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EDUCATION IN PRACTICE

Incorporating a Class-Wide Behavioral System to Decrease Disruptive Behaviors in the Inclusive Classroom

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The Color Wheel System is a class-wide behavioral intervention that provides clear rules and expectations to decrease inappropriate behaviors. We implemented the Color Wheel in two classrooms that included students with autism to explore the effectiveness of the Color Wheel in inclusive classrooms within a Catholic elementary school setting. During implementation, there were large and immediate decreases in inappropriate vocalizations in both classrooms. The majority of the students liked the intervention, and the teachers saw positive changes in student behavior and wanted to use the Color Wheel with future classes.

Keywords

behavior intervention and support, inclusion, autism, intervention

Many Catholic schools have behavior plans, behavior contracts, or positive behavior intervention and support (PBIS) systems in place. These class-wide or school-wide behavior plans go along with the mission statements that many Catholic schools adopt which include emphasizing such virtues as being responsible, respectful, Christ-like, and developing moral character.

Factors that determine effective classroom management include physical environment, rules, routines, behavioral expectations, development of effective relationships, and prevention of student misbehavior (Mastropieri & Scruggs, 2014). Establishing specific rules and behavioral expectations create a basis for academic engagement within the classroom. The Color Wheel System (CWS) was developed as a class-wide behavioral management strategy that integrates sets of rules for three colors (red, yellow, green) to create classroom behavior expectations (e.g., Skinner, Scala, Dendas, & Lentz, 2007). Instead of using one set of three to five rules, the CWS provides separate rules for each type of classroom activities. The CWS also emphasizes procedures for

transitioning the class from one activity to another to decrease the amount of time needed between activities and discourage disruptive behaviors.

Under the inclusion model of instruction, students with disabilities spend the majority or all their time with typically developing peers. Inclusion classrooms often adopt a co-teaching model where two teachers work together in the general education classroom. Benefits for students with disabilities in an inclusion classroom include but are not limited to increased social initiations, friendships, higher expectations, enhanced skill acquisition and generalization, and peer role models for academic, social and behavioral skills. Specifically, for students with autism, inclusive classrooms can provide opportunities to practice functional communication skills in both social and academic settings (Hart & Whalon, 2011). Students with autism benefit from consistency, visual schedules, and regular reminders of expectations, all of which are provided within the CWS procedures as described below. Within the inclusionary classrooms that specifically contained children with autism in our Catholic school, we used the CWS to decrease unwanted behaviors that interfered with academic time while providing clear and consistent rules for all students.

Description of the Program

We implemented the CWS in a second-grade classroom with two students with autism and a third-grade class with four students with autism. The students with autism had transitioned from a self-contained school for students with autism and were now fully included in the Catholic school setting during the school day. All students with autism were male. Each classroom had approximately 20 students, a main teacher, and an assistant who specifically worked with the students with autism.

We used plastic traffic lights by Italtrike as the color wheel. The traffic light had red, yellow and green colors that could be changed by a teacher by turning the top of the light until the desired color was reached. We covered three of the four sides of the traffic light so that only one side could be seen at one time. The traffic light sat on a three-foot pole in a water-filled stand to keep it stable and was placed in the front of the classroom so all students could easily see it.

Poster boards were created for the red, yellow and green rules. The teachers chose the rules they wanted for each color. Each rule had a corresponding picture that showed the rule visually. The rules were: Red rules: eyes on teacher, in seat or carpet, no talking, and desk ready; Yellow rules: raise hand

and wait to speak, hands and feet to self, eyes on teacher, and follow directions; Green rules: hands and feet to self, use inside/table voices, and follow directions. Red rules are for when the teacher needs undivided attention to deliver instructions. Yellow rules should be used for the majority of the class time and are for academic tasks or group teaching. Green rules are for small group or free time when students can leave their seats or talk to their neighbors. Figure 1 displays the color wheel traffic light we used (not sitting on the three-foot pole) and the poster boards displaying the rules for each color.

