initially following group voting the students "got upset when their choice was not implemented, but after a while they did not seem to mind." The teacher also stated that the students felt "empowered to determine how their science class would be."

## Discussion

This study provides additional supportive evidence that student engagement can be enhanced and disruptive behaviors reduced by making rather simple curricular modifications.

Incorporating student choice and interests during academic instruction has been shown to positively influence student performance when modifications were made at the individual student level (e.g., Clarke et al., 1995; Cole et al., 1997; Kern et al., 2001). The present study builds on previous investigations by demonstrating that these modifications can be made class wide with equally positive student outcomes and strong teacher satisfaction. Albeit preliminary, the results are especially encouraging given the recent attention on creating effective subsystems (e.g., school, class wide, and individual) of positive behavior support (Colvin et al., 1993; Sugai & Horner, 1999). This study's unique contribution is the demonstration of a class-wide intervention that emphasizes instruction, rather than behavior-reducing consequences for students labeled as having severe emotional disturbance.

Given the exploratory nature of the study, several challenges are raised for future research. First, it is interesting to note that despite the observed differences in student performance, ratings of student preference for the curricular modifications were only slightly higher than baseline conditions. While it is possible that students did not perceive differences in instruction across conditions (e.g. science is still science), the relatively high ratings obtained during baseline could have established a ceiling effect with little room for change in student scoring. Future research might wish to consider alternative ways of assessing student opinions about the intervention. For example, garnering student opinions after experiencing both conditions might have made the differences more salient for the students. Alternatively, soliciting input in a qualitative format may highlight specific aspects of lesson format or presentation that are preferred.

The intervention also consisted of both high-interest activities and choice making. Because these components were not evaluated separately, it is not possible to ascertain the differential influence of each. Nor is it possible to discern how these components functioned to address the students' level of engagement and disruptive behaviors collectively as a group or individually by student. Research suggests that, for some individuals, choice and high-preference activities both function to provide access to a highly desired activity (e.g., Bambara, Ager, & Koger, 1994). For other indi-

