8-2024

Evaluating Social Interactions as a Byproduct of The Good Behavior Game Within an Elementary Small Group Classroom

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EVALUATING SOCIAL INTERACTIONS AS A BYPRODUCT OF THE GOOD BEHAVIOR GAME WITHIN AN ELEMENTARY SMALL GROUP CLASSROOM

by

Emma Walton

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Special Education

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Logan, Utah

2024

ABSTRACT

Evaluating Social Interactions as a Byproduct of The Good Behavior Game within an Elementary Small Group Classroom

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Children with Autism engage in significantly fewer social interactions than their neurotypical peers. Much of the research around this deficit focuses on early intervention, and specialty services such as ABA intervention. The Good Behavior Game is an interdependent group contingency that has been shown to improve academic, social, and appropriate behaviors in a variety of settings. Due to its efficacy even when implemented with low fidelity and the extensive evidence describing the game's impact on behavior, this study sought to evaluate the effects of the GBG on the social interactions of students with autism to examine if social interactions can be improved through use of the game within an elementary small group classroom environment.

Keywords: Good Behavior Game, Autism, Social Interactions

(61 pages)

PUBLIC ABSTRACT

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Children with Autism exhibit significantly fewer social interaction behaviors than their neurotypical peers. Much of the research around this deficit focuses on early intervention, and specialty services such as ABA intervention. The Good Behavior Game is an interdependent group contingency that has been shown to improve academic, social and appropriate behaviors in a variety of settings. This study explored the effects of the GBG on the social interactions of elementary students within special education without specifically targeting social interactions with peers through the game's rules. This study found negative (null) results, indicating that the GBG did not affect the social interactions of three, female elementary students during calendar or free time.

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Evaluating Social Interactions as a Byproduct of The Good Behavior Game within an Elementary Small Group Autism Classroom

Introduction

Children with autism engage in fewer social interactions than their neurotypical peers (McEvoy et al., 1993). Much research has been conducted on the effect of this deficiency showing how social communication in early childhood has long term impacts on adult outcomes (Gillespie-Lynch et al., 2012). Students with autism may also struggle with joint attention skills, where protodeclarative joint attention behaviors, that is sharing attention for social purposes, are more severely impaired than joint attention for protoimperative behaviors such as requesting (Gernsbacher et al., 2008). Comprehensive previous research on the effects of joint attention, imitation, and toy play on social language highlight the need for students with autism to learn pro-social communication and behaviors at an early age, to have more success in their adult lives (Toth et al., 2006).

The Good Behavior Game (GBG) is an inter-dependent group contingency made up of teams that focuses on rule following with immediate feedback to gain reinforcers or avoid punishers dependent on rule adherence. Research on the GBG has been extensive and reports positive effects on reducing teacher-rated conduct problems, peer-rated conduct problems (Smith et al., 2001), aggressive behaviors, disruption (Rubow, 2018), talking out, swearing, and inappropriate social interactions (Flower et al., 2014). The GBG has also been shown to improve on task behavior (Darch & Thorpe, 1977),

academic engagement (Moore et al., 2022), and peer related shyness (Smith et al., 2001). See Flower et al. (2014) and Tingstrom et al. (2006) for detailed reviews of the GBG.

Despite the extensive research on the GBG there is a population within education that is under researched: students within special education settings. As of writing this thesis there are only four studies looking at the GBG within elementary special education settings (Conradi et al 2020, Groves & Austin 2017, 2019, and 2022).

Literature Review

We used EBSCOhost to conduct a search of the literature using key words "Good Behavior Game" or "GBG" and "Special education" or "special needs" or "disabilities." This yielded 112 results. Non-academic journals were ruled out leaving 105 articles. Studies were included in the literature review if they explored verbal utterances and/or were conducted within a special education setting and were focused on the effects the GBG had on student behavior. Fourteen articles were used to support this study. Two of the 14 articles were excluded—one being a conceptual paper discussing the GBG as a possible behavioral vaccine for schools (Embry, 2002) and the other providng a simplified discussion on the GBG (Lastrapesm, 2014). Both these articles were ruled out due to wanting empirical articles only. Another article that observed social exlusion and pro-social behaviors in autism spectrum disorder (Silva et al., 2020) was also ruled out due to the research not focusing on the GBG intervention.

Of these 11 remaining articles, two articles were comprehensive, meta-analyses and reviews of the GBG (Flower et al., 2014; Smith et al., 2001), which were useful for identifying research showing the GBG has been effective. Following these reviews, the remaining articles were grouped into three categories: 1) the application of the GBG in

special education and alternative education, 2) exploring adaptations within special education application of the GBG, and 3) the effects of the GBG on social interactions and children with autism.

The first grouping of articles refers to studies that implemented a regular version of the GBG within a special education or alternative education setting. Research on the GBG within special education has yielded results showing the traditional implementation of the GBG is effective at decreasing off task behaviors. Conradi et al. (2020) conducted a study in three special education classes across two elementary public schools; each class contained an average of eight students with disabilities. Researchers collected data on three students whose disabilities included autism and/or intellectual disabilities. They delivered a traditional GBG for 10 min during calendar time. Researchers identified that off task behaviors were reduced. Interestingly, the results provided anecdotal data in which teachers reported that using the GBG made their classroom a more positive environment for their students and changed the teacher's perception of delivering praise.

A larger scale group study conducted in the Netherlands examined the use of the GBG on students with psychiatric disorders with severe social, emotional, and behavioral problems (Breeman, et al., 2016). In a yearlong study, traditional GBG's were implemented across special education schools and results showed that the GBG had a statistically significant effect on children's emotional and behavioral problems. Upon closer examination a clarification was made; the GBG did not actually decrease behavioral problems but prevented these problems from increasing. Contrary to previous research, Breeman et al. (2016), found no intervention effects on classroom social relations, which is inconsistent with other findings such as Witvliet et al. (2009) who

found that the GBG within general education populations increased student's acceptance by peers, their number of mutual friends, and the proximity to others. Bremen et al's. (2016) study is important in highlighting the preventative model of the GBG.

Many studies that have taken place within special education typically occur with populations presenting with Emotional Behavioral Disabilities (EBD). Groves and Austin (2017) examined the GBG as an interdependent and dependent group contingency comparing the effects on unwanted problem behavior in an EBD classroom within the UK[1]. The study compared a traditional team GBG and an individual GBG to answer a common critique of the game by teachers: many students won't be able to play in teams. Both contingencies reduced problem behavior, and the results showed no difference in efficacy between the two game variations. The results from this study may support the use of a whole group GBG within future related research. Further research and replications have shown the intervention's efficacy at reducing disruptive behavior in EBD settings, (Joslyn et al., 2014, 2020; Moore et al., 2022; Rubow et al., 2018). Furthermore, when compared to the Caught Being Good Game (CBGG) – a variation of the GBG where students are awarded points on a fixed schedule of reinforcement for rule adherence instead of losing points upon rule violations - the GBG has been shown to be more effective in EBD classroom settings (Sharpe et al., 2021). When considering the disparity of research between special education small groups, and EBD a possible explanation may be due to the different barriers encountered when applying a group contingency to an EBD classroom. In alternate classrooms and schools, behavior is often

[1] Like special education schools, EBD classrooms do not exist in the same way in the UK. Instead of a single classroom these schools are called Pupil Referral Units (PRU's) and are an EBD or ACU School comparatively.

the primary classification[2] on the students' Individual Education Plan (IEP) whereas within the broader scope of special education self-contained, or small group classes, a multitude of classifications may be present such as, but not limited to, physical disabilities, developmental disabilities, and cognitive disabilities.

The range of diagnosis present in a special education classroom creates a common barrier often encountered when researching the GBG in these settings - the need for adaptations. Populations with disabilities may require more adaptations to support accessibility and success of the intervention. Therefore, the second category of articles identified within the literature review present manipulations of adaptations to the GBG within special education classrooms in order to assess possible functional relations. Two articles explored if and how adaptations might affect the GBG's ability to reduce problem behavior.

Chronologically, Vargo et al. (2020) explored technology enhanced GBG within a self-contained life skills class in a high school. Their participants were a class of 6 students all diagnosed with Autism. Vargo et al. (2020) ran three variations of the GBG quasirandomly: traditional GBG, ClassDojo GBG, and ClassBadges GBG. All examined forms of the game were effective in reducing disruptive behaviors. Building on this research, Groves et al. (2022) modified a traditional GBG within a Special Education Needs school[3] (SEN) with eight students aged 14-15 with intellectual disabilities and/or physical disabilities. Modifications included: written rules augmented with pictures

[2] The author would like to acknowledge this is not the only disability encountered but majority of students in EBD settings will have EBD as their IEP classification whereas special education settings may have developmental delays, physical disabilities as well as emotional disabilities resulting in a different IEP classification.

[3] This is the British Equivalent to a Small Group Classroom. British Schools rarely have small group classrooms within a general education setting, instead they have special schools for these classes.

