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Improving Student Behavior in Art Classrooms: An Exploratory Study of CW-FIT

Melanie A. Nelson, EdS[1], Paul Caldarella, PhD[1], Blake D. Hansen, PhD[1], Mark A. Graham, PhD[1], Leslie Williams, EdS[1], and Howard P. Wills, PhD[2]

Abstract

Disruptive student behavior, a common concern for teachers, presents particular challenges for those who teach art. Class-Wide Function-Related Intervention Teams (CW-FIT) is a multitiered intervention for implementing effective classroom management strategies aligned with schoolwide positive behavior interventions and supports. CW-FIT has proven effective in general education classrooms, with its emphasis on social skills instruction, teacher praise, group contingency, and positive reinforcement. This first study of CW-FIT implementation in elementary art classrooms examined its effects on student on-task behavior. The researchers used a single-subject (AB) design in one classroom and reversal designs (ABAB) in two classrooms. Results indicated student on-task behavior significantly improved, and the teacher was able to implement CW-FIT with fidelity as well as increase her praise-to-reprimand ratios. Both teacher and students found the intervention to be socially valid. Study implications and limitations are discussed.

Keywords

art education, classroom management, praise, social skills, group contingency

Disruptive student behavior is a concern for educators (Everston & Weinstein, 2006), commonly recognized as a reason many teachers leave the profession (McKinney, Campbell-WhatelyKea, 2005). Research has demonstrated that 2% to 16% of students exhibit behavior that does not meet teacher expectations, negatively affecting their own and their classmates' education (Hester, 2003). A study of behavioral expectations showed that teachers considered students' self-control and cooperation the most important factors for achieving classroom success (Lane, Givner, & Pierson, 2004). Unfortunately, students who enter school without these skills can struggle socially and academically.

Over 30 year ago, Jason and Kuchay (1985) noted that students' behavior differs as educational contexts vary; for example, students often exhibit better behavior in language arts and social studies lessons compared with math. Multifaceted learning opportunities for elementary students include a variety of disciplines and subjects outside their general education classroom, including music, physical education, and art. In addition to the behavioral difficulties common in general education contexts, specialty classes have unique challenges particular to the structure and characteristics of the subjects taught, including different pacing requirements and larger class sizes. For example, music teachers report that student apathy and lack of motivation cause particular stress in their classrooms (Gordon, 2002). More recently, Cothran and Kulinna (2015) found that physical education instructors, who teach in a variety of settings with little structure, frequently have difficulty productively engaging their students.

Behavior Problems Specific to Art Instruction

Art classes also place students in a specialized learning environment. Susi (1995) explained that environmental differences between art and general education classrooms challenge traditional behavior management models. Instructional models of art education are less predictable than typical classroom methodologies. There is an emphasis on self-expression, as students learn critical thinking skills that enable them to evaluate their own and others'

[1]Brigham Young University, Provo, UT, USA
[2]The University of Kansas, Kansas City, USA

Corresponding Author:
Paul Caldarella, Center for the Improvement of Teacher Education and Schooling, Brigham Young University, 149 MCKB, Provo, UT 84602, USA.
Email: paul_caldarella@byu.edu

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artwork. In addition, there is a honing of physical skills required for art projects. Even when organized with a formal instructional model, art classes include informal teacher- or student-driven projects and activities. These characteristics can cause discipline-specific challenges for art educators, who must support a creative learning environment while still promoting positive student behavior.

With these context-specific challenges, many art teachers report behavior management problems beyond those experienced by general education teachers. One art teacher commented, "When kids come to the art classroom they transform. Suddenly they have not heard of school rules, good classroom behavior, listening to directions, or focusing on their work" (Larochelle, 1999, p. 28). In their qualitative study of 11 art teachers, Kuster, Bain, Newton, and Milbrandt (2010) found major concerns with classroom management and student motivation; many felt overwhelmed by these challenges. New or student art teachers commonly express a need for more classroom management training and resources (Kowalchuk, 1999). Saunders (1989) indicated the first criterion for hiring an art teacher was classroom management ability.

Some research has investigated effective ways for managing student behavior in the specialized setting of an art classroom. When Mitchell and Crowell (1973) conducted an early study on three 9-year-old boys with learning disabilities, they found that positive reinforcement improved the boys' behavior during art instruction. More recently, Howard (2004), a practicing art teacher, suggested specific procedures leading to an overall successful art classroom environment. She described carefully explaining rules and expectations while also establishing rewards and punishments for meeting them. For a creative dimension, she allowed the students to use art supplies to create drawings of expected behaviors. In the only recent study in this area, DeGreg (2015) found video modeling effective in promoting positive behavior for art instruction. Despite these limited studies, current research and resources are inadequate and there is a need for more investigation. One possible solution is the use of Class-Wide Function-Related Intervention Teams (CW-FIT; Wills et al., 2010), a proactive classroom behavior management program.

CW-FIT

CW-FIT focuses on implementing a continuum of preventive practices in classroom settings to manage behavior in positive ways (Wills et al., 2010). The CW-FIT program is a multilevel group contingency intervention. In CW-FIT Tier 1, teachers proactively teach selected social skills through direct instruction, discussion, and role-play. The skills serve as positive alternatives for inappropriate student behaviors: (a) following teacher directions, (b) ignoring others' inappropriate behavior, and (c) getting the teacher's attention the right way. Next, students work in teams and at periodic timer beeps are awarded points and praise by the teacher for displaying these social skills. A group contingency includes a reward for teams that reach a predetermined point goal by the end of the instructional session.