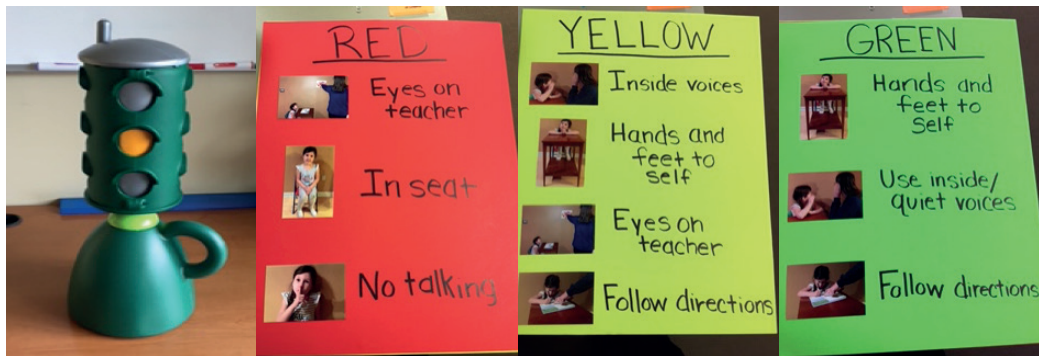


Figure 1. Photographs of the Color Wheel traffic light and rule boards used for the Color Wheel System

The teachers were recruited to use the CWS during the summer since they would have the inclusion students with autism in their classrooms. The teachers expressed a willingness to try new behavioral systems in their classrooms and decided that the behavior that was the most disruptive in their classrooms was talking out or making noises. We decided to name the unwanted behavior as inappropriate vocalizations. At this time the teachers were introduced to the CWS procedures, came up with the rules they would want to use for the different colors, and prepared materials for the CWS.

In order to measure whether the CWS was working, we collected baseline data by observing the classrooms for 20 minutes using 20-second intervals between 9:00 and 10:00 a.m. and recording whether any student was making any inappropriate vocalizations during that time without the CWS in place. We considered an inappropriate vocalization to be talking out of turn or making noises (e.g., humming, whispering, grunting) when the teacher

did not say that talking was okay. If the students were working in groups, we considered talking an inappropriate vocalization if the teacher had to warn the class to be quieter. If any student engaged in the target behavior of inappropriate vocalizations during the 20 second interval, we put a slash over that interval.

After baseline data was collected to determine the amount of inappropriate vocalizations in the classroom, the teachers were formally trained on the CWS procedures. They were provided classroom-specific information and we modeled how to use the CWS in their classrooms. The teachers were able to practice using different situations and scenarios that involved transition times, as well as review their schedules to identify transition times and what rules to follow. Teachers were reminded that they were the ones that needed to turn the wheel. An additional reminder was provided that the CWS is a group intervention, and if an individual student's behavior escalates, the student's behavior should be dealt with and their individual behavior plan should be followed if applicable.

Once the teachers had been trained and felt comfortable with the CWS procedures, we worked with the teachers to train the students. A social story with photographs of the Color Wheel was read to both classrooms to introduce the CWS. Each page included text and a photograph to help students visually understand the story. After the story was read, we asked questions to make sure the students understood the CWS. The teacher showed the class the color wheel and provided examples so the class could practice transitioning from color to color. After about 30 minutes, the students were able to follow the CWS procedures.

Teachers were responsible for the implementation of the CWS. Data collection continued using the same procedure as the baseline phase. We provided feedback to teachers and gave suggestions how to increase their integrity of following the CWS procedures. After the CWS had been applied in the classrooms for a while, we asked the teachers if they would like to continue to use the CWS in their classroom. Both teachers said they would, so we returned twice per week for the next four weeks to examine if the CWS provided lasting effects on the students' behavior.

Outcomes

For each classroom, we measured the class-wide percent of intervals scored for inappropriate vocalizations for each session. This data is displayed in Figure 2. Baseline data for the second-grade classroom showed inap-

appropriate vocalizations ranging from 28% to 48% ($M = 37.3$, $SD = 7.6$) of the intervals with at least one student talking or making noises out of turn. The percent of inappropriate vocalizations decreased immediately after the CWS was implemented and ranged from 0% to 6% ($M = 2.9$, $SD = 2.1$) of intervals. The percent of intervals with inappropriate vocalizations was also consistently low during the maintenance phase and ranged from 1% to 5% ($M = 3.3$, $SD = 1.9$) of intervals. The percent of intervals with inappropriate vocalizations was highest during baseline phase and visual analysis of the graph shows no overlapping data points from baseline to either the intervention or maintenance phases.

