

Good Behavior Game

Intervention Report | Social, Emotional, and Behavioral Interventions

WHAT WORKS CLEARINGHOUSE™

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Teachers can use a variety of classroom management practices to help foster a classroom environment in which all students can learn. *Good Behavior Game* is a specific classroom management strategy that aims to improve social skills, minimize disruptive behaviors, and create a positive learning environment. Teachers place students into teams and reward them for demonstrating appropriate behaviors and following classroom rules.

The What Works Clearinghouse (WWC) reviews existing research on educational interventions to identify evidence-based programs and practices. This WWC intervention report summarizes the available evidence on the effects of *Good Behavior Game* on student and teacher outcomes.

Goal: *Good Behavior Game* aims to help teachers create a positive learning environment by decreasing student disruptive behavior and improving student academic engagement and prosocial behaviors.



Target population: *Good Behavior Game* can be used with students in prekindergarten through grade 12 and is often used with students or classrooms that are demonstrating high levels of disruptive behaviors.

Did Good Behavior Game improve student and teacher outcomes?

Sixteen studies of *Good Behavior Game* meet WWC standards and contribute to the effectiveness ratings in this report. Findings from the 16 studies are summarized in Table 1. The table includes rows for each outcome domain—a group of related outcome measures—that was studied in the research. The effects of *Good Behavior Game* on other student and teacher outcomes are unknown. Table 1 indicates whether the evidence satisfies the WWC’s requirements for strong, moderate, or promising tiers of evidence. Based on the 16 studies, there is strong evidence that *Good Behavior Game* positively impacted student behavior and promising evidence that *Good Behavior Game* positively impacted teacher practice, student writing conventions, and student writing productivity.

The WWC effectiveness rating indicates whether *Good Behavior Game* resulted in improved outcomes by: (1) comparing students and teachers who participated in the program to students and teachers who did not participate in the program and (2) comparing student and teacher outcomes during periods of program participation to periods when they were not participating in the program. More information about these ratings is provided on the next page. Findings and conclusions could change as new research becomes available.

Table 1. Summary of findings on *Good Behavior Game* from 16 studies that meet WWC standards

Outcome domain	Effectiveness rating	Sample size	Evidence tier	Summary
Student behavior	Positive effects	3,901 students		The research provides strong evidence that <i>Good Behavior Game</i> improved student behavior. This assessment is based on 10 studies that meet WWC standards.
Teacher practice	Positive effects	8 teachers		The research provides promising evidence that <i>Good Behavior Game</i> improved teacher practice related to improving student behavior. This assessment is based on two studies that meet WWC standards.

¹In October 2024, the WWC modified this report to correct errors in the findings reported from Humphrey et al. (2018) in the student behavior, teacher practice, and literacy achievement outcome domains. The WWC determined that the findings for three student behavior outcomes do not meet WWC standards because the equivalence of the clusters in the analytic intervention and comparison groups is necessary but the requirement was not satisfied. The WWC also determined that one of the teacher practice outcome measures in the original report is not eligible for review because it does not fall within one of the outcome domains in the Study Review Protocol. The WWC therefore removed the findings for these outcome measures from Table 4a and Table 4b. The WWC also removed the means and standard deviations for one literacy achievement outcome in Table 4c as they do not represent the analytic sample; the WWC also corrected the standard error for this finding. As a consequence of making these changes, the WWC also made corresponding revisions to the effect sizes and p-values in the summary rows in all three tables. However, the revisions did not result in changes to the effectiveness ratings or evidence tiers in Table 1. This revised report replaces the original May 2023 report.