For students who do not respond as instructed to CW-FIT Tier 1, a second tier provides self-management charts to track their own behavior or help cards to provide needed academic or behavioral support. A third tier, utilizing a functional assessment for students who do not respond favorably to Tier 2, can also be adopted (Lower et al., 2016). For the present study, Tiers 1 and 2 were sufficient.

A number of studies have shown CW-FIT to be effective in elementary schools. Wills et al. (2010) found that student on-task behavior improved from 52%–67% at baseline to 78%–83% during implementation of CW-FIT for both students who behaved typically and those who displayed significant behavior problems. Wills, Iwaszuk, Kamps, and Shumate (2014) found that behavior of three at-risk students in a first-grade classroom improved during implementation of CW-FIT. Furthermore, in studies by Caldarella, Williams, Hansen, and Wills (2015) and Jolstead et al. (2017), results in early elementary and preschool classrooms reported CW-FIT as effective and socially valid.

Although results of CW-FIT have been positive in general education classrooms, less research has been conducted in nontraditional or specialty classes where behavior has been found to vary (Jason & Kuchay, 1985). CW-FIT has been effective in an elementary music classroom (Caldarella, Williams, Jolstead, & Wills, 2017) during elementary physical education sessions (Hirsch, Healy, Judge, & Lloyd, 2016), and in preschool classrooms (Jolstead et al., 2017). However, investigations of CW-FIT in art classrooms have not occurred, despite art teachers' reports of feeling overwhelmed and unprepared to manage problem behavior.

Study Purpose

While CW-FIT has been effective in reducing problem behavior, increasing on-task behavior, and improving teachers' classroom management, this study was the first to apply the intervention to art classrooms. This study had a primary research question: Does the implementation of CW-FIT increase student on-task behavior in elementary school art classrooms? Three secondary research questions were included for support: (a) Can an elementary art teacher implement CW-FIT with fidelity? (b) Does the implementation of CW-FIT in elementary art classrooms increase the teacher praise-to-reprimand ratio? (c) Do the participating art teacher and students find CW-FIT to be socially valid?

Table 1. Art Classroom Demographics.

Variable	Classroom 1	Classroom 2	Classroom 3
Grade level	3rd	5th	3rd
Class size	20	22	24
Gender			
Male	8 (40.00%)	13 (59.10%)	14 (58.33%)
Female	12 (60.00%)	9 (40.90%)	10 (41.67%)
Ethnicity			
Hispanic	8 (40.00%)	13 (59.10%)	13 (54.17%)
Caucasian	9 (45.00%)	6 (27.27%)	10 (41.67%)
Asian	1 (5.00%)	2 (9.09%)	0 (0.00%)
Pacific Islander	2 (10.00%)	1 (4.54%)	1 (4.16%)
Average age in years	8.80	11.11	8.97

Method

Setting and Participants

This study was conducted in art classrooms at a Title I elementary school in suburban Utah with two third-grade classes and one fifth-grade class, all taught by the same instructor. The school was implementing components of schoolwide positive behavior support, but did not have a complete program. There was a teacher praise note system, along with schoolwide expectations summarized as LEARN (*lead, encourage, act, reduce bullying*, and *never quit*). Rewards for following the schoolwide expectations included (a) having a successful and enjoyable school experience, (b) earning classroom rewards (e.g., parties, activities, free time, computer time, first position in line, extended recess), (c) receiving praise notes, and (d) learning the value of hard work. However, the school had collected no data for these programs. They had no formalized positive behavior support team; the principal and Title I coordinator ran the programs. CW-FIT was a stand-alone practice, not directly coordinated with the schoolwide positive behavior support components.

The art teacher for this study was a 43-year-old female who had been teaching art for 10 years; she was a self-taught artist who did not have a specific degree in art education, though she did have an associate's degree. She had volunteered to participate during schoolwide recruitment for a similar study in the school involving general and special education classrooms. When asked to choose specific classes to participate in this study, the teacher selected classes with significant behavior problems, rather than individual students with problematic behavior.

The first third-grade class (Classroom 1) participated during the 2014–2015 academic year; a fifth-grade class (Classroom 2) and another third-grade class (Classroom 3) participated during 2015–2016. None of the classes had exposure to the intervention before this study. The third-grade classes engaged in art lessons twice a week for 30 min, and the fifth-grade class engaged in art once a week for an hour. Each class included 20 to 24 students, for a total of 66 participating students ranging in age from 8 to 12 years; their ethnicities were primarily Caucasian and Hispanic (see Table 1).

Procedures

Consent. The participating school district and institutional review board (IRB) approved all procedures before research began. Researchers used approved active informed teacher consent and passive parent consent/student assent procedures with all participants.

Baseline. Researchers collected baseline data in all three of the art classes during regular instruction and routines. During baseline, the teacher maintained her typical classroom management techniques consisting of (a) expectations, (b) assigned student seating, (c) negative consequences for behavior problems, and (d) reinforcement for appropriate behavior. The teacher reviewed the expectations for her class at the beginning of the year and with each new art unit, though most were art specific (i.e., how to use and care for oil pastels), and no expectation posters were displayed. She reviewed new expectations throughout the year as students began to work with different art materials. She also used assigned seats for each student with minimal changes made during the year. Occasionally, a student would change seats if the teacher perceived that the student was exhibiting behavior problems. If a student was continually exhibiting problem behavior, the teacher either moved the student to the back of the classroom or sent the student to the assistant principal's office. For positive reinforcement, the teacher periodically used behavior-specific praise and awarded a piece of candy to a "star student" who she felt had exhibited appropriate behavior during the class period. The class also collectively earned daily points for appropriate behavior that the teacher tracked and used to award a class party (typically held once per semester).