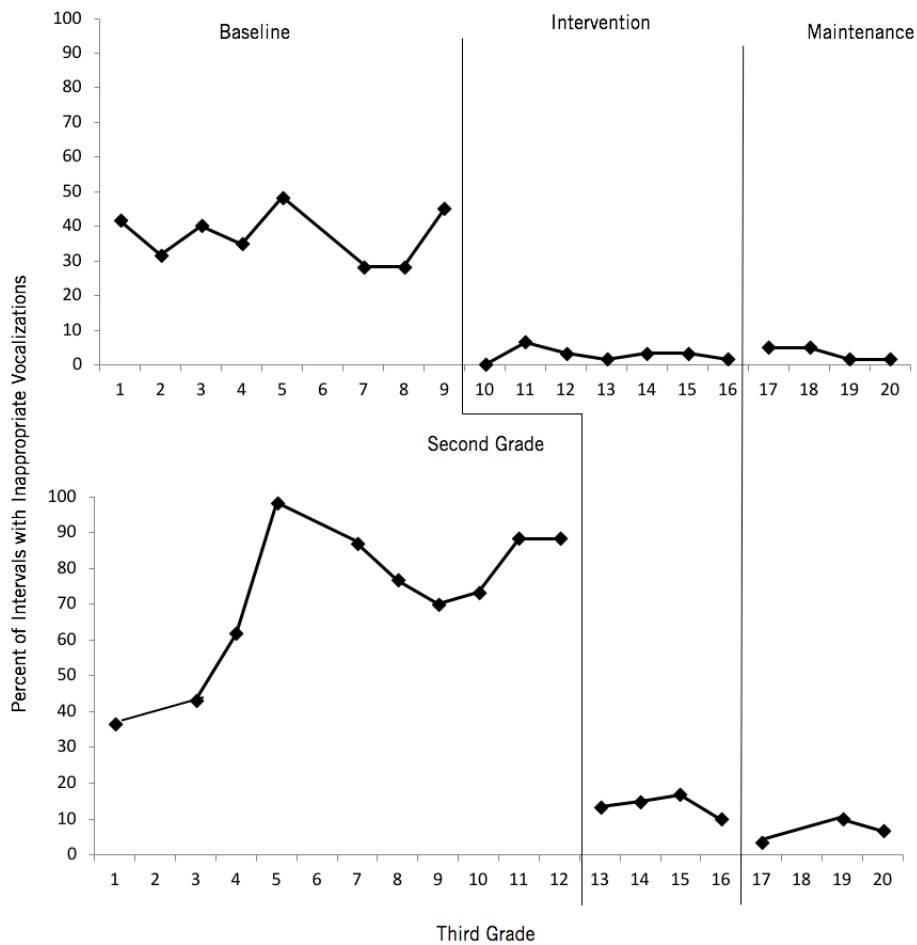


Figure 2. Percent of intervals where class-wide disruptive behaviors occurred during baseline, intervention, and maintenance phases.

Baseline data for the third-grade class was more variable but showed an increase in inappropriate vocalizations across sessions, ranging from 37% to 98% ($M = 72.3, SD = 20.1$) of intervals. Similar to the second-grade class, the percent of inappropriate vocalizations immediately decreased after the CWS was implemented, ranging from 10% to 16% ($M = 13.8, SD = 2.8$). The percent of intervals with inappropriate vocalizations continued to decrease during the maintenance phase and ranged from 3% to 10% ($M = 6.7, SD = 3.3$) of intervals during each session. As with the second-grade class, there were no overlapping data points from baseline to either the intervention or maintenance phases.