(braille when needed), a proximal stimulus prompt on each students' desk, and adapting points to make them more concrete by creating a soccer theme where students earned a goal on a net. Results showed that with these adaptations the GBG was still successful in reducing call outs and off task behaviors. This was then replicated in a second class with adaptations to the game such as using a racetrack with a start and finish line, writing rules with pictures on a poster at the front of the classroom, and requiring students to be over the racetrack's finish line before the game ended in order to win. In both experiments, minimal adaptations were needed to support the students accessing the intervention and both studies identified the GBG was able to produce a behavior change.

The above two categories demonstrate the GBG's efficacy at behavior reduction within alternative educational settings, or special education schools with adaptations but little research has been conducted examining the implications of the GBG on communication. Only one article was identified in the literature review regarding the possible effect of the GBG on pro-social utterances on students with disabilities.

The purpose of Groves and Austin (2019) was to explore the GBG's effect on positive and negative peer interactions when no specific contingencies were programmed to target those behaviors. They defined positive peer interactions to include verbalizations or statements aimed at encouraging peers, congratulating each other on performance, and requests or offers of assistance to one another. Negative peer interactions were defined as verbalizations or gestures that "threatened, provoked, or demeaned a peer or interfered with the peer's work." As well as observing the peer interactions, the team also programmed and collected data on behaviors within the class to assess the GBG effects on problem behavior reduction. The authors implemented the GBG in two classrooms in

a Pupil Referral Unit (PRU)[4] in Wales. In Classroom 1 students made up a single group and points were earned for following the rules. Classroom 1's teacher used a lottery system to determine point criterion and did not disclose the winning number to the players. The second classroom had three groups (two with three members, and one with two members), the winning criterion was based on the established length of the session and was typically 75-90% of the possible points. In this class, the winning number was announced at the beginning of each session. Using an ABAB design in both classrooms, the team found that the GBG resulted in substantial reductions in disruptive and off task behavior. Data also showed the GBG resulted in an increase in positive peer interactions and a decrease in negative peer interactions without these variables being directly targeted. The data were consistent across both classrooms.

Based upon the review of the literature, the purpose of this proposed study is to replicate the research by Groves and Austin (2019) to assess if the GBG's effects on social interactions can be replicated without specific programming. This proposed research will extend the previous literature by applying the intervention to students with autism who already have a deficit in social behaviors. This study will also aim to examine the extent to which the GBG is considered socially valid with special education teachers and if a positive effect on classroom perception is identified as found in Conradi et al. (2020).

[4] PRU's are the UK's special schools for emotional behavioral disabilities. They are a school of self-contained EBD classrooms where the students do not contact general education peers.

Methods

Participants and Setting

This study took place in a small group elementary class for students with autism. The school was in a western state, servicing 550 + students from three geographic areas within a rural setting. There were three classes per general education grade level in the school, in addition to a single small group special education classroom for students in grades K-3. The school district was contacted and approved of the research being conducted in their setting and approved recruitment fliers. The Special Education Director sent out the flyers to their special education teachers and sent posters to be hung in school faculty lounges. Teachers signed up via a QR code and were contacted by the primary researcher. After teacher training and student consent collection one teacher completed recruitment and training and chose to participate. Researchers did not collect demographic information on the teacher participant. Students in the participating special education class were in grades K-3 and were aged 6 to 9. The class contained twelve students during baseline with a thirteenth joining during the first week of data collection This student was not included in the study. Twelve students' parents provided consent for student participation and all 12 students provided assent for data collection at the beginning of each session by agreeing to play the game. The classroom also included 4 paraeducators within the room during all phases and sessions.

The classroom was set up with the teacher's board at the front, and individual desks arranged in three rows of five desks separated approximately one foot from each other. There was a kidney-shaped table in the back left of the room where classroom aides sat during morning free play. There was also a straight table with seating for six

individuals behind the final row of classroom desks. Students could also move to this desk during free time although it was not in use during calendar time. The classroom door was always open, and students had been taught to “take a break” in the hall when motivated to do so or when a non-preferred video was playing.

Inclusion and Exclusion Criteria

All students participated in the game regardless of students being identified as target students. In order to be selected as target students for the study, students needed to have a vocal verbal repertoire in which their interactions with peers were predominantly verbal to be selected. Students who were non-vocal verbal or had a larger deficit in vocal verbal skills were not selected as target participants for this study, due to the definitions of social interaction requiring verbal utterances. Students who had either high rates of absenteeism or regular tardies were not selected for participation. Students who were scheduled to receive additional special education services (e.g., push in to general education, occupational therapy or speech) were not selected for the study due to the researchers and teachers prioritizing students’ needs and access to services.

Screening

Prior to data collection, the main researchers visited the classroom and observed the student’s social interactions. Target students were chosen based on meeting the following criteria: either a) High rates of interaction directed at adults but low student/peer interactions, or b) Medium to high interactions across staff and peers and have good attendance with limited tardies.

Three students were identified and selected, student 1, Tammy, was a second-grade female student, whose parents identified her as not having a diagnosis of autism;

student 2, Mol, was a second-grade female student whose parent identified as having a diagnosis of autism; and student 3, Alfira, was a third-grade female student whose parent identified her as having a diagnosis of autism. All students used she/her/hers pronouns.

Response Definitions and Measurement

Target behaviors were selected based on previous research, observations in the classrooms, and discussion with the class teacher and are described in Table 1. Based upon Groves and Austin 2019, the primary dependent variables were positive peer and negative peer interactions. Positive physical gestures, when oriented to a peer, including thumbs up, waves, high fives were counted as positive peer interactions. During calendar time students greeted other students with pinky shakes, elbow touches, and fist bumps; these were included as positive peer interactions. Additionally, definitions for selected GBG rules are presented in Table 2. The GBG rules were chosen by the teacher and aligned with the classroom rules already in use in the classroom.

Data Collection

Data were collected on each of the three participants that met the inclusion and exclusion criteria of participant screening. Partial interval recording was used to measure the primary and secondary dependent variables for the study for each student. Students were assigned a number (1 Tammy, 2 Mol, 3 Alfira) and researchers rotated collecting data on a particular student following the numerical order. For example, the data collector would watch student 1 for 10 s, student 2 for the next 10 s, and student three for the next 10 s. Each interval was 10 s long and students were observed for their positive social interactions, negative social interactions and rule breaks in line with the game (free time or calendar) they were playing. Within this setting, students attending a small group class

are bussed to school on special education busses, as such arrival times are variable daily. Due to this variability time playing each game varied between 10- and 15-minutes causing intervals per session to vary between 60 and 90. Data are presented as the percentage of intervals in which the target behaviors occurred. Like Groves and Austin (2019) rules of the game did not specifically target peer interactions. Data were compiled using digital excel sheets (see Appendix A).

Games Played

There were two games played within this classroom: 1) free play occurred between 8:40 a.m. and 9:05 a.m. and 2) calendar time occurred between 9:05 a.m. – 9:30 a.m. During free time sessions students arrived, removed coats, hung up backpacks, and removed their home lunches, however, these activities were not included in data collection. Students were able to choose an activity from an "activity case" which included: magna tiles, dinosaur figures, books, dolls, blocks, and other games. They could also engage in other activities such as talking, observing classroom pets, or jumping on the trampoline that was always available in the back of the classroom. Students were also able to move their chairs and join communal back tables if they chose.

Calendar time sessions involved students sitting in individual desks, facing forward. The classroom expectation was to orient themselves to the front of the room, students could place their head on the desk as long as they oriented their attention forward, however, heads flat on the desk was not acceptable.

Materials

The teacher was trained using the same GBG training PowerPoint (see Appendix B) per Groves and Austin (2019). The classroom teacher and paraeducators running the

game were also provided with a copy of the GBG rule scripts which were made to ensure the introductions to the games were the same across settings, conditions, and participants. We provided training on game implementation to the classroom teacher prior to her running the game with the class. Training took place virtually and included a step-by-step description of the GBG. The teacher was presented with the choice between a commonly used version of the traditional GBG in which points are removed contingent on problem behavior (Barrish et al., 1969), or a "Caught Being Good Game" where students were awarded points on a fixed time interval (Bohen et al., 2021). The teacher decided that a traditional GBG would be the most beneficial for their class. Groves and Austin (2019) implemented a caught being good version, so the training was adjusted based on the teacher's decision. Training included modeling of all the procedures, questions, and answers as well as modeling prior to playing the first game.

Rules were made with visual prompts due to the varying levels of the students' disabilities and shown on a poster (Appendix D) prior to starting each game. These rules were gestured to using gestural and verbal prompts when students violated the rules and feedback was given, "rulebreak, quiet mouth." This verbiage was chosen by the teacher to align with their current feedback style. All sessions were implemented by the teacher and observed by the primary researcher, and a graduate student collected data as a secondary observer.