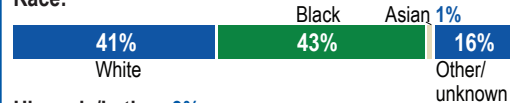
Outcome domain	Effectiveness rating	Sample size	Evidence tier	Summary
Writing conventions	Potentially positive effects	6 students	TIER 3 PROMISING	The research provides promising evidence that <i>Good Behavior Game</i> improved student writing conventions. This assessment is based on one study that meets WWC standards.
Writing productivity	Potentially positive effects	6 students	TIER 3 PROMISING	The research provides promising evidence that <i>Good Behavior Game</i> improved student writing productivity. This assessment is based on one study that meets WWC standards.
Literacy achievement	Uncertain effects	3,453 students	NO TIER ASSIGNED	The research does not support claims that <i>Good Behavior Game</i> improved student literacy achievement. This assessment is based on two studies that meet WWC standards.
Mathematics achievement	Uncertain effects	703 students	NO TIER ASSIGNED	The research does not support claims that <i>Good Behavior Game</i> improved student mathematics achievement. This assessment is based on one study that meets WWC standards.
Intrapersonal competencies	Uncertain effects	3,857 students	NO TIER ASSIGNED	The research does not support claims that <i>Good Behavior Game</i> improved student intrapersonal competencies. This assessment is based on two studies that meet WWC standards.
School climate	Uncertain effects	73 after-school programs	NO TIER ASSIGNED	The research does not support claims that <i>Good Behavior Game</i> improved school climate. This assessment is based on one study that meets WWC standards.

FINDINGS FROM 16 STUDIES

8,387 students in Maryland, Pennsylvania, Texas, and other unknown states; Northern Ireland; and the United Kingdom.

STUDENTS IN GRADES K–11

Race:



Free & Reduced-Price Lunch: **61%**

Special Education: **15%**

Female: **49%**




HOW THE WWC REVIEWS AND DESCRIBES EVIDENCE

The WWC conducted a systematic review of interventions designed to improve students' social, emotional, and behavioral outcomes and selected and prioritized studies for review using the version 4.1 [Systematic Review Protocol for Social, Emotional, and Behavioral Interventions](#). The WWC evaluated the quality and results of the selected studies using the criteria outlined in the version 4.1 [Procedures and Standards Handbooks](#) and the accompanying [Study Review Protocol](#).

The WWC considers each study's research design, whether findings were statistically significant and positive, and the number of studies contributing to this report. The WWC synthesizes evidence across studies—using a weighted average—to determine the effectiveness rating for each outcome domain. The WWC defines outcome domains in the [Study Review Protocol](#) to group related outcome measures.

Effectiveness rating	Description of the evidence
Positive (or negative) effects	The evidence base primarily includes the strongest research designs, and the average effect across all high-quality research is statistically significant and positive (or negative).
Potentially positive (or negative) effects	The evidence base primarily includes research with some limitations, and the average effect across all high-quality research is statistically significant and positive (or negative).
Uncertain effects	The average effect across all high-quality research is not statistically significant, so the WWC does not classify it as a positive or a negative effect.

The WWC considers the effectiveness rating, the sample size, and the number of educational sites (states, districts, local education agencies, schools, postsecondary campuses) across studies to determine the evidence tier for each outcome domain. When the effectiveness rating is *uncertain*, *potentially negative*, or *negative effects*, there is no evidence tier.

Evidence tier	Criteria based on evidence synthesis
Strong evidence of effectiveness	 <ul style="list-style-type: none"> • Receives an effectiveness rating of positive effects, and • Includes at least 350 students in at least two educational sites
Moderate evidence of effectiveness	 <ul style="list-style-type: none"> • Receives an effectiveness rating of potentially positive effects, and • Includes at least 350 students in at least two educational sites
Promising evidence of effectiveness	 <ul style="list-style-type: none"> • Receives an effectiveness rating of potentially positive effects or positive effects • Includes fewer than 350 students or two educational sites

How was *Good Behavior Game* implemented?

This section provides details of how school districts and schools implemented *Good Behavior Game* in the 16 studies that contribute to this intervention report. This information can help educators identify the requirements for implementing *Good Behavior Game* and determine whether implementing this program would be feasible in their districts or schools.

Educators can implement the *PAX Good Behavior Game*[®], the American Institutes for Research (AIR) version of *Good Behavior Game*, or their own adaptation of *Good Behavior Game* to encourage students to demonstrate appropriate behavior and to create a positive learning environment. In the 16 studies summarized in this intervention report, four studies reported using the *PAX Good Behavior Game*[®], one study reported using the AIR version, and 11 studies did not report which approach was used. The WWC could not determine which version was used in these 11 studies because each version of *Good Behavior Game* has similar implementation components.