Training. The researchers trained the teacher to implement CW-FIT with fidelity during a 2-hr training session in the spring. The art teacher, six other interested teachers at the school, and an administrator participated in the small group training with the researchers. Training occurred with explanations of the major intervention components (social skills, teams, goals and points, rewards/consequences, self-management) with detailed examples. The teacher was able to practice components with other attendees and ask questions to increase her understanding. The researchers refreshed the training with a 30-min booster session before the study recommenced the following academic year in the fall (approximately 6 months after the initial training). Two researchers met with the art teacher, reviewed the materials from the initial training, and focused discussion on the past year's CW-FIT implementation in her classroom and ways to improve for the upcoming year. They discussed examples for teaching, along with review of the social skills, praise, and reward options.

Researchers were present when the teacher introduced CW-FIT to her classes to ensure implementation fidelity at the onset and to answer additional questions. They consulted with the teacher on social skill lessons, precorrects (stating the social skill expectations at the start of the class period), teams, goals, points, praise, timer, and general behavior, for a total of 10 to 15 min during initial CW-FIT implementation (3–5 days). During the study, researchers were available to answer questions and to provide the teacher with additional feedback. At the teacher's request, or based on researcher observations of implementation fidelity, brief 1- to 2-min consultation sessions took place 2 to 4 times in each classroom over the course of the study (totaling, in sum, approximately 10–15 min, across the three classrooms). Consultation focused on proper implementation of intervention components (e.g., precorrects, goals, points, rewards, self-management), as well as general behavior and logistical questions.

Intervention. The intervention in this study consisted of the first and second tiers of CW-FIT (Wills et al., 2010). The teacher administered Tier 1 to all students in the participating classes. She implemented Tier 2 with individual students in Classrooms 2 and 3 who did not respond to Tier 1, but did not use it in Classroom 1 where student behavior improved using Tier 1 alone (see the "Results" section). The teacher did not use the third tier, because Tiers 1 and 2 resulted in the desired improvement. Below is a specific description of CW-FIT components implemented in the present study.

Social skills lessons. The teacher began CW-FIT Tier 1 by teaching three social skills to each class: following directions the first time, getting the teacher's attention the right way, and ignoring other students' inappropriate behavior. "Following directions the first time" referred to how to follow classroom procedures rather than how to complete art projects. The teacher taught one social skill lesson each week for 3 weeks. These 10- to 15-min lessons followed a teaching script including (a) the rationale for the social skill, (b) an explanation of the steps, (c) opportunities for role-playing with other students, and (d) a final class recitation of the steps. Posters displayed CW-FIT skills to be visible to all students. After initially presenting the lessons, the teacher would briefly review the social skills using precorrects at the beginning of each class period when implementing CW-FIT. Researchers collected implementation data through a treatment fidelity checklist (see "Dependent Variables" and "Measures" sections).

Teams. In each classroom, the teacher organized students into six teams of three to four members based on current seating arrangements. Seating did not rotate during the class period, so the teams remained stable. Team members encouraged one another to remain on task and to exhibit the social skills. Occasionally, if a student was exhibiting excessive disruptive behavior, the teacher had the student move to the back of the room and assigned to a one-person team.

Timer. The teacher set the timer at intervals of 5 min for Classroom 2 and 3 min for Classrooms 1 and 3—intervals based on the students' behavioral needs and the length of instructional time. As an hour was available for instruction with Classroom 2, the 5-min interval seemed more appropriate. The timer was not audible to the class, but was set to vibrate to remind the teacher to award points. The inaudible timer was a modification made by the teacher so the sound would not interrupt her while she was drawing. She could respond to the timer and award points after she had finished her drawing. On the fidelity checklist, observers recorded that she used the timer during every observation.

Points, praise, and goals. At the beginning of the period, the teacher set a daily point goal for teams to earn a reward. The goal was set to allow for 75% to 85% of the total point opportunities. For example, if 10 opportunities were available for teams to earn points, the daily point goal would be set at seven or eight. Researchers trained the teacher to praise teams for using the social skills as she awarded points, as well as throughout the lesson. When the timer vibrated, the teacher looked up and awarded points to teams having all members following the social skills. If one or more students in the group were off task, the team would receive no points. The teacher recorded points on a seating chart that she placed under her document camera, so it would be visible to the students. This modified the original procedure (having a point chart visible throughout the lesson), as the teacher was usually sitting near the document

Table 2. Definitions of Student and Teacher Behaviors.

Behavior	Definitions	Examples	How measured
Group on task	Every student in a group must be attending to the teacher or an assigned activity.	Looking at the teacher and listening. Completing independent seatwork.	20-min momentary time sampling in 30-s intervals
Teacher praise	Verbal statements to individuals, small groups, or whole class indicating approval of behavior or acknowledgment of a correct response.	"Thanks for raising your hand and getting my attention the right way!" "Joe, thank you for facing me and listening!" "Wow, this class is doing a great job following directions!"	Frequency counts during 20-min observation in 30-s intervals
Teacher reprimands	Negative verbal statements to individuals, small groups, or whole class about behavior. This includes behavior scolding, often with intent to stop a student from misbehaving.	"You are not listening!" "Stop talking to your neighbor." "You are not going to get a piece of candy if you don't stop."	Frequency counts during 20-min observation in 30-s intervals

camera to instruct and felt there was less distraction from the art lesson if the points were more minimally displayed. The observers recorded on their observation form the points the teacher awarded.