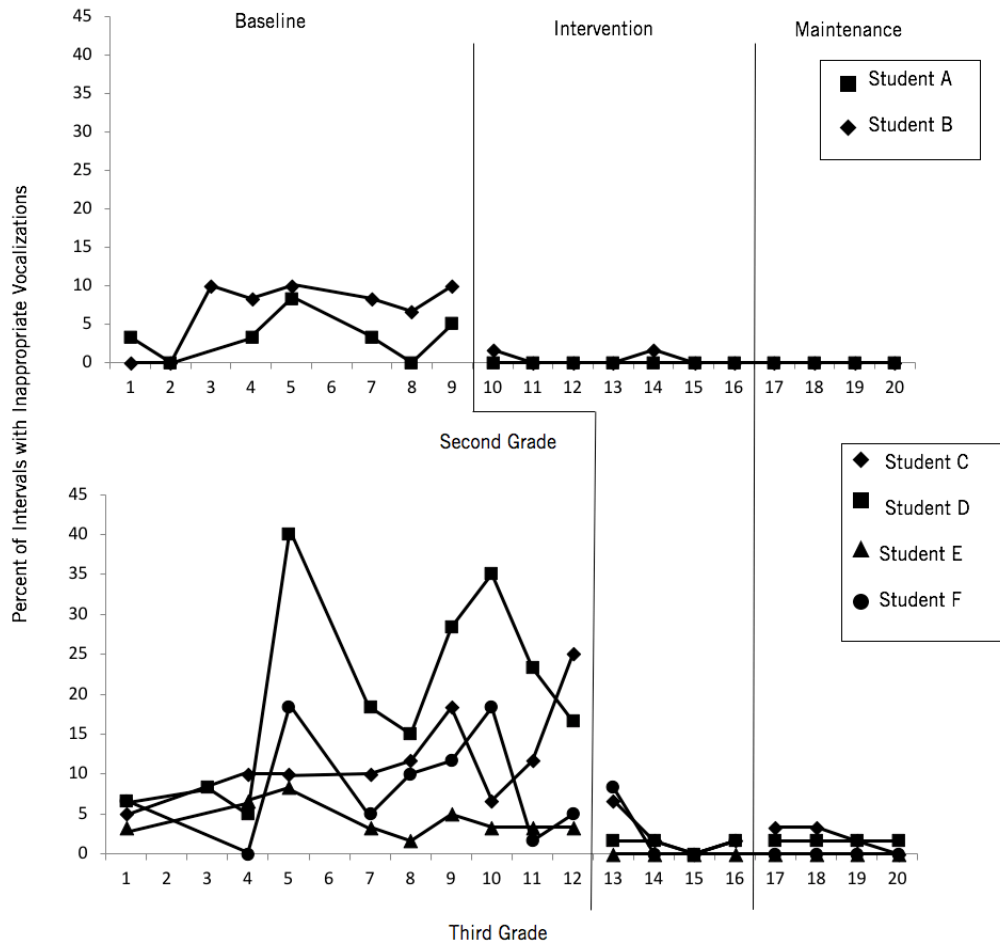


Figure 3. Percent of intervals where disruptive behaviors occurred for the individual students with autism during baseline, intervention, and maintenance phases.

We also separately examined the inappropriate vocalizations of the students with autism. Figure 3 shows the percent of intervals for each session where each child with autism displayed inappropriate vocalizations. Visual analysis of the graphs suggests that the students with autism initially did not engage in as many inappropriate vocalizations as the other students in the class. However, the average percent of intervals with inappropriate vocalizations still decreased for each child when examining the data points from baseline to either intervention or maintenance phases.

To ensure that we were observing and recording inappropriate vocalizations correctly and with fidelity, a second observer also collected data for 22% of the sessions equally distributed across the baseline, intervention, and maintenance phases. Each observer independently recorded inappropriate vocalizations on a separate data sheet and then the data was compared. Interobserver agreement was compared for each possible interval and was calculated by dividing the number of agreements by the total number of disagreements plus agreements and then multiplying by 100. The interobserver agreement was 99.7% for all sessions.