Interobserver Agreement

The primary author served as the primary data collector. A trained graduate assistant served as an independent observer (three total students were trained and varied as secondary data collectors). Agreement for peer interactions and rule breaks were

calculated using an exact count per interval basis, dividing the number of intervals with 100% agreement by the total number of intervals and multiplying by 100. IOA per session was rounded up if the second digit after the decimal was 0.5 or above and rounded down if 0.4 or below. IOA was collected across both games, across all phases.

IOA Results

Free time

IOA was collected for 40% of sessions in (A) Baseline phase with social positive mean agreement 93% (range 90%-100%) and 100% mean agreement for social negative and rule breaks; 50% of sessions in (B) Treatment phase with social positive mean agreement 95% (range 94%-96%) and 100% mean agreement for social negative and rule breaks; 33% of sessions in (A2) Treatment phase with social positive mean agreement 96%, and 99% mean agreement for social negative and 100% mean agreement for rule breaks; 40% of sessions in (B2) Treatment phase with social positive mean agreement 88% (range 80%-95%), social negative mean agreement of 98% and 99% mean agreement for rule breaks.

Calendar Time

IOA was collected for 29% of sessions in (A) Baseline phase with social positive mean agreement 99% (range 99%-98%) and 100% mean agreement for social negative and 98.5% (range 98%-100%) mean agreement for rule breaks; 40% of sessions in (B) Treatment phase with social positive mean agreement 94.5% (range 93%-96%) and 100% mean agreement for social negative and 99% (range 99%-100%) mean agreement for rule breaks; 33% of sessions in (A2) Treatment phase with social positive mean agreement 98% (range 95%-100%) and 99% (range 99%-100%) mean agreement for social negative

and 97% (range 96%-97%) mean agreement for rule breaks; 60% of sessions in (B2) Treatment phase with social positive mean agreement 97% (range 95%-98%), social negative mean agreement of 99% (range 99%-100%) and 97% (range 96%-99%) mean agreement for rule breaks.

Treatment Integrity

The teacher received training on the GBG and supported rule creation and operational definition to match the needs of their class. Three classroom aides were present daily, they did not receive direct training on the game, but did receive training and coaching on supporting the teacher with rule violations for individual students who were placed on a team of 1. All games were implemented by the teacher with coaching and feedback from the primary author. During each GBG game played, the primary data collector used a checklist adapted from Groves & Austin 2019 (See Appendix E) to record the degree with which the intervention was implemented as planned. Items on the checklist included reminding students of the rules at the start of the game, removing points accurately, providing appropriate feedback, and delivering the reward to winning teams. Teachers were also provided the checklist as a task analysis to support high treatment integrity. Treatment integrity for free play and calendar time within both baseline sessions varied between 0% and 20% per game. This was due to the teacher providing regular praise for rule following and feedback for rule break behaviors. The teacher treatment integrity for intervention during phase 2 was an average of 98% with a range of (90%-100%). The only error was the teacher forgetting to remind students of the rules in one game. Following the game with the error, the researcher delivered feedback to the teacher and integrity scores remained at 100% across all remaining sessions.

Experimental Design

This study utilized the same group of participants, in the same classroom, to play both games due to the availability of participants. The free play game was started between 8:40 a.m. – 9:00 a.m. and the calendar game was played between 9:05 a.m.- 9:30 a.m. The study used an ABAB design to assess the GBG's effect on social interactions. Due to the time between games being brief, we utilized the logic of a multiple baseline across games to protect against coincidental events and possible sequence effects. The session that contacted the intervention first was decided based on stable baseline data. The baseline data in free time showed high variability so the game was implemented first in calendar time.

Procedures

Baseline

During baseline the teacher was instructed to teach the class and respond to problematic behaviors as they usually would. The classroom management system in place at the start of the study remained in place throughout all phases. The teacher used high rates of praise, with small edible tokens as reinforcers for following the classroom rules. Researchers decided to move from baseline to intervention after a minimum of three data points or until data was stable.

Good Behavior Game

In a departure from the Groves and Austin (2019) study, students played a traditional version of the GBG. The teacher chose the name of the game as "I can follow the rules game." Before playing, the teacher hung the rules on the wall next to the board

and had chosen points to be displayed as smilies as these were already in effect in the classroom throughout the year.

The teacher told the students that they were going to play a new game in class, where they would have the opportunity to win a prize for following a set of classroom expectations. The teacher showed the students the 'prize box' and explained that students would have smilies that they would have to 'keep safe' on the board, and if someone doesn't follow the rules a smiley would be removed. The teacher explained they would set a timer, and if the students had smilies on the board when the timer went off, they would win the game. The expectations for the class were displayed as rules on a poster hung at the front of the classroom. Prior to starting each game, the teacher introduced the rules and provide examples and non-examples of the behavior. This was repeated at the beginning of each game.

When a rule break was observed the teacher announced, "rule break" and the name of the rule to the whole class (e.g., "rule break, quiet mouth"). Students who struggled with three consecutive rule breaks, for the same behavior, within 5 s of each utterance were placed on their own team. This occurred with three students, two with limited vocal verbal repertoires who engaged in screaming, and one student who was identified as engaging in sabotaging behavior. None of these students were target students and individual score boards were only needed in the calendar game.

When the timer sounded, the teacher asked, "what does our timer mean?" and students independently responded, "the we can follow the rules game is finished" and the teacher reinforced the response with verbal praise and proceeded to count the smilies on the board. Students with individual score boards were asked by a classroom aide, "what

does the timer mean?" and then they counted their smilies together. The teacher then asked, "did you win?" and students responded happily and many stated, "we get our prize!" Reinforcers were given immediately after the game ended.

The teachers and aides were told not to give feedback on peer interactions as the procedures of this study were designed to capture naturally occurring reinforcement in line with Groves and Austin (2019) Students were given a selection of rewards to choose from based on the teachers' knowledge of student preference and the quality of reinforcers. Reinforcers included edibles such as chips, cookies, fruit snacks, a selection of various fidget toys, and whole group activities such as iPad time, scratch-off drawing books, and toy time.

Return to baseline

Following stable data presentation and a minimum of four sessions, we removed the GBG intervention and returned to baseline conditions to demonstrate experimental control. During baseline the teacher and aides were instructed to teach the class and respond to problematic behaviors as they usually would without using the GBG verbiage, "rule break, quiet mouth".

The Good Behavior Game

Following the return to baseline, a second treatment intervention was implemented to replicate the previous phases. The study had originally planned on a choice procedure to be added to assess social validity and student preference, however data in previous phases did not show clear demonstrations of effect based on the intervention therefore we opted to implement the treatment again and attempt to replicate findings of the previous phases. The procedure of this phase matched those in the first

intervention phase. We implemented this phase for a minimum of four sessions due to the timing of the study coinciding with the end of the school year.

Additional Support

The primary author was available to support implementation providing feedback on rule breaks and supporting individuals playing as a team of one. Feedback was given after each session to teachers and aides. Due to the range of needs within the classroom three students needed to continually use an individual score board to support high rates of vocal disruption. None of these students were the target students.

Social Validity

Researchers collaborated with teachers to assess the social validity of the goals, procedures, and rules in line with the teacher's application of the game. Throughout the study, teachers were consulted on needed changes, adaptations (individual score boards) and increasing aide training to support point removals. At the end of the study, teachers and staff in the room completed a similar 14-item questionnaire (See Appendix F; G roves & Austin 2019). The electronic form used a percentage scale to mark the extent to which teachers agreed with the statements, followed by four open ended questions. Questions assessed if the students and teachers enjoyed playing the GBG, if teachers would recommend the GBG to other staff, if they thought the contingencies were fair and if they would continue implementing the game in the future. Researchers also collected anecdotal comments from the teacher on the perspectives of student and aides about the game.

Results

Figure 1 shows data for Tammy. The top panel shows calendar game data, the bottom panel shows free time data. During calendar time baseline, phase 1, Tammy's responding shows variability across social positive (S+), social negative (S-) and rule break (RB) behaviors. For S+ the introduction of treatment in phase 2 did not show a change in level or variability for positive social interactions. The frequency of sessions S+ occurred within phase 2 replicated phase 1 ranges and showed no apparent change. In the third phase, return to baseline, S+ did not increase in level and showed a counter therapeutic increasing trend. In phase 4, return to treatment S+ did not change in level and occurred within the same range of responding as the previous three phases. Visual analysis of S+ in calendar for Tammy did not indicate a functional relation between the GBG and an increase in positive social interactions. S- interactions and RB behaviors occurred with variability in both baseline phases. Initial treatment introduction, phase 2, resulted in S- and RB immediately dropping in level to 0 and remaining at 0 throughout the phase. Phase 3, return to baseline, reversed the responding to phase 1 levels. However, upon reintroduction of the GBG the data of phase 2 were not replicated. S- and RB behaviors showed variable responding. S- occurred within the range of baseline behaviors and RB occurred most frequently in this final treatment phase than any other point of the study.