Reward. At the end of instruction, the teacher tallied the points to determine which teams reached the daily point goal and earned the reward established at the beginning of class. These rewards were either tangible (candy, pencils, and toys) or experiential (charades, heads-up seven-up). Due to the time constraints for Classes 1 and 3, the teacher often used rewards such as crab walking into line to prevent the reward activity from taking up instruction time. Any teams that did not earn the necessary number of points did not participate in the reward. Researchers used direct observation to confirm and record rewards issued by the teacher during instruction.

Self-management. For students in Classrooms 2 and 3 who continued to have difficulty displaying the social skills taught, the teacher added the CW-FIT Tier 2 self-management component during intervention phases. These students tracked their own behavior in relation to the social skills while still functioning as members of their team. When the timer vibrated, the teacher cued these students to evaluate their own behavior and award a point if they had earned it. They could share in the group reward if they earned the required number of points. The teacher identified three students with problem behaviors for self-management in Classroom 2 and three students in Classroom 3. Three additional peer model students also used self-management in each classroom (to serve as positive models and avoid stigmatizing students with behavior challenges). The observers recorded the teacher's use of self-management on the fidelity form.

Dependent Variables and Measures

To compare the results of the current study with prior research conducted in other elementary school settings (Caldarella et al., 2017; Hirsch et al., 2016; Jolstead et al., 2017), the decision was to use similar dependent variables and measures.

Group on-task behavior. During a 20-min observation period in each art class (which occurred once per week for Classroom 2 and twice per week for Classrooms 1 and 3), trained graduate and undergraduate observers recorded group on-task behavior via paper and pencil methods. Observers recorded group on-task behavior in 30-s intervals using momentary time sampling. Researchers trained observers to consider on-task behavior as an interdependent group contingency in which all group members were attending to the teacher, completing the art assignment, and/or following directions (see Table 2).

Treatment fidelity. At the conclusion of each session, observers completed a 14-item treatment fidelity checklist (see Table 3) recording whether the teacher had implemented all intervention components as intended. During training, the observers received written specifications for treatment fidelity and quality ratings, also available during observations; they marked "yes" or "no" on each item per observation, adding a quality rating of 1 (partial), 2 (good), or 3 (full) for all "yes" responses. Fidelity percentages consisted of dividing the number of "yes" responses recorded by the number of "yes" responses possible. Only items marked "yes" would receive a quality rating. For example, "daily point goal posted" required that the teacher announce the point goal and write it on a chart visible to students before instruction began. If this item was marked "yes," the quality evaluation would specify 1 if the posted goal was visible to

Table 3. Percent of CW-FIT Treatment Fidelity by Item.

CW-FIT procedures	Observed fidelity	Observed quality
Social skills are prominently displayed on posters.	100.00	100.00
Behavior-specific praise given.	100.00	96.00
Points awarded to teams for use of skills.	100.00	78.67
Winners reward announced if delayed.	100.00	66.67
Self-management charts given to individuals.	100.00	NA
Teacher prompts SM students to give points.	100.00	100.00
SM students give themselves points.	100.00	100.00
Frequent praise and points given.	96.00	94.44
Precorrects on skills at beginning of session.	92.00	92.75
Points tallied for teams.	92.00	73.91
Corrections are instructive and refer to skills.	87.50	68.18
Praise + points to reprimand ratio is approximately 4:1.	76.00	92.98
Timer used and set at appropriate intervals.	76.00	85.96
Winners immediately rewarded.	72.00	NA
Teacher praises SM students (at least 2 times).	50.00	83.33
Team point chart displayed.	28.00	33.33
Daily point goal posted.	20.00	46.67
Teacher supports SM (proximity, checks for accuracy).	12.50	33.33

Note. CW-FIT = Class-Wide Function-Related Intervention Teams; SM = self-management; NA = not applicable.

less than 50% of the students, 2 if it was visible to 50% to 90%, and 3 if it was visible to 90% to 100%. Overall quality percentages entailed adding the quality ratings given for each item and dividing by the total possible for items marked "yes."

Teacher praise and reprimands. During the same 20-min time periods as the group on-task behavior, each statement of praise or reprimand the teacher gave to an individual or group of students was also recorded using paper and pencil methods. Observers collected data in 30-s intervals using frequency recording (see Table 2 for definitions and examples).

Social validity. As the study was completed, the teacher answered an 18-item questionnaire regarding social validity of CW-FIT. She rated 15 Likert-type scale items from 1 = *very true* to 4 = *not true* and responded to three open-ended questions concerning the usefulness and practicality of implementing CW-FIT along with modifications she recommended. The questionnaire specifically asked the teacher whether CW-FIT was easy to implement and whether it helped improve student behavior. The students completed a 5-item social validity questionnaire evaluating their perceptions of the intervention. The student survey asked whether respondents liked CW-FIT and what they liked about it with two *yes/no* questions. Three open-ended questions also allowed students to express their opinions.

Interobserver Agreement

Four members of the research team observed and recorded data: two undergraduate students, one graduate student, and one research coordinator. To ensure accuracy, researchers trained all observers to recognize and record on-task behavior, praise and reprimands, and treatment fidelity by (a) memorizing definitions, (b) practicing with videotaped classrooms to achieve 90% reliability (with a master code file) over three sessions, and (c) practicing in nonstudy classrooms to achieve 90% reliability across three sessions with the research coordinator. The training was complete when all observers reached 90% accuracy in training sessions. During the study, two observers collected data during the same observation 54% of the time: Interobserver agreement averaged 96.35% for group on-task behavior, 98.78% for treatment fidelity, and 86.26% for teacher praise-to-reprimand rates.