Good Behavior Game was implemented in classrooms during the school day in 15 studies and in an after-school program in one study. Teachers identified rules of behavior for *Good*

Comparison condition: In the six group design studies that contribute to this intervention report, students in the comparison group did not participate in *Good Behavior Game*. The students received business-as-usual programming, except in one study (Long et al., 2018) where students received mindfulness skills training.

There is no comparison group in single-case design studies. In the 10 single-case design studies that contribute to this report, teachers instructed class as they normally would and enforced existing classroom rules during the baseline and reversal-withdrawal phases.

Behavior Game sessions, such as students remaining seated or on task and refraining from disruptive behaviors. Teachers divided their students into teams and reviewed the expected behaviors and rules of the game. Teachers monitored student behavior during the game and scored the teams based on how well they followed the rules. At the end of the session, winning teams received a reward. Teachers played the game once per day in 10 studies, several times a day in five studies, and twice per week in one study. Table 2 summarizes the components and implementation of *Good Behavior Game* across the studies, and [the appendix](#) provides additional information about study-specific implementation in the single-case design studies.

WWC standards assess the quality of the research, not the quality of the implementation. Studies that meet WWC standards vary in quality of implementation. However, a study must describe the relevant components of the program and how each was implemented with adequate detail to be included in an intervention report.

Table 2. Implementation of components of *Good Behavior Game*

Component	Description of the component	How it was implemented
<p>Team-based games</p>	<p>Before starting the game, teachers divide their students into teams, usually based on seating arrangements or student behavior. Teachers then explain that teams can earn points and rewards for following <i>Good Behavior Game</i> rules. Teachers monitor student behavior during the game and score teams based on how well they follow the rules.</p> <p>Teachers develop <i>Good Behavior Game</i> rules for student behavior, which often include staying seated and on task, following directions, being polite to others, and ignoring distractions. Before playing the game, teachers describe these rules and display them on a poster in the classroom. When playing the game, teachers remind students of the rules and provide examples and modeling of desired behaviors, as needed.</p> <p>Teachers decide how many points are needed to win, either selecting a constant goal across all sessions or a variable goal based on students' performance in previous sessions of the game. Teachers decide how to score the game, such as adding points when students follow the rules or subtracting points when students break the rules. At the end of the game, teachers announce which team(s) won and give winning students a reward. Teachers choose the type of reward and when to give the reward to winning teams, for example, immediately after the game, at the end of the school day, or at the end of the week.</p>	<p>Three studies modified the usual team approach. In one study, all students in the class were on the same team. In two studies, individual students could be placed on their own team if they were having significant challenges following the game rules.</p> <p>In all 16 studies, teachers described and then reminded students of the game rules and criteria for winning before starting the game.</p> <p>In all 16 studies, teachers provided students on the winning team(s) a reward. In six studies, teachers offered winning students small prizes, such as snacks, school supplies, stickers, or lip balm. In three studies, teachers offered classroom privileges, such as free time or time to play with toys or an iPad. In one study, teachers offered a combination of prizes and classroom privileges. In six studies, authors did not report the types of rewards teachers provided to students.</p>
<p>Training for teachers</p>	<p>Before leading the game, teachers receive training from a <i>Good Behavior Game</i> developer or researcher. The <i>PAX Good Behavior Game</i>® provides an initial 2-day training, which may be online, in person, or self-paced. AIR's version provides an initial 2-day in-person training. The <i>PAX Good Behavior Game</i>® and AIR trainings require purchase of teacher training kits that include instructions and classroom materials for teachers to implement <i>Good Behavior Game</i>. These kits do not include rewards for students.</p> <p>Training covers how to create game rules, monitor student behavior, and award points and might also include role-playing exercises for teachers to practice leading the game and receive feedback. The <i>PAX Good Behavior Game</i>® offers several options for 2-day online follow-up trainings for teachers. AIR's version suggests a 1-day in-person booster training for teachers.</p>	<p>In 14 studies, teachers received training prior to leading the game. In four studies, teachers received the initial <i>PAX Good Behavior Game</i>® training: in one study the training was delivered over 2 days; in two studies, the training was delivered in 1 day; and in one study, the training was delivered across four 3- to 4-hour sessions. In one study, teachers received the AIR version of <i>Good Behavior Game</i> training. In nine studies, teachers received an unspecified version of the training from the study authors, who were <i>Good Behavior Game</i> researchers. In these nine studies, the training length and timing varied, ranging from a 15-minute session just before the first game was played to a full-week training before the start of the school year. The full-week training included lectures explaining the theory behind <i>Good Behavior Game</i>, role-playing sessions, and direct observations of game sessions. In two studies, teachers did not receive formal training and instead learned to lead the game by observing the study authors.</p> <p>In two of the four studies using the <i>PAX Good Behavior Game</i>® and in the study using AIR's version of <i>Good Behavior Game</i>, teachers also received a half-day or 1-day follow-up training from the developer.</p>