The bottom panel indicates Tammy's responding during free play games. S+ shows high variability. S+ occurred more in free play sessions that in calendar sessions. There was no change in level or variability of S+ when intervention was introduced in phase 2, data indicated a counter therapeutic downward trend during treatment. Upon

return to baseline, in phase 3, S+ increased in level from previous phase but occurred within the same range and variability as previous phases. In phase 4, return to intervention phase, there was no immediate change in level, although response variability showed slightly greater stabilization than previous phases. Responding was still in line with previous ranges. S- and RB remained at near 0 levels across the first two phases. Upon return to baseline there was an immediate increase in level for S- and RB behaviors. S- showed the highest variability within this phase when compared to previous phases. The final treatment phase did not replicate the previous treatment phase with S- and RB behaviors increasing in variability. S- demonstrated a slight increasing trend within this final treatment phase.

Figure 2 shows data for Mol. The top panel shows calendar game data, the bottom panel shows free time data. Calendar time will be discussed first. S+ remained variable and occurred within the same range and levels across all phases. S- remained variable and occurred within the same range across phases 1 and 2. The return to baseline in phase 3 saw S- behaviors drop to 0 levels with variability resuming when reintroducing treatment. RB behaviors remained variable and occurred with the same range across the first two phases. The return to baseline saw an increasing trend in RB behaviors. The final return to treatment saw these drop to 0 levels, and then resume variability within the levels and ranges seen in phases 1 and 2.

The bottom panel indicates Mol's responding during free play games. S+ shows high variability within baseline. Introduction of the intervention saw an immediate increase in level of S+ an increasing trend in the first two data points but responding then replicates the previous phase variability. The return to baseline saw responding follow in

level and variability as the previous phase. Return to treatment saw a counter therapeutic decrease followed by stability in responding remaining in line with the previous range of responding.

Figure 3 shows data for Alfira. The top panel shows calendar game data, the bottom panel shows free time data. Calendar time will be discussed first. Alfira was present for screening, met the screening criteria and was then absent due to illness for the first week of treatment. As such Alfira has three points of data for baseline in calendar. The baseline indicated variability in line with peer responses discussed above. Upon implementing the GBG, S- and RB behaviors for Alfira immediately dropped in level and remained at 0 throughout the phase. The return to baseline saw RB behaviors increase although S- behaviors remained low. The final treatment phase maintained the 0 levels of S- and RB behaviors indicating for this student, the GBG may have been effective at reducing S- and RB behaviors during structured calendar time. In phase 2, S+ did not change in level of responding until the 2nd data point, however, following this, the behavior showed a counter therapeutic downward trend. S+ in return to baseline demonstrated an increasing trend but remained within baseline levels and ranges. Interestingly, the GBG reintroduction in phase 4 saw the level decrease from return to baseline level and saw responding become low and stable.

The bottom panel indicates Alfira's responding during free play games. Alfira demonstrated high levels of tardiness across all the sessions as such they missed many of the games during this session. We have presented the data here for transparency but there is little information that can be concluded due to lack of data points.

For all three students in this study, visual analysis of data did not suggest a documented difference between baseline and intervention conditions for S+ behaviors. Following visual analysis, and the high variability across participants, researchers explored the total average occurrence of all social interactions. This was a data driven exploration to ensure possible functional relations between the game and social interactions were not overlooked by the separation between positive or negative classifications. This was not a focus of the study from the offset, rather an additional analysis following the negative results in visual analysis. Following this visual analysis, researchers assessed if students' average interactions were affected to take into account the naturally occurring variability of social interactions. Table 4 displays average percentage of intervals behaviors occurred across phases and sessions during calendar games.

Tammy's average total interactions (S+ and S-) increased between phase 1 baseline and phase 2 intervention however this was not replicated. The total interactions increased in phase 3 return to baseline and decreased in phase 4, return to intervention. All phases following initial contact with the GBG had increased interactions when compared to the initial baseline. Mol's average total interactions decreased between phase 1 baseline and phase 2 intervention indicating the GBG may have had a negative effect on their social interactions. Phase 3 return to baseline showed the lowest average of interactions, and this was slightly increased in phase 4 return to intervention. However, compared to initial baselines in phase 1 average total interactions for Tammy remained lower across all subsequent phases. Alfira's average of total interactions progressively

decreased over the course of the phases showing repeated declining interactions on average across treatment and baselines.

Table 5 displays average percentage of intervals behaviors occurred across phases and sessions during free play games. Tammy's average total interactions (S+ and S-) decreased between phase 1 baseline and phase 2 intervention and spiked when returning to phase 3 return to baseline conditions. Reintroduction of the intervention resulted in the lowest average interactions within the study for Tammy. Mol's average total interactions decreased between the first three phases indicating the GBG had a negative effect on their social interactions. The final intervention in phase 4 however saw total interactions increase to its highest average during the second treatment. Alfira's behaviors were not averaged due to the high rate of absenteeism causing missing data points within these sessions.

Social Validity

Researchers gave the social validity questionnaire to the teacher implementing the game and the three aides available in the classroom. All participants agreed 100% with the following statements: 1) I enjoyed playing the good behavior game with my class, 2) I would like to receive more training on the game, 3) I will continue to play the game in the future., 4) The good behavior game fit into my current classroom procedures, 5) The game is low effort to implement, and 6) The game had a positive effect on my classroom. The participants agreed with 97.5% average (range 90%-100%) with A) I would recommend the good behavior game to my colleagues B) The procedures were easy to follow. Three of four participants agreed 100% that the students enjoyed playing the game, with one participant agreeing 75%. Three of four participants also agreed that the

contingencies were fair (rule breaks, times, number of smileys available) with one participant agreeing 50%. This may be due to the responses of students on individual score cards that lost the game while those in the group game won and received reinforcers. This may have been aversive to staff members who may have higher perceptions of fairness than others.

The final percentage agreement with the most variability across the responses was on the statement "the game decreased the problem behaviors I was seeing in my classroom" with the average response being 55% (range 39% - 75%). This is in line with an open-ended response to *"what did you not like about the game*" stating, "The only thing i didn't like was some of the rules did not apply to our classroom but that is an easy change. Also i think its more the teacher was not consistent when she would do a rule break", as well as an open-ended response to the question "*what would you do differently?*", which stated "Probably just change the rules so it applies more, things like getting out of seat. And just try to have the teacher be more consistent with what is a rule break." This study did not include the aides in the initial collaboration and training due to timing and recruitment difficulties. It may be that aides prioritized more salient behaviors such as sitting in chairs that the teacher decided not to target.

The researchers also collected anecdotal data from the students during the study. Throughout every game session contacted there was 0% of vocal negative comments about playing the game; students appeared excited to play the game every time they were told they were going to play. The teacher anecdotally informed researchers that students requested the game when researchers were not present asking, "Are we playing the 'I can follow the rules' game today?" and "Can we play the game?". During Calendar time,

students were asked, “How are you feeling today?” and Tammy replied in one session, “I am feeling very very happy because I won the ‘I can follow the rules’ game and I have got my prize and I am feeling excited to show (sibling) my prize when I get home.” Although there was no choice phase as previously planned, 100% of students responded with thumbs up, yesses and cheers when asked if they liked the game at the end of the study. When asked “what things did you like about the game “one respondent replied “The game was so easy to implement into my classroom. My students get excited about the prizes and quickly understood the rules.”

Discussion

The purpose of this study was to explore the extent to which social interactions occurred as a byproduct when playing the GBG. Specifically, we were interested in social interactions occurring when the game is not directly targeting peer interactions. As identified in the literature review, social interactions among young students with autism is a high priority concern of many educators. This study found that implementing the good behavior game, without direct targeting of social interactions within the rules, demonstrated negative results, in that there were no documented differences between S+ behaviors between baseline and intervention conditions (Kratochwill et al., 2018). This is not to be confused with negative effects in which an intervention produces adverse side effects on the participants. Throughout the study, participant social interactions showed high rates of variability and the GBG did not control for this or create an environmental context in which it would increase. These outcomes are similar to those of Breeman et al., (2016) who found no social benefits and conflict with Groves and Austin (2019) who found the GBG increased positive interactions and decreased negative interactions.

There were several limitations with this study that may contributed to the results. Firstly, the data collection method, although suitable for applied settings and strong in allowing for multiple behaviors (S+, S- and RB) to be tracked within the same interval, may not have captured the true extent of interactions (due to giving students 10 s of observations followed by 20 s without while the observer rotated to other participants). For example, a participant may have scored 0 on negative interactions simply because the behavior was not observed during that child's interval. Future research may wish to consider an interval collection with a single observer collecting data on a single participant for the entire duration of the game. Furthermore, our operational definitions did not define and capture every social behavior and needed editing several times. This is a known issue when researching social interactions, however, future research may wish to consider exploring how different definitions of social interactions may influence data representing the true occurrence of social behavior.