Design and Analysis

This study utilized single-subject methodology. Researchers used an AB design in Classroom 1, collecting 10 baseline and five intervention data points. There was a need to delay implementation in this classroom, as some students were participating as a control group for a randomized controlled trial of CW-FIT in their general education classes. The school year ended before a reversal phase could occur in Classroom 1. As they were a control group, students had no exposure to the intervention before this study. Researchers used a reversal design (ABAB; Cooper, Heron, & Heward, 2007) in Classrooms 2 and 3, better demonstrating within-subject relationships involving environmental changes in the classroom and subsequent changes in student behavior. Classrooms 2 and 3 began the intervention at the same time; a total of seven baseline/reversal data points were gathered

for Classroom 2 (due to schedule limitations), with 10 gathered for Classroom 3. Observers collected eight total intervention data points for Classroom 2 (also due to scheduling) and 10 for Classroom 3. During the reversal phases, the teacher managed behavior as she had prior to using CW-FIT. She stopped reviewing social skills and removed the posters; discontinued using the timer, awarding points, identifying students as teams, and offering group rewards; and discontinued use of self-management charts for students in Tier 2. The researchers did not ask the teacher to stop offering behavior-specific praise, as she had done this somewhat before CW-FIT implementation.

Researchers conducted visual analyses of level, trend, and variability of the data (including means and standard deviations) across treatment phases to determine the impact of the intervention on group on-task behavior and on teacher praise and reprimands. In addition, Tau-*U* analyses provided an estimate of effect size by analyzing nonoverlapping data points between phases, which is appropriate for single-subject research (Parker, Vannest, Davis, & Sauber, 2010). Researchers did not correct for baseline when calculating Tau-*U*, given the clear distinction between baseline and intervention phase data points. Fidelity checklists completed after baseline, intervention, and reversal observations produced average scores, which researchers examined to determine the degree of fidelity. Analysis of the social validity questionnaire data included both qualitative procedures and descriptive statistics.

Results

Group On-Task Behavior

Visual analysis of data from Classroom 1 (see Figure 1) revealed that on-task behavior was variable during baseline, with an overall downward trend averaging 58.97% (*SD* = 15.91). On-task behavior immediately improved during implementation of CW-FIT, becoming less variable, with a stable trend averaging 84.44% (*SD* = 4.95) and a statistically significant effect (Tau-*U* = 1.00, $p < .01$).

Visual analysis of data in Classroom 2 (see Figure 1) revealed that on-task behavior during baseline was stable, with a clear downward trend averaging 68.50% (*SD* = 7.52). On-task behavior immediately improved during the first intervention phase, with a slight downward trend averaging 86.51% (*SD* = 6.35). During the reversal phase, on-task behavior was highly variable with a clear downward trend decreasing to 63.42% (*SD* = 14.67). After reimplementation of the intervention, on-task behavior immediately improved with a slight upward trend averaging 90.31% (*SD* = 3.12), decreased variability, and a statistically significant effect (Tau-*U* = 1.00, $p < .01$).

Visual analysis of data in Classroom 3 (see Figure 1) revealed that on-task behavior during baseline was stable, with a slight upward trend averaging 69.52% (*SD* = 4.73). On-task behavior immediately improved during the first intervention phase, with slight variability and a slight upward trend averaging 85.80% (*SD* = 6.15). During the reversal phase, on-task behavior decreased immediately with a stable trend averaging 74.40% (*SD* = 1.90) and decreased variability. After reimplementation of the intervention, on-task behavior immediately improved to 90.17% (*SD* = 4.91) with a slight but stable downward trend, increased variability, and a statistically significant effect (Tau-*U* = 1.00, $p < .01$).

Treatment Fidelity

During the baseline and reversal phases of the study, the teacher spontaneously implemented an average of 9.09% (*SD* = 4.37) of CW-FIT components across the three classrooms. During treatment phases, she implemented CW-FIT with an average of 77.83% (*SD* = 10.74) fidelity across the three participating classrooms, approximating the 80% level considered acceptable (Kamps et al., 2011; see Table 3 for percentages of fidelity across items).

Praise-to-Reprimand Ratio

During the baseline phase, across all three classrooms, the teacher praised the students an average of 11.35 times (*SD* = 6.63) and gave reprimands an average of 12.46 times (*SD* = 3.82) for a ratio of 0.91:1. During CW-FIT implementation, the average number of praise statements given by the teacher was 11.88 (*SD* = 4.60) across the three classrooms, with an average of 4.48 (*SD* = 0.83) reprimands, for a ratio of 2.65:1. Reversal data collected in Classrooms 2 and 3 averaged 5.30 (*SD* = 6.08) praise statements and 7.93 (*SD* = 1.03) reprimands, for a ratio of 0.67:1 during this phase. When CW-FIT was reimplemented, rates averaged 8.57 praise statements and 1.97 reprimands, increasing the praise-to-reprimand ratio to 4.35:1 (see Figure 2 for ratios of individual classes). Tau-*U* analyses of increases in praise rates following the intervention were significant for Classroom 2 (Tau-*U* = .57, $p = .05$), but not significant for Classrooms 1 (Tau-*U* = −.16, $p = .64$) and 3 (Tau-*U* = .25, $p = .36$). Significant decreases in reprimand rates were found in Classrooms 1 (Tau-*U* = −.82, $p = .01$) and 2 (Tau-*U* = −1.00, $p < .01$) following the intervention, but not in Classroom 3 (Tau-*U* = −.67, $p = -1.04$).