Component	Description of the component	How it was implemented
Ongoing coaching support for teachers	<p>Teachers often receive ongoing coaching support from a developer-trained <i>Good Behavior Game</i> coach. Coaches may be district staff, school leaders, teachers, or <i>Good Behavior Game</i> researchers. Coaches observe teachers implementing <i>Good Behavior Game</i>, provide feedback, and answer questions.</p> <p>The <i>PAX Good Behavior Game</i>® offers an initial 2-day online training for coaches. AIR’s version of <i>Good Behavior Game</i> offers an initial 2-day in-person training for coaches, as well as at least one training site visit, where trainers co-observe classrooms with AIR trainers, and 90-minute, biweekly phone calls with AIR trainers during their first year of coaching</p>	In 13 studies, teachers received ongoing coaching support, including classroom observations and feedback. In all four studies using the <i>PAX Good Behavior Game</i> ®, teachers received coaching support: in three of these studies, teachers received support from a <i>PAX Good Behavior Game</i> ® trained coach, and the other study did not describe who provided coaching support. In the study using the AIR version of <i>Good Behavior Game</i> , teachers received support from AIR-trained coaches. In eight studies, the study authors served as coaches; these studies did not describe how coaches were trained. Three studies did not describe coaching for teachers.

Note: The descriptive information in this table comes from the 16 studies that meet WWC standards and have an effect size or design-comparable effect size; two developer websites, <https://www.paxis.org/> and <https://goodbehaviorgame.air.org/index.html>; and from correspondence with the developers. Information about implementation in the additional 15 single-case design studies for which the WWC was unable to calculate a design-comparable effect size is provided in [Appendix Table 2](#).

How much does *Good Behavior Game* cost?

This section provides educators with an overview of the resources needed to implement *Good Behavior Game*. Table 3 describes the major resources needed for implementation and approximate costs, based on information available as of February 2023. The total cost of purchasing training and required materials from the *PAX Good Behavior Game*® developer can range from \$405 per teacher for a group training with 30 teachers to \$580 per teacher for individual, self-paced training. The total cost of purchasing training and required materials from AIR is \$325 per teacher for a group training with 40 teachers, plus additional costs to cover the AIR trainers’ travel. These estimates do not include the cost of booster trainings and student rewards.