The main researcher of this study is a licensed teacher who identified a limitation early on with the study regarding programming rules to target social interactions. The students in this age group may have benefited from a rule specifically targeting the increasing of social interactions. Future research should compare the effects of the GBG with a rule targeting social interactions and a GBG without a rule targeting social interaction much like this study.

Considering the study took place in the latter half of the year (April – May) future research may wish to explore if the timing of the academic year alters the effects of the game on social interactions. Furthermore, the timing of the study limited the design of the study; ideally, additional intervention and baseline phases would have been added to

extend the study to an (ABABAB) design to provide further opportunities for replication of results. It would have also been interesting if the study had introduced a variation of the intervention to include a rule targeting social interactions to directly compare if the rule influenced the behaviors being observed. This limitation could be addressed in future iterations following an ABABACAC design.

This study also encountered problems identified by the social validity questionnaires, Post-study responses indicated that not including the aides in the selection of rules, behaviors, and definitions may have negatively affected how they perceived the efficacy of the game. Classroom aides appeared to wish to target different behaviors than the teacher selected and therefore deemed the game ineffective at reducing problem behaviors and deemed the teacher ineffective at consistently identifying rule break behaviors. Additionally, this study did not have the resources available to track the fidelity of rules being delivered. This would not have been within the scope of the study but following the advice from Kratochwill et al. (2018) future research "should include outcome measures that are differentially sensitive to different interventions" (pg. XX). By including the teacher's fidelity of identifying rule break behaviors this study may have identified a factor that contributed to the negative results identified.

This study lacks additional information on the participants (e.g., x, y, z) that would be helpful when identifying the contexts and participants this intervention did not work for. Future studies by this research team will aim to include more demographic information on participants and the teacher experience levels.

Regarding the participants of this study, little research has explored the GBG with students with disabilities aged K-3 within an applied setting. It may be that this study

would have presented different results in a similar classroom where students were in grades 3-6. Additional research should replicate this study with varying ages of students with disabilities in elementary classrooms to assess if the bioproduct of social interactions varies within different population ages.

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Appendix A

Collection of Tables and Figures

Table 1

Response Definitions with Inclusion and Exclusion Examples

Behavior		Inclusion	Examples
Interaction	Type	Defined as a behavior directed toward a peer by making vocalizations to get their attention, saying their name, orienting themselves toward a peer, engaging physical contact with a peer—both appropriate and inappropriate	
Positive Peer Interaction S+	Vocal	Positive peer interactions included verbalizations or statements aimed at seeking peer support, encouraging peers, congratulating each other on performance or perseverance	(e.g., “Good job”, “You did it”) and requests to aid one another.
Negative Peer Interaction S-	Vocal	Defined as verbalizations that threatened, provoked or demeaned a peer (e.g., name calling, laughing at a peer mistake, echoic taunts)	Screaming was counted as an instance if the screams are in response to a negative interaction e.g., student 1 shouts "NO" and puts their hand into the others face and the second child screams in response. This would be a negative interaction for the child saying “no” and a negative interaction for the child who then screamed if the behavior is observed during their time interval. This was due to classroom expectations having taught students to say “no thank-you” in a conversational tone Additionally, crying and screaming, was counted every time it occurred within the child’s chosen interval. We did not use onset and offset criteria for crying and screaming, due

			to 20 s having elapsed between one observation interval and the next, as well as the behavior occurring at low levels.
	Gestural	Defined as behaviors that interfered with a peer's materials, touching a peer to evoke a reaction. Negative physical gestures include negative hand gestures, sticking out tongue, thumbs down, or scowling faces directed at another peer when accompanied by one of the above behaviors.	
	Gestural	Defined as physical gestures, oriented to a peer, including thumbs up, waves, high fives were counted as positive peer interactions. During calendar time students greeted other students with pinky shakes, elbow touches, and fist bumps, these were included as positive peer interactions	Smiling at others and laughing was not counted as an instance due to difficulty involved in data collection and observers needing to subjectively classify if it was or was not directed at a peer. Several students also had positive affects which further compounded the inclusion of facial expressions and laughter being distinguished as an interaction.
Disruption	Verbal	Disruption was defined as behavior that disturbs, interrupts or interferes with the educational process of others. Verbal disruptions included blurting out; sustained loud talking off topic, yelling, or screaming	Verbal utterances known by the teacher to be (self-stimulatory, or typical echoic stereotypy were not counted as verbal disruptions). Self-stimulatory behaviors in this context refers to the repetitive action or movement of the body that is self-stimulatory as identified by the classroom teacher. Peer praise, or corrective feedback will not be scored as disruption. None of the target students displayed verbal stimming behaviors.

Table 2

Free Time Good Behavior Game Rules

Rule	Definition	Examples of exceptions	Example Rule Breaks
Hands to Self	hands and feet not touching another child inappropriately, students may touch if required to complete the task	Holding hands, or working together to hold a structure High fives and fist bumps. , Physical contact during play was not considered a rule break unless the peer receiving the contact requested it to stop. Once "stop", "no", "you're hurting me" or "I don't like that" was uttered the contact after was considered a rule break.	Hitting, Slapping, Punching, pushing attempted or failed. Interfering with another student's materials were considered a rule break
Quiet Mouth	defined as verbal utterances within a normal conversational volume.	If this was part of the play e.g., a dinosaur roar, a stuffed animal making noises these were not counted as rule breaks.	Rule breaks included screaming, crying, wailing, any verbal utterances occurring at a volume above normal conversational level
Share and Take Turns	defined as vocal or gestural interaction which can occur in one of three conditions: 1. The child offers to share or trade materials with a peer (e.g., offering a doll). 2. The child simultaneously uses the same material as his or her peer in working towards a common goal (e.g., coloring on the same piece of paper), or in turn taking (e.g., playing a board game). 3.	If this was part of the play e.g., acting out a scenario where they are a robber or a 'bad' guy and they have to take the thing as part of the game. These were not counted as rule breaks.	A rule break was marked if a child removed materials from a peers desk while the peer was using them and moved 2m away from the peer, if a child used an item belonging to someone else and refused to return the item when requested by the owner, or if a child was told "you can't take this, it's mine" and the child took the item when the owner was not

	The child is involved in cooperative play with peers (e.g., building a tower). A rule break was scored if a child initiated to trade materials (“can I have that”), had their request denied and took the materials regardless.	present or directing the attention towards them.

Table 3

Calendar Time Good Behavior Game Rules

Rule	Definition	Examples of exceptions	Example Rule Breaks
Hands To Self	Defined as hands and feet not touching another child inappropriately, students may touch if required to complete the task	Holding hands, or working together to hold a structure, High fives and fist bumps. If a child refused a greeting this was not considered a rule break, if the initiating peer continued to ask, they receive feedback from the teacher	Hitting, Slapping, Punching, pushing attempted or failed. Interfering with another student's materials were considered a rule break. If initiation peer made physical contact with a peer who refused a greeting this was considered a rule break.
Quiet Mouth	Defined as verbal utterances within a conversational volume	If the teacher requested a choral response, or asked an open-ended question to the class responses were not considered a rule break	Blurting out and interruptions defined as a child initiating a verbal utterance outside of a choral response, or during direct teacher talk e.g., the teacher saying, "today is sunny" and a child interrupted with "teacher!" this would be considered a rule break. If a child raised their hand and interrupted tat the same time this was considered a rule break.
Eyes On The Teacher:	Defined as students orienting towards the teacher talking.	Students were allowed the accommodation of folding arms on desk, and placing one side of their face down on the table, with eyes oriented towards the front of the class. This was not considered a rule break. Taking breaks in the hall was not considered a rule break.	A rule break was counted if a child had their head on the desk with their arms around their head, restricting orientation in a direction away from the desk. Orienting towards the back of the classroom was considered a rule break.
Listening Ears	Defined as following teacher instructions and	This was a rule designed by the teacher. Students were allowed two	When a student was asked to complete an instruction by the

	classroom expectations	instructions before counting as a rule break to allow for developmental delays requiring extra processing time.	teacher and did not comply after two requestions e.g., “check in …. Name check in….. “ and the student did not comply or respond with “no thank you”

Table 4

Average Percentages of Intervals Behavior Occurred During Calendar Time

Calendar	Tammy Average % of intervals of bx across phases				Mol Average % of intervals of bx across phases				Alfira Average % of intervals of bx across phases			
	A1	*B1*	*A2*	*B2*	*A1*	*B1*	*A2*	*B2*	*A1*	*B1*	*A2*	*B2*
S+	5.10	7.25	12.66	9.80	4.9	4.2	4.3	3.0	10.25	14.0	10.5	7
S-	1.80	0	1.30	1.20	2.3	2.60	0	1.5	11.75	0	0	0
RB	1.80	0	2.60	5.00	4.6	5.6	18	8.75	2.00	0.6	1.5	0
Average of total interactions S+ and S-	6.90	7.25	13.96	11.00	7.1	6.8	4.3	4.5	22.00	14.6	10.5	7