Social Validity

Teacher. The teacher answered *very true* about her enjoyment of being a CW-FIT teacher and *mostly true* about the ease of implementing it in her classroom. Sometimes, she had had difficulty interrupting her drawing instruction to award points. She expressed concerns about implementing

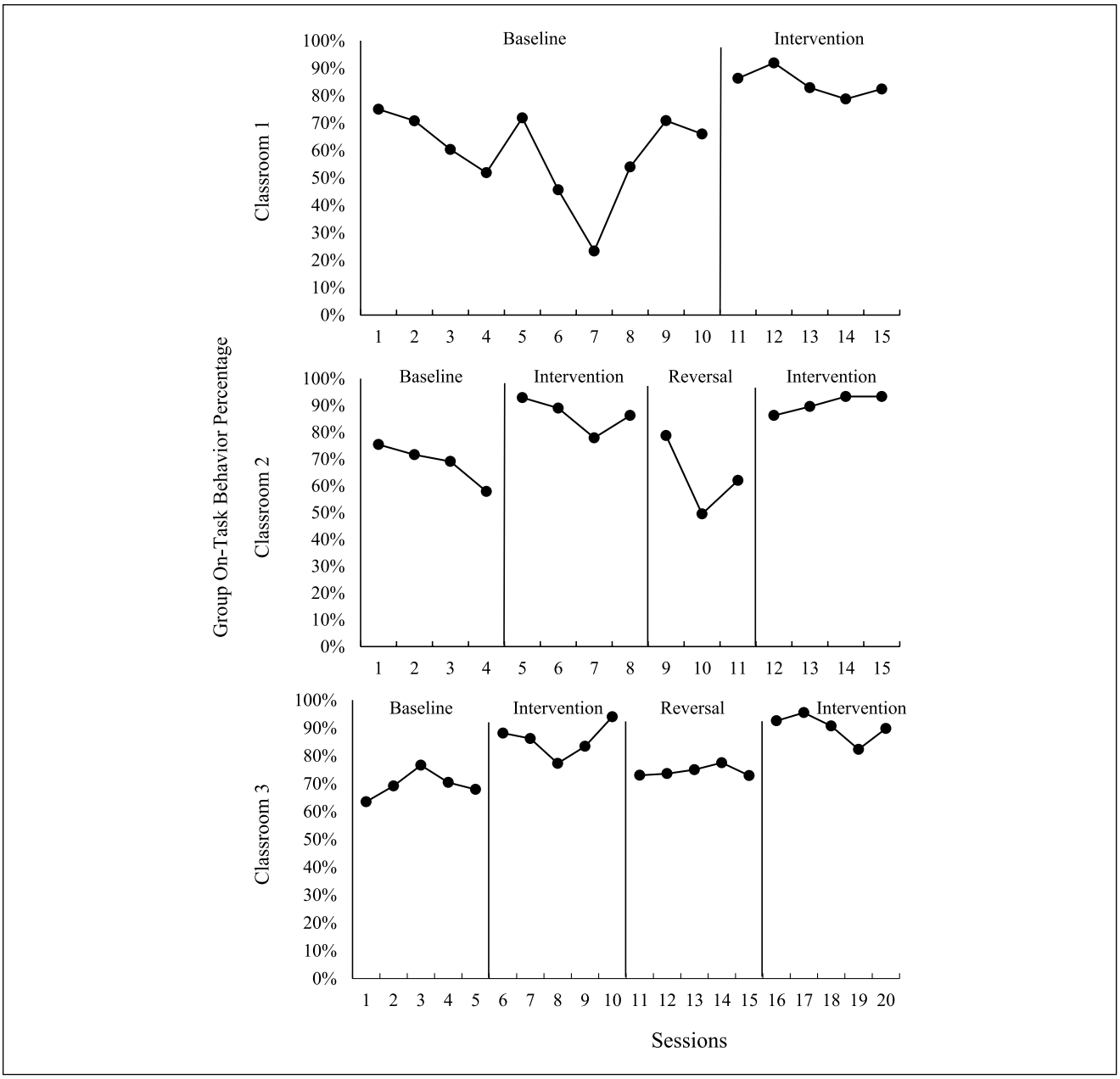

Figure 1. Group on-task behavior changes across three art classrooms.

CW-FIT for Classrooms 1 and 3, which were limited to 30 min. She answered *very true* that the use of teams and points was helpful in improving student behavior and in teaching her new behavior management skills. The teacher noted that she would likely use CW-FIT in other classes and recommend it to her colleagues. She felt her students enjoyed CW-FIT and that using it improved their focus and engagement. She gave two short answer responses: "I appreciate the training from [the research assistant]. She was available to answer questions when they arose" and "I have been very happy with how we are currently doing it."

Students. The 51 students surveyed across the three classrooms constituted 77% of all student participants. Of those students, 46 (90.20%) said that they liked playing CW-FIT. The remaining answered "no" or wrote in their answers as "sometimes" or "maybe." The students answered an open-ended question: "What do you like about CW-FIT?" The most common answers were "the rewards/prize at the end" (n = 19), "it is fun" (n = 9), and "you get to play a game" (n = 8). The students also responded to a question asking whether there was anything they did not like about CW-FIT. The most common answer was "no" (n = 25). Other responses included