Table 3. Resources needed to implement *Good Behavior Game*

Resource	Description	Funding source
Teacher training costs	<p>The <i>PAX Good Behavior Game</i>® initial online training for up to 30 participants costs \$2,545, or individual teachers can complete a 2-day training with a live instructor for \$200 each or a self-paced training for \$240 each. In addition to training costs, all teachers participating in the <i>PAX Good Behavior Game</i>® training must purchase the <i>PAX Good Behavior Game</i>® Teacher Kit for \$320 to \$340 per teacher, depending on the training type. Follow-up trainings for teachers are also offered for \$200 or \$265 per teacher, depending on the training type.</p> <p>AIR’s <i>Good Behavior Game</i> initial in-person training for up to 40 participants costs \$5,000, plus the cost of travel for AIR trainers. In addition to training costs, all teachers participating in AIR’s <i>Good Behavior Game</i> training must purchase the AIR starter kit for teachers for \$200 per teacher, per class. The recommended booster session for up to 40 participants is offered for an additional \$2,500, plus the cost of travel for AIR trainers.</p>	In one study using the <i>PAX Good Behavior Game</i> ®, the Public Health Agency in Northern Ireland supported teacher training costs. In another study using the <i>PAX Good Behavior Game</i> ®, an education nonprofit organization supported teacher training costs. In two studies, teachers did not receive formal training. The other 12 studies do not describe how teacher training was funded.
Coach training costs	<p>The <i>PAX Good Behavior Game</i>® online training for coaches costs \$900 per participant. Participants are also required to have completed the initial <i>PAX Good Behavior Game</i>® teacher training.</p> <p>AIR’s <i>Good Behavior Game</i> in-person training for up to 12 coaches costs \$3,500, plus the cost of travel for AIR trainers. Coaches are also required to participate in at least one training site visit for \$2,500 per day, and ten 90-minute phone calls with AIR trainers for \$4,000. Participants are also required to have completed the initial AIR <i>Good Behavior Game</i> teacher training.</p>	In one study using the <i>PAX Good Behavior Game</i> ®, the Public Health Agency in Northern Ireland supported coach training costs. In another study using the <i>PAX Good Behavior Game</i> ®, an education nonprofit organization supported coach training costs. In three studies, coaching for teachers was not provided. The other 11 studies do not describe how coach training was funded.
Facilities and technology	<i>Good Behavior Game</i> is typically played in a classroom setting but can also be played in other school spaces, including a lunchroom, a hallway, or outside during recess. A physical space within the school is required for trainings hosted at the school building. Internet access and computers are required for online trainings.	School districts or schools provide the necessary facilities and technology.
Other materials	Teachers may need a timer and a whiteboard or poster to record and display game rules and team scores. Teachers determine the rewards for students who win <i>Good Behavior Game</i> . These rewards can include small prizes, such as snacks or school supplies, which the teacher or school typically provides, or non-material rewards, such as classroom privileges.	In four studies, the study authors provided the rewards for winning students, and in one study, teachers used rewards from another classroom program. In three studies, rewards were described as non-material. The other eight studies do not describe how rewards for students were funded.

For more information about the cost of *Good Behavior Game*:

About the *PAX Good Behavior Game*®

PAXIS Institute
P.O. Box 31205
Tucson, AZ 85751
Email: info@paxis.org Web: paxis.org Phone: (520) 299-6770

To request more information about the *PAX Good Behavior Game*® trainings, including training and material costs:

Web: <https://www.paxis.org/contact-us/>

About the American Institutes for Research (AIR) approach to *Good Behavior Game*

American Institutes for Research (AIR)
1000 Thomas Jefferson Street NW
Washington, DC 20007
Email: gbg@air.org Web: <https://goodbehaviorgame.air.org/index.html> Phone: (866) 535-8686

What research did the WWC review about *Good Behavior Game*?

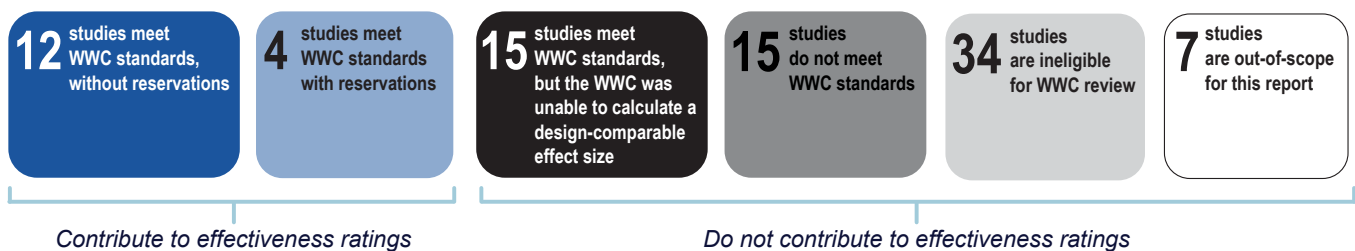
This section provides details about the studies of *Good Behavior Game* that the WWC identified in its systematic review. This section summarizes all of the studies reviewed by the WWC for this intervention report and the findings and characteristics of the 16 studies that meet WWC standards and contribute to the findings in this report.

The quality of the available research about *Good Behavior Game*

The WWC identified 87 studies that investigated the effectiveness of *Good Behavior Game* from a literature search in the Education Resources Information Center (ERIC) and other databases in January 2020. Of these 87 studies, 16 meet WWC standards and contribute to the summary of evidence in this intervention report. Of these 16 studies, six studies included intervention and comparison groups (group design), and 10 studies were single-case designs, which follow individual students or classrooms over time. An additional 15 studies meet WWC single-case design standards but do not contribute to the findings in this intervention report because the WWC was unable to calculate a design-comparable effect size. These 15 studies are described further in [Appendix Table 2](#). Studies that do not meet WWC standards, are ineligible for review, or are out of scope also do not contribute to the findings in this intervention report (Figure 1).