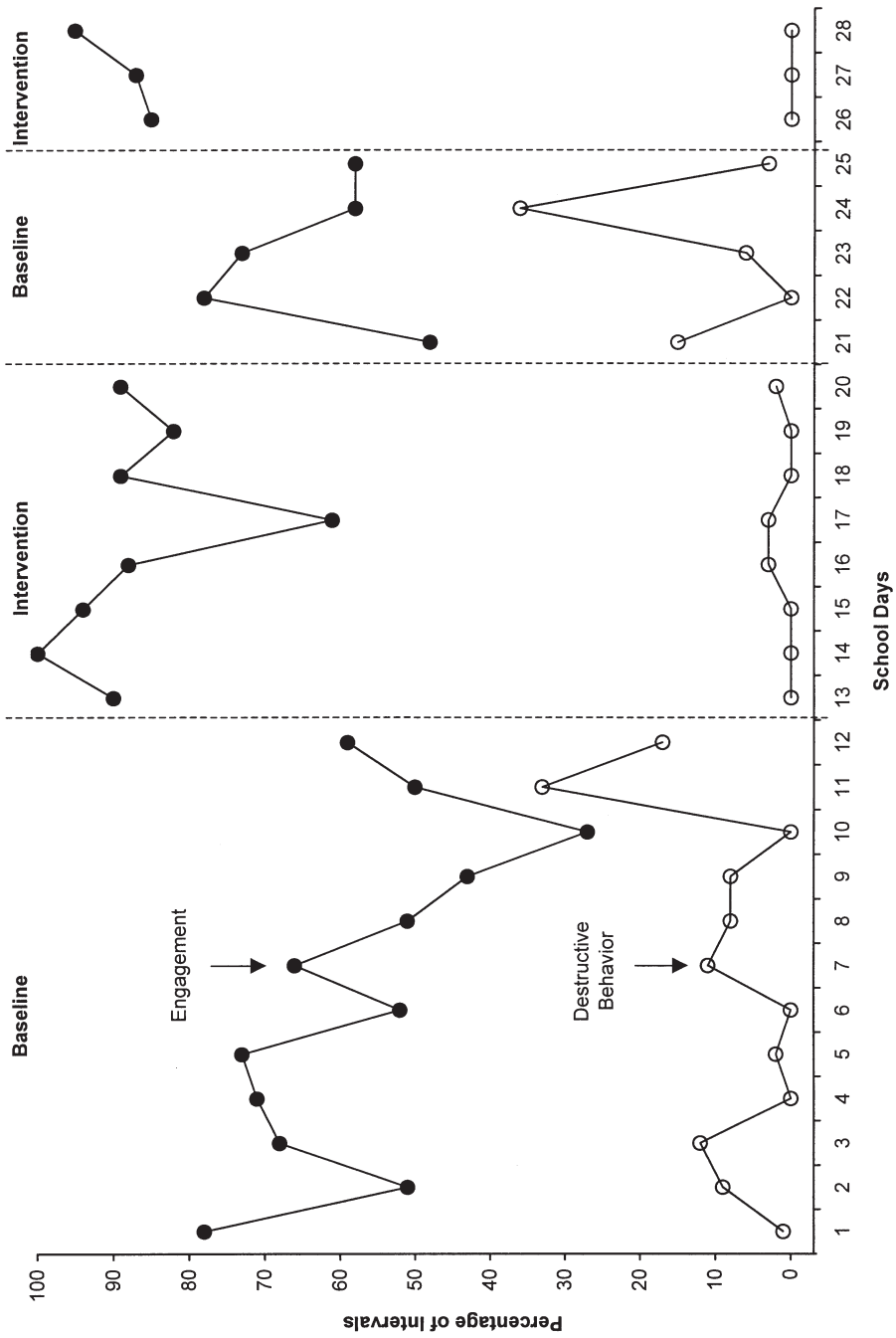


FIGURE 1. Percentage of Intervals with Engagement and Destructive Behavior

viduals, the act of choosing, in and of itself, may be reinforcing in addition to or independent of the activity obtained (Bambara, Koger, Katzer, & Davenport, 1995; Fisher, Thompson, Piazza, Crosland, & Gotjen, 1997; Kern et al., 1998). Moreover, for other individuals choice may serve to address an escape function whereby, through the act of choosing, they may avoid or delay engagement in a nonpreferred task (Romaniuk & Miltenberger, 2001).

Given our design limitations, it was not possible to determine which underlying mechanism of choice contributed to intervention effectiveness. To the extent that best practices in behavior support call for hypothesis-based interventions, continued investigations that explain the effectiveness of choice interventions at the individual and class-wide level would be beneficial. However, it may be that when implemented class wide, choice and high-interest activities create a very parsimonious intervention because they address multiple student motivations (e.g., access to preferred activities, the reinforcement derived from choosing, escape from aversive tasks) simultaneously through one simple modification. Given the diversity of student motivation in any one classroom, the intervention may be far reaching when applied generically across students.

Another challenge raised by the present study is the influence of multiple systems of support. The potential impact of multiple systems on student performance raises unique challenges for future research. The results of this study should be interpreted by keeping in mind that the curricular modifications were made in addition to the classroom system that was already in place. Furthermore, a school-wide system was implemented in the beginning of the school year that set clear behavioral expectations and consequences for student offenses. Although these systems were held constant while the intervention was introduced and withdrawn, it is impossible to separate out their differential influence. For example, the intervention may have produced more or less dramatic results in the presence or absence of the broader systems. The results achieved may have been additive to the systems already in place and may not have been possible without them. On the other hand, greater behavioral differences may have been observed without the class- and school-wide behavior systems in place.

While it may be unrealistic and undesirable to eliminate other systems of support in studies conducted in natural settings, researchers might begin to tease out some of the relative influences of the layered interventions. At a minimum, it is important to acknowledge the potential influence of multiple systems when interpreting the results.

Despite the encouraging results of this study, extended replications are needed to establish the consistency of findings and the broad applicability of the approach across different classroom settings (e.g., self-contained, inclusive), subject areas (e.g., math, reading), and students (e.g., age, diagnoses) with and perhaps without disabilities. Student outcome measures may be strengthened by collecting data on individual student performance and task completion and accuracy in addition to class-wide measures of engagement. Future research should also attend to measuring intervention effects over longer periods of time. The current study ended prematurely due to the end of the school year; thus, long-term maintenance of behavioral improvements could not be assessed.

In addition to replications, particular attention should be paid to developing class-wide modifications that are effective, teacher friendly, and enjoyable to students. Other than a few examples of individual student modifications, the literature provides little guidance on how to provide choices in a group or incorporate multiple student interests or preferences for activities in daily lessons. Given the exploratory nature of this study, the guidelines provided were open ended to leave room for teacher problem-solving and creativity.

Interestingly, although the teacher was generally satisfied with the results and procedures, he did report some difficulty with planning. While this may be a simple matter of getting accustomed to the procedures, it is also possible that it is not easy to account for all student interests in daily lessons and embed choice without interrupting the flow of instruction. Providing a choice of activities required planning more than one activity each day. Furthermore, the teacher reported one problem that we did not anticipate. When group choices were provided, some students became upset when the majority selection was inconsistent with their own preferred option. In an attempt to honor all student choices, the teacher anecdotally explained that he tried to ensure that minority choices were somehow

incorporated in the lessons by pairing the minority choice with other options at a later time or incorporating elements of the minority choice in the high-interest activities. This teacher's creativity underscores the importance of attending to the nuances of planning and the need for the further development of procedures that examine effective combinations of choice and high-preference activities as well as ones that can be reasonably implemented by busy teachers.

## Conclusion

This study offers preliminary support for the inclusion of student choice and high-interest activities at the class-wide level. The results showed positive effects on both student engagement and disruptive behaviors. Furthermore, the intervention addressed behaviors that did not appear to be responsive to school and class-wide behavior support systems already in place. Although the results of the intervention are evident, several questions were raised to stimulate future research in developing this promising intervention.

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