At the end of the data collection, the teachers and students were given acceptability measures to see how much they liked the CWS and if they thought it worked. In the second-grade classroom both teachers rated all acceptability items as agree, including that they would recommend the CWS to other teachers, they liked the procedures, the CWS will produce lasting improvements in behavior, and there will be no negative side effects. The majority of the students (between 73% and 87%) said that the CWS was fun, they liked using it, they want to keep using it, and it helps them follow class rules. In the third-grade classroom, the teacher rated all acceptability items as agree except rated the item 'the CWS will produce lasting improvements in behavior' as maybe. All of the third-grade students said the CWS helped with class rules and 81% said they liked the CWS and it was fun. However, only 57% of the third-grade students said they wanted to keep using the CWS.

Reflections and Recommendations

The CWS has previously been implemented within public schools in general education classrooms across a variety of grades (e.g., Fudge et al, 2008; Watson et al., 2016), but this is the first time that it has been implemented within a Catholic school setting. Additionally, this is the first time the CWS has focused on students with disabilities within an inclusive setting. The classrooms within this Catholic school have been integral in providing an

inclusive environment for students transitioning from a self-contained school for students with autism into a general education setting. The unique components of the CWS provided visual cues of behavioral expectations at all times and allowed the teacher to give short reminders such as saying “Remember yellow rules” instead of having to reprimand students individually for each incorrect behavior.

Transition times were especially difficult in the classes, particularly for the students with autism. When the teachers provided temporal warnings before the wheel was changed the students were given time to prepare themselves for the next activity and anticipate the transition. The CWS provided consistent expectations and procedures for transition times, and students were able to know the specific rules for the next activity. For instance, if the wheel was being changed from green to red, the teacher first gave a two-minute warning and then a 30-second warning before changing the wheel. This gave the students enough time to finish the previous task, remember the red rules, and prepare for the next task.

There was one day during the intervention when the second-grade teacher had laryngitis and could not talk above a whisper. She was very skeptical as to if the students would be able to follow the CWS procedures without her being able to talk over them. However, on this day (day 13 on Figure 1), there was only one interval with any student making inappropriate vocalizations. The teacher attributed this to the implementation of the CWS and said that earlier in the year she had lost her voice for two days and her classroom had been chaos. The students clearly knew the behavioral expectations for the classroom even when the teacher had trouble verbally expressing them.

Several Catholic schools have begun to implement PBIS systems within their schools. In order for students to succeed personally and academically, safe and orderly environments are important. When students know what to expect and what the rules are for each setting, behavioral problems will be prevented which allows more time for teachers to teach and students to learn. The CWS is an intervention that can help decrease unwanted behaviors and increase time on-task within the classroom. Our second-grade class did not start out with very extreme behaviors, but they were able to decrease the times that they were talking out of turn down to almost zero. Other schools may wish to incorporate the CWS into their PBIS systems as a class-wide or even school-wide intervention.

Additionally, Catholic schools that have students with disabilities included within the general classroom setting should consider the CWS as a

way to include those students within the classroom community. The CWS incorporates visual cues, temporal reminders of transition times, consistent expectations, and a social story, all of which help students with autism better understand and follow the classroom rules (e.g., Ganz & Flores, 2010). The teachers admitted that they sometimes forgot to follow the CWS procedures exactly, such as forgetting to provide warnings or change the color when transitioning to a different activity. Oftentimes, the students would remind the teacher of the procedures.

There are some lessons learned from using the CWS within the Catholic school environment. First, we noticed right away that the disruptive behaviors in this school were less intrusive than behaviors in public schools that had previously used the CWS. Therefore we were skeptical as to if the CWS would produce lasting effects. Second, the teachers were taught several specific guidelines when using the CWS. Red should be used frequently but time on Red should be brief as Red rules are difficult to follow. Time on Red should not be used as a punishment, but time on Green can be used as a group reward. If the whole class is ready to transition before the time warning is up, the teacher can switch activities early to lessen time that students may spend goofing off or breaking rules. Although the CWS is used for classroom organization, the teacher has control of reinforcements and consequences that are given to the class. Individual behavior plans always trump the CWS guidelines, as sometimes students with autism (or other students) may need individual support supplementing the classroom system. Through using these guidelines, the teachers were able to successfully implement the CWS to decrease unwanted behaviors in their classrooms with all students in the classroom and specifically with the students with autism. Both the teachers and students recognized that the CWS helped decrease behaviors and liked using the intervention.

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