What is a design-comparable effect size? The WWC synthesizes evidence across studies—using a weighted average of effect sizes—to determine the effectiveness rating for each outcome domain. For studies that meet standards, the WWC calculates effect sizes that are comparable for single-case design and group design studies. Findings from single-case design studies cannot contribute to the effectiveness rating if the WWC cannot calculate a design-comparable effect size for a study. A design-comparable effect size can be computed for a single-case design study that has three or more cases; this includes, for example, multiple baseline designs across three or more classrooms, students, or teachers; and single-case design studies with reversal-withdrawal designs for three or more classrooms, students, or teachers.

Figure 1. 16 of 87 studies identified in the literature search are eligible, meet WWC standards, and contribute to effectiveness ratings



- **Twelve studies meet WWC standards without reservations.** Four group design studies are low-attrition cluster randomized controlled trials, one group design study is a low-attrition randomized controlled trial, and seven single-case design studies have sufficient number of phases and assessments per phase. All 12 studies receive the highest WWC rating. The WWC does not have any reservations about attributing results of the study to the intervention.
- **Four studies meet WWC standards with reservations.** One group design study is a quasi-experimental design study that analyzes intervention and comparison groups that appeared similar before introducing the intervention. Three single-case design studies have insufficient phases or assessments per phase to completely satisfy the WWC single-case design standards. The WWC has some reservations about attributing results of the study to the intervention due to limitations of the quality of the research.
- **Fifteen studies meet WWC standards with or without reservations, but the WWC was not able to calculate a design-comparable effect size.** Fourteen studies use reversal-withdrawal designs with fewer than three cases, and one study uses an alternating treatments design. The WWC cannot calculate design-comparable effect sizes for these study designs. These studies and their ratings are described further in [Appendix Table 2](#).
- **Fifteen studies do not meet WWC standards.** Eight single-case design studies have insufficient data to demonstrate an intervention effect because the studies provide fewer than three attempts to demonstrate an intervention effect at three different points in time, have fewer than three assessments in at least one phase, or do not present data in a way that allows for a comparison between cases. In four single-case design studies, the eligible outcomes do not meet WWC requirements because the studies either do not meet inter-assessor agreement criteria or do not report required inter-assessor agreement information. One group design study includes a confounding factor: because there was a single classroom in the intervention group, it is not possible to isolate the effectiveness of *Good Behavior Game* from the effectiveness of the teacher. Two other group design studies did not provide enough information for the WWC to confirm whether the study establishes baseline equivalence of the outcomes.
- **Thirty-four studies are ineligible for review.** These studies are typically ineligible for review because they do not include eligible outcomes or they do not use a study design eligible for review as described in the [WWC Standards Handbook \(Version 4.1\)](#). For instance, outcomes that measure whether teachers implement the intervention with fidelity are not included in the eligible domains in the Study Review Protocol. Studies that are ineligible because they do not use an eligible design often lack a comparison group.
- **Seven studies are out of scope for this systematic review.** Six studies bundle *Good Behavior Game* with another intervention so are outside the scope of the [Systematic Review Protocol for Social, Emotional, and Behavioral Interventions \(Version 4.1\)](#). In one other study, all outcomes are at the postsecondary level, so the study is also outside the scope of the review protocol.

The citations for these six groups of studies are included in the references. For information on how the WWC determines study ratings, see the version [Procedures and Standards Handbooks \(Version 4.1\)](#), [WWC Standards Briefs](#), and the [Study Review Protocol](#), available on the WWC website.

More details about the 16 studies of *Good Behavior Game* that meet WWC standards and contribute to effectiveness ratings

The 16 studies that meet WWC standards and contribute to this report examined the effects of *Good Behavior Game* on a range of outcomes, including 11 measures of disruptive behavior or rule violations, 10 measures of school climate, four measures of teacher practice, five measures of student engagement, three measures of positive behavior, three measures of behavioral or emotional regulation and diagnoses, two standardized tests of literacy, two researcher-developed measures of writing skills, and one standardized test of