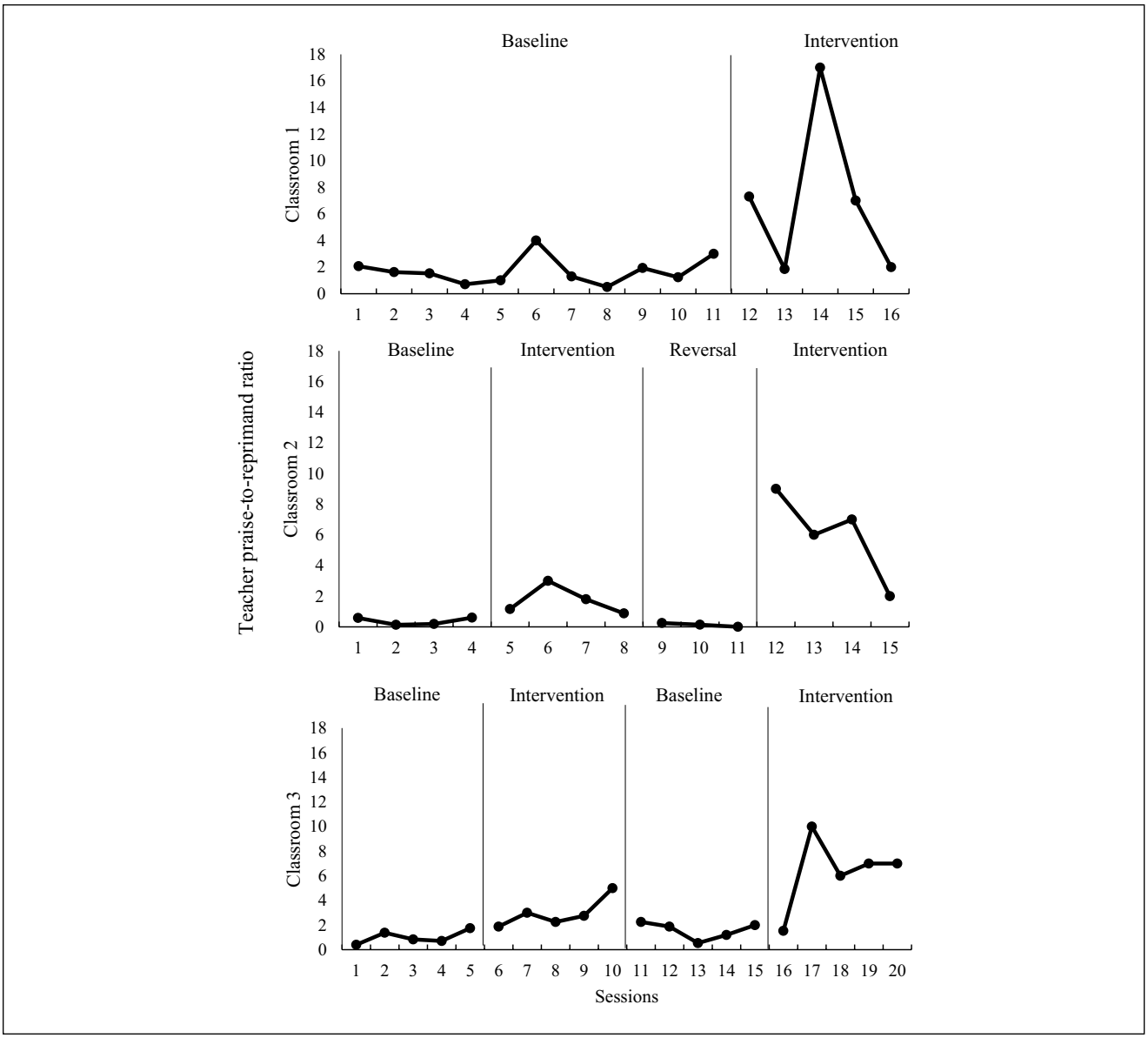

Figure 2. Teacher praise-to-reprimand ratio changes across three art classrooms.

"it takes away time from art" ($n = 4$), "it depends on the table you're on, not you" ($n = 3$), "the point goal gets higher" ($n = 3$), and "it can be boring" ($n = 2$). Six students did not answer the question. The last open-ended question was "Do you think other kids should get to play CW-FIT in their classrooms?" To this question, 42 (86.24%) of students answered "yes." When asked to explain why, many who answered favorably said, "Because it's fun" ($n = 16$) or "It will help others get better" ($n = 8$).

Discussion

The primary purpose of this study was to determine whether CW-FIT, a multitiered group contingency program, would be effective in improving student on-task behavior in three elementary art classrooms. Previous studies have shown CW-FIT to be effective in improving student behavior in elementary general education classrooms (Caldarella et al., 2015; Wills et al., 2014, 2010), an elementary music classroom (Caldarella et al., 2017), and elementary school physical education sessions (Hirsch et al., 2016), as well as in preschool classrooms (Jolstead et al., 2017). Findings of this first study of CW-FIT in art classrooms suggest it was effective in these three classrooms as well.

Group on-task behavior improved significantly during implementation of CW-FIT. Visual analysis of the results revealed a functional relationship between dependent and independent variables during intervention phases, with a

marked increase in on-task behavior. The classrooms' average of approximately 20% improvement in on-task behavior from baseline to intervention is consistent with previous CW-FIT studies (Caldarella et al., 2015; Wills et al., 2014, 2010). Initial on-task behavior in this study was higher than typical for past CW-FIT research, possibly because art can be more engaging than other more academic activities. While on-task behavior did not improve as much as it had in other settings, the rate of on-task behavior was still high. Research has shown that improved student on-task behavior results in more instructional time and a better learning environment (Carter & Pool, 2012).