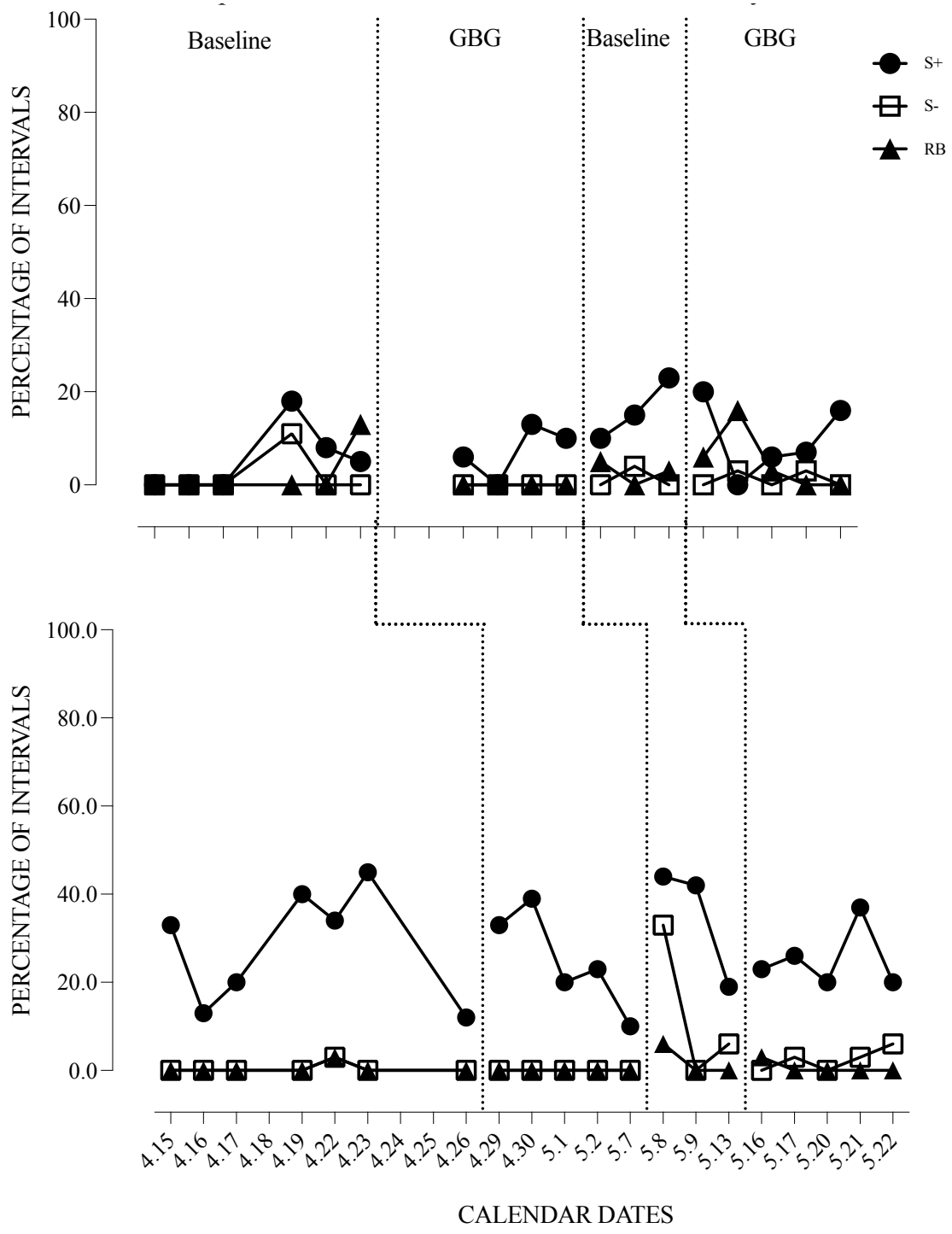
Table 5

Average Percentage of Intervals Behavior Occurred During Free Time.

Free Time	Tammy Average % of intervals of bx across phases				Mol Average % of intervals of bx across phases			
	A1	***B1***	***A2***	***B2***	***A1***	***B1***	***A2***	***B2***
S+	28	25	35	25.20	21.0	17.2	14.3	25.2
S-	0.40	0	13	2.4	0.3	0	0	4.6
RB	0.40	0	2	0.60	0.3	0	0	3.8
Average of total interactions S+ and S-	28.40	25	48	27.60	21.3	17.2	14.3	29.8

Figure 1

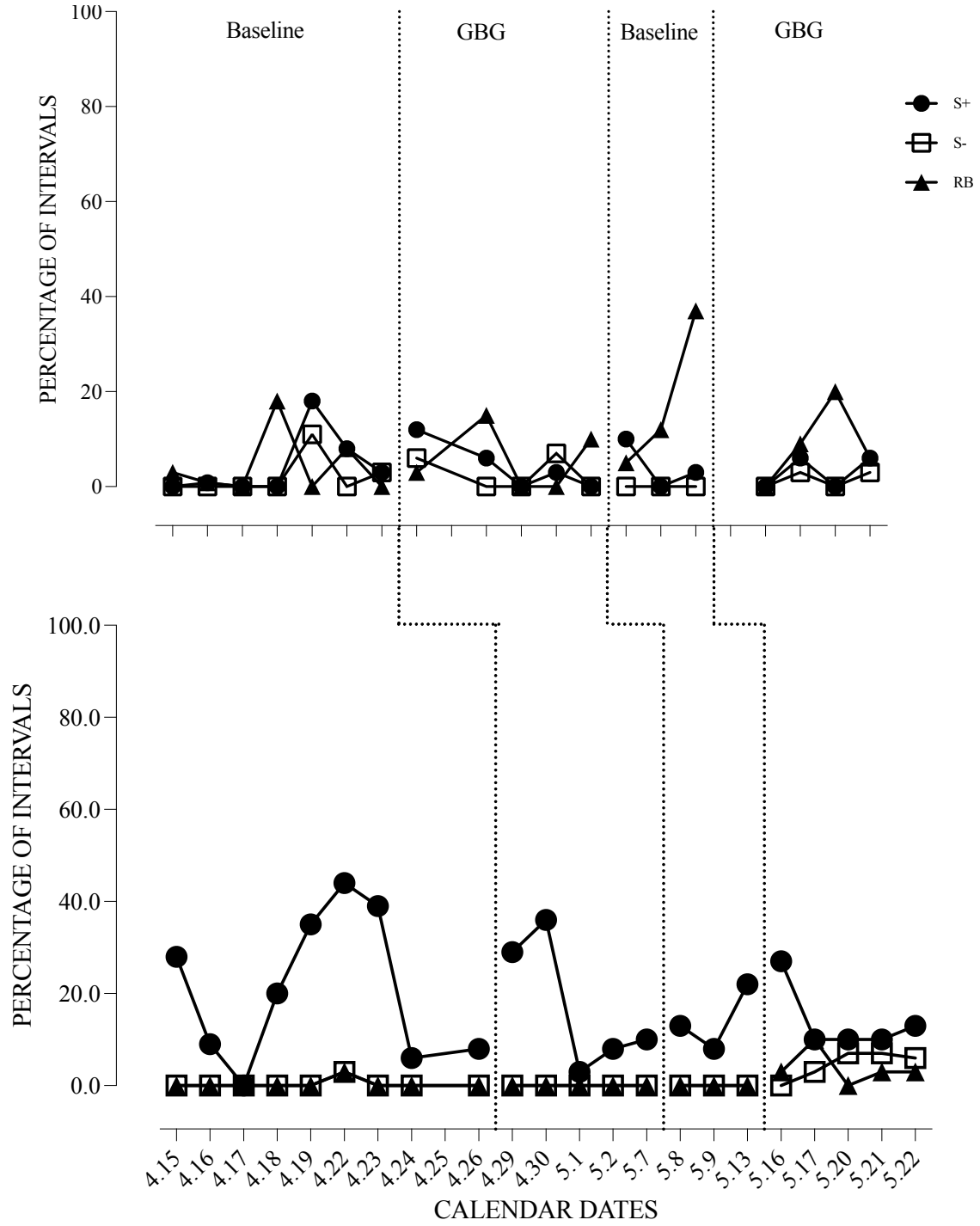
Results for Tammy



Note. Top panel displays calendar time, bottom panel displays free play time.