The results of this study indicated that the participating art teacher was able to implement CW-FIT with fidelity, consistent with fidelity findings in other CW-FIT studies (Caldarella et al., 2015; Wills et al., 2014, 2010). The areas in which the teacher had lower fidelity were "point chart displayed," "daily point goal posted," and "corrections reference use of skills," as these were modifications she had made to aid in the flow of her art instruction. The teacher implemented most CW-FIT components with high fidelity, including "timer used and set at appropriate intervals," "behavior-specific praise given," and "points awarded to teams for use of skills." Although research into behavior interventions in art classrooms is limited, these findings suggest CW-FIT may be feasible for art teachers to implement in their classrooms with fidelity.

Teacher praise-to-reprimand ratios improved during implementation of CW-FIT. During baseline phases, the art teacher gave more reprimands than praise statements, but reversed this tendency while using CW-FIT, improving to about a 3:1 praise-to-reprimand ratio, which conforms to best practice recommendations for increasing positive classroom behavior (Nelson, Young, Young, & Cox, 2010). During the reversal phases in Classrooms 2 and 3, the praise-to-reprimand ratio returned to baseline levels. On average, the praise-to-reprimand ratio improved to 4:1 with reimplementation of CW-FIT. These findings are consistent with other CW-FIT studies that showed praise-to-reprimand ratios improving during the intervention (Caldarella et al., 2015; Wills et al., 2014, 2010). The teacher indicated that her praise rates might have been lower during baseline because she considered art a self-reinforcing task and was concerned that adding verbal praise could be excessive. The praise rates improved as the vibrating timer reminded her to offer praise. The teacher also used "bonus points," which provided extra opportunities for her to praise the students. These findings warrant emphasis as increased praise improves student behavior (Howell, Caldarella, Korth, & Young, 2014).

Finally, the teacher and students found CW-FIT to be socially valid, also consistent with previous studies (Caldarella et al., 2015; Jolstead et al., 2017). To use an intervention consistently and effectively, teachers must perceive it as socially valid and practically applicable in their classes (Marchant, Heath, & Miramontes, 2012). The art teacher rated the intervention positively and indicated that it had been easy to implement; she also expressed her belief that using this intervention had helped improve student behavior. The teacher indicated not liking some components of CW-FIT, such as use of the timer. She also noted time constraints with using the intervention during the two 30-min art classes. A high majority of students indicated that they liked CW-FIT and thought other students should be able to participate. Several noted that it was "fun," they liked the group rewards, and it helped improve behavior.

Limitations and Areas for Future Research

There were some limitations to this study. First, participants included only one art teacher and three classrooms. For generalizability, other researchers could replicate this study in additional art classrooms. Second, the participating teacher was not a certified art teacher. Although she was an artist who had been teaching for 10 years, she had no formal training in art education. This is cause for concern when generalizing to other art teachers with training in a particular pedagogical approach. Research examining the use of CW-FIT by certified art teachers would help to validate the study findings.

Third, as previously mentioned, the art teacher modified the intervention to accommodate ways she desired to use it. In contrast with previous CW-FIT studies, the timer was not audible to the students; it vibrated to remind the teacher to offer praise and award points, but the students experienced no audible reminder as a behavioral cue. Furthermore, the point chart was not always visible to the students. The nature of art instruction limited the teacher's flexibility to get up and award points on a visible poster, so she placed a point chart under her document camera to award points. Modifications may be necessary for teachers to use CW-FIT and other classroom-level interventions with fidelity, given the importance of contextual fit when implementing any practice (Harn, Parisi, & Stoolmiller, 2013). Further studies would be helpful to determine whether other art teachers would need similar modifications.

Fourth, scheduling limited the number of data points available for Classroom 2. As this class met only once a week (on days that also included two school holidays), just four data points were collected for each phase, except reversal when three were collected. In single-subject research, three data points in each phase meet the standard for a reversal design with some reservations, while five or more data points meet the standard with no reservations (Kratochwill et al., 2010). For this reason, readers should interpret the results of Classroom 2 with some caution. In addition, the scheduling for Classroom 1 precluded a reversal phase due to the end of the school year and did not include the Tier 2 self-management component. Further

studies allowing additional time to accommodate longer baseline and reversal phases would be helpful to validate implementation results. Furthermore, the nature of the intervention prevented reversal of all components of CW-FIT: Researchers could not reverse the social skills instruction students had received.

Finally, before the study, the teacher had identified several target students as having behaviors that were difficult for her to manage. The research team planned to collect and analyze individual data to determine whether the intervention was effective for more challenging students. However, the limited class time available for art instruction (just 30 min in two of the three participating classrooms) did not allow sufficient time to collect and analyze both group on-task behavior and changes in individual student behavior, so group behavior became the focus for the study, as this was the teacher's primary area of concern. There were resulting limitations related to only having group-level data when interpreting changes in on-task behavior. Effects of CW-FIT on individual students in art classrooms is an area worthy of further study.

Conclusion

This research has shown that CW-FIT could be a useful tool for elementary art teachers to manage student behavior. Previous research has shown that classroom management is a major concern for art teachers, as many feel overwhelmed by difficult student behavior (Kuster et al., 2010). This intervention could be especially useful for new art teachers, many of whom report feeling unprepared to manage student behavior (Kowalchuk, 1999). While replications are necessary to generalize the findings of this study to other art classrooms, the results suggest a promising behavioral intervention to help fill the deficit of research into student behavior during art instruction. Although uncertified, an art teacher implemented the intervention with fidelity sufficient to lead to improved student on-task behavior and increased praise-to-reprimand ratios. Teacher and students supported its social validity, confirming it as practical tool art teachers may use to manage students' classroom behavior in positive ways.

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ORCID iD

Paul Caldarella https://orcid.org/0000-0002-0883-8890

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