Figure 2

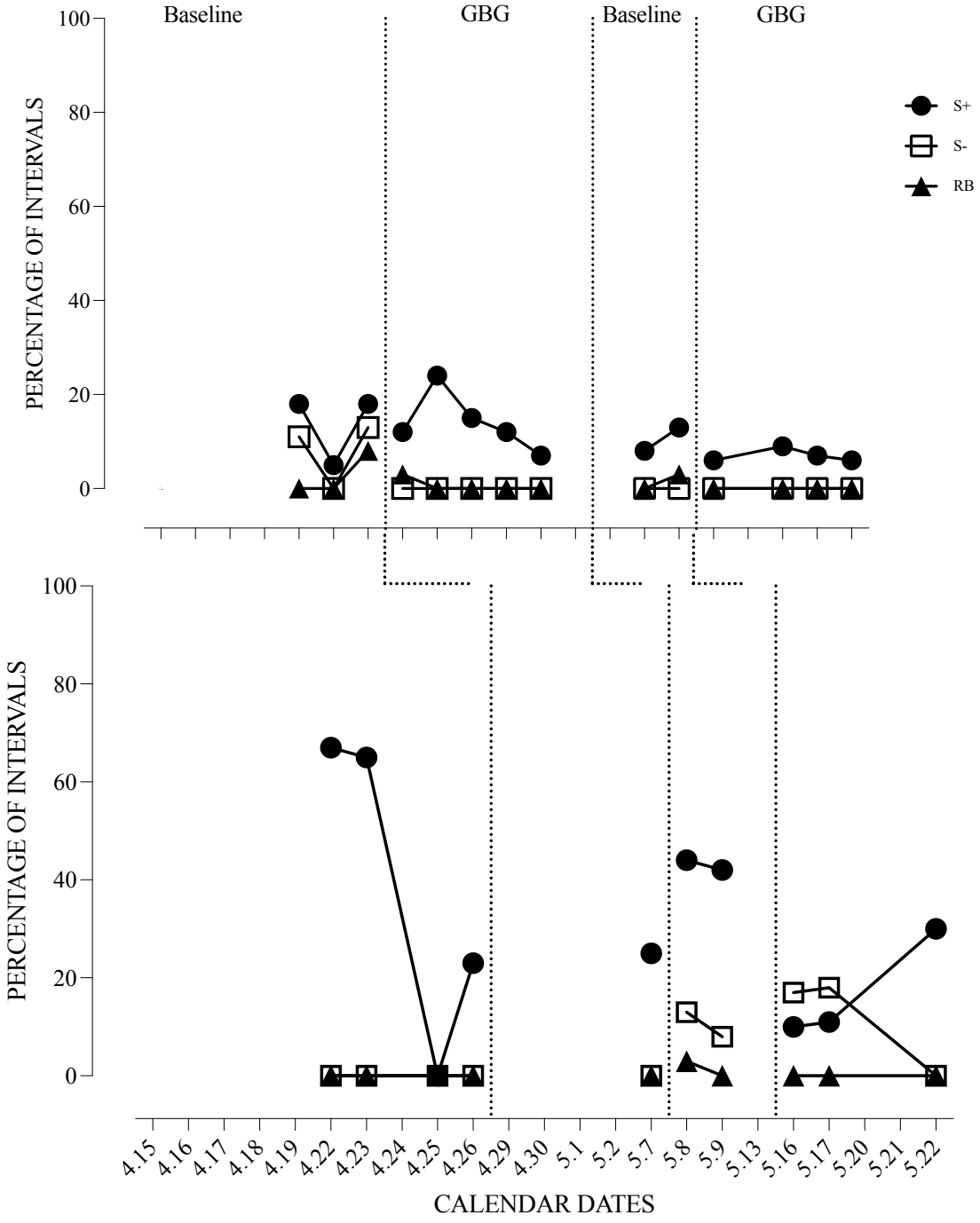
Results for Mol



Note. Top panel displays calendar time, bottom panel displays free play time.

Figure 3

Results for Alfira



Note. Top panel displays calendar time, bottom panel displays free play time.

Appendix B

Rotating Data Collection Sheets

freeze row	Student	Social +	Social -	Rule Break	social +obs 2	social - obs2	rule break obs
0:00:10	1						
0:00:20	2						
0:00:30	3						
0:00:40	1						
0:00:50	2						
0:01:00	3						
0:01:10	1						
0:01:20	2						
0:01:30	3						
0:01:40	1						
0:01:50	2						
0:02:00	3						

Note. This was repeated to cover the time of the session. The full sheet has not been included due to size of the document.

Appendix C

Adapted Training Materials from Grove and Austin (2019)

Good Behavior Game Training

Walton, Hoffmann and Bundock (2024)

Used and adapted with permission by Emily Groves, MSc., BCBA

1

Awarding or Removing Points

Note to implementer: Teachers will be given a brief summary of awarding vs removing points (caught being good vs traditional game).

These slides are the original caught being good game slides from Groves and Austin (2019) and the point removal adaptations were added by Walton, Hoffmann & Bundock (2024).

We wanted to ensure a choice was given to teachers to use the version best suited to their classrooms. You can skip or remove slides as needed.

2

What is the Good Behavior Game?

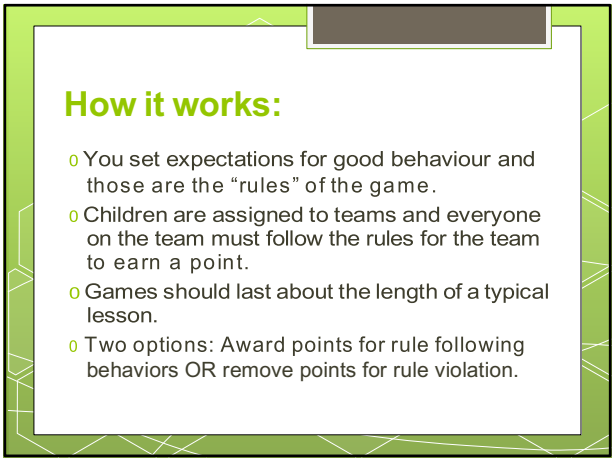
- The Good Behavior Game (GBG) is a classroom management strategy with lots of research evidence to show that it works.
- It addresses many common classroom problems, from relatively minor ones (e.g., talking out) to more severe problems (e.g., aggression).

3

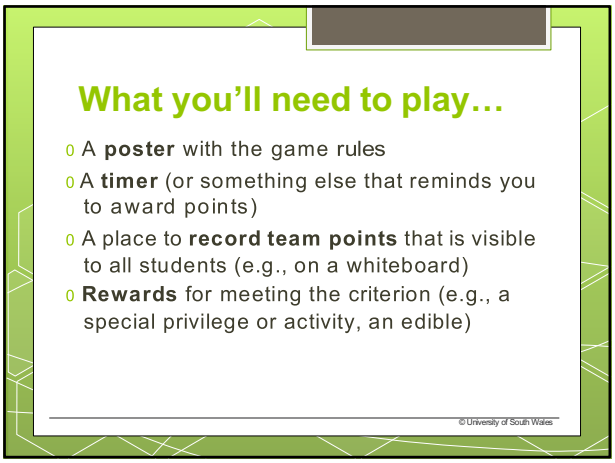
What is the Good Behavior Game?

- It's arranged as a game, so that it's fun for children to play and easy for teachers to implement.
- Children work in teams to follow the game rules and win the game.
  - However, children compete against a goal, not against other.
  - That means that all teams who meet the goal can win.

4


How it works:
You set expectations for good behaviour and those are the "rules" of the game.
Children are assigned to teams and everyone on the team must follow the rules for the team to earn a point.
Games should last about the length of a typical lesson.
Two options: Award points for rule following behaviors OR remove points for rule violation.

5


What you'll need to play…
A poster with the game rules
A timer (or something else that reminds you to award points)
A place to record team points that is visible to all students (e.g., on a whiteboard)
Rewards for meeting the criterion (e.g., a special privilege or activity, an edible)
© University of South Wales

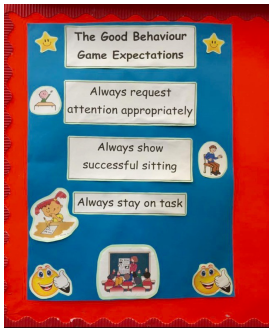
6

Designing the GBG for your class

Step 1

- Decide on the rules of the game.
  - Choose 3-4 broad expectations that will cover the most problematic behaviours in the classroom.
  - Put the rules on a poster in a visible place in the classroom.
  - Remember, we don't want to target interactions between peers!

7



8

Expectations	Behaviors we're targeting
Good working & listening	Off task behavior
Kind hands & feet	Hitting, throwing objects
Hands up to talk	Verbal disruptions
Safe sitting	Swinging on chair
Quiet hands	Physical disruptions

9

Designing the GBG for your class

Step 2

- Decide on the teams.
- Ideally, each team should have 4-6 members.
  - Need some good role models on the team.
  - You can also do a whole class team
- If some children have a history of having problems working together, do not put them on the same team.

10

Awarding Points (skip if removing)
Designing the GBG for your class

Step 3

- Determine the initial time period for awarding points.
  - Every 4 minutes, you'll check on the teams and award points if **every member** of the team has been following the rules.
  - It's important we keep the interval short, so there is chance to 'catch them being good'
  - If we make it too long, there's too much opportunity for students to do the wrong thing, and they'll never earn points
  - Remember, the goal is for teams to win ©

11

Removing Points (skip if awarding)
Designing the GBG for your class

Step 3

- Determine the initial time period for playing
  - Consider the rate of behavior you see in your class, and pick a number of points that would allow the students to contact the reinforcer.
  - E.g., 10 minute game = 15 or 20 points to begin with, we can reduce the number of points as the students become familiar with how to play
  - Remember, the goal is for teams to win J

12

Designing the GBG for your class

Step 4

- Determine the number of points required to win the game.
  - You could use a mystery number, but you don't have to!
  - Whichever method you use, set the winning number lower than the total points possible, as no student's behaviour is likely to be perfect (at least in the beginning).

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Designing the GBG for your class

Step 5

- Choose what rewards you will use
  - The best rewards are those that can be delivered immediately after the game and don't last long
    - Examples - an edible item (such as a piece of fruit or a gummy sweet), time on an activity (5 min to play a game or draw), extra break time, etc.
    - Be sure to **plan** the rewards you will use for each game
    - We want them to have the reward as close to announcing the winner as possible

14

Awarding points
How to play the game on the first day…

- Tell the students you are going to be using a new strategy in class, whereby they get the opportunity to earn points for following class rules.
- Explain that they will all need to work together as a team to earn points. Tell them you have a timer, and when the timer goes off you will award the class a point if **everyone** in the team has been following the rules.
  - Show them the scoreboard.

15

Awarding points
How to play the game on the first day…

- Explain what will happen when the team win the game
  - (e.g., "If you earn enough points to win the game, you'll get a special treat like time on the computer, extra break, or a sweet"). But this can be a mystery too!

16

Removing points
How to play the game on the first day…

- Tell the students you are going to be using a new strategy in class, whereby they get the opportunity to earn points for following class rules.
- Explain you will set a timer for playing and that they will need to work together as a team to keep their points. Tell them you when ever you see someone not following the rules then a point will be removed.
- Show them the point token board / score board

17

Removing points
How to play the game on the first day…

- Explain when the timer ends the game is over and if there are points still on the board then the students will win the game
  - (e.g., "If you earn enough points to win the game, you'll get a special treat like time on the computer, extra break, or a sweet"). But this can be a mystery too!
  - Consider showing them the prize before the game starts this can help increase buy in.

18

How to play the game on the first day…

- Explain the rules of the game.
  - Give examples and non-examples of the rules to ensure the students understand the expectations (e.g., If I take something off someone else while they are playing with it, is that being kind to my classmates?).
  - Remember that it takes practice to learn to play a new game, so don't rush this step!

19

Awarding points

How to play the game on the first day…

- Show the students the timer.
  - Explain to the children what happens when the timer goes off (e.g., you will be looking to see if they have been following the rules and if they have, they will earn a point)
- Choose the criterion for winning
  - If you are using a mystery number, tell the children that the number of points needed to win today is a mystery and they will find out at the end.
  - Remind them that every team can win (it is not a competition).

20

Awarding Points

How to play the game on the first day…

- At the beginning of the first game keep the interval short (3 minutes) and tasks easy
  - We want the students to earn points so that their confidence builds and they learn how the game works
- When the timer goes off, check in with each team
  - Provide praise for following the rules and give the team a point on the scoreboard if needed
  - Also provide feedback if they did not receive a point

21

Awarding points

How to play the game on the first day…

- Repeat the previous step for the remaining intervals of the game.
  - If you see a problematic behaviour from one or more children that needs to be immediately addressed, force the timer to go off and check in with the offending student(s) first (so that you can correct the problem behaviour quickly).

22

Awarding points

How to play the game on the first day…

- At the end of the game, determine if the team has won (did they meet the criterion for that session?) and deliver reward to the class if they won
  - Remember, it's **REALLY** important that the prize is given to the winning teams immediately.

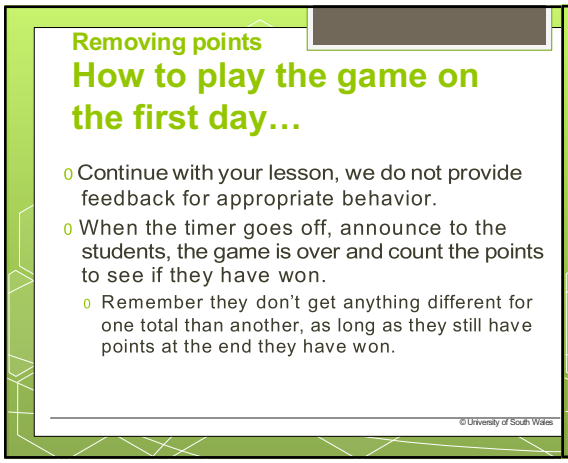
23

Removing points

How to play the game on the first day…

- After going over the rule examples and none examples, tell students you will be playing the game for 10 minutes and the game starts now.
- When a student breaks a rule announce to the whole class (not individual students) that a rule break has occurred and remove a point
  - E.g., student shouts out "rule number 3 has been broken, I can raise my hand"
  - This can be simplified to the level needed for your class e.g., "rule break, rise hand"

24


Removing points
How to play the game on the first day…
Continue with your lesson, we do not provide feedback for appropriate behavior.
When the timer goes off, announce to the students, the game is over and count the points to see if they have won.
Remember they don't get anything different for one total than another, as long as they still have points at the end they have won.
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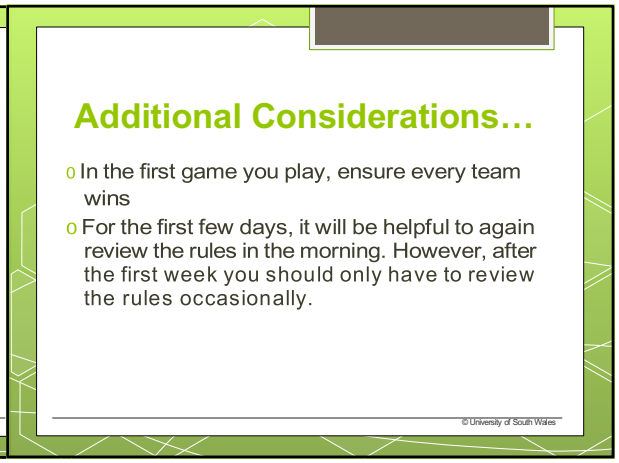
Additional Considerations…
In the first game you play, ensure every team wins
For the first few days, it will be helpful to again review the rules in the morning. However, after the first week you should only have to review the rules occasionally.
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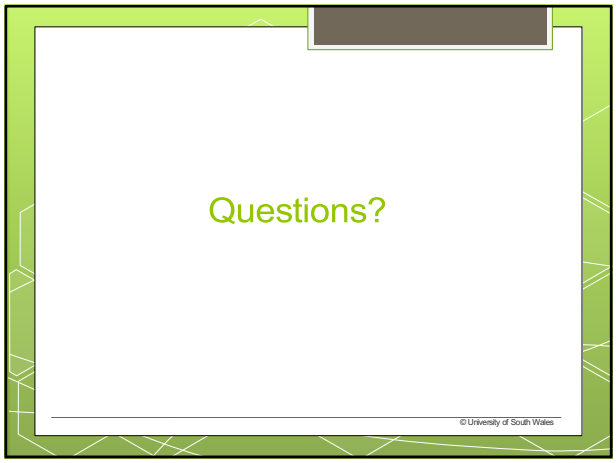
Questions?
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Appendix D

Rule Posters

Appendix E

Teacher Fidelity Checklist

GBG Peer Interactions Treatment Integrity Checklist

	Tick if step carried out correctly
1. Teacher briefly reminds students of rules prior to start of game	
2. Score board visible to all students	
3. Teacher tells students when game is beginning	
4. Teacher scans room before removing points	
5. Provides praise for rule following.	
6. Teacher provides feedback on rule breaks.	
7. Teacher removes points as rule breaks occur	
8. Teacher tells students when game is over	
9. Teacher adds up points, reveals and tells students if they have won	
10. Teacher provides the reward to the winning team	
Number of steps completed correctly = Percentage of steps completed correctly =	

Appendix F

Social Validity Questionnaire

GBG Teacher Social Validity Survey

Q1 Please complete these with the percentage to which you agree with the statement. 100% = total agreement

	0 10 20 30 40 50 60 70 80 90 100
I enjoyed playing the good behavior game with my class	
I would recommend the good behavior game to my collegues	
The procedures were easy to follow	
The contingencies were fair (rule breaks, times, number of smileys availible)	
I will continue to play the game in the future.	
The good behavior game fit into my current classroom procedures	
The game is low effort to implement	
The game had a positive effect on my classroom	
The game decreased the problem behaviors I was seeing in my classroom	
Students enjoyed playing the game	
I would like to receive more training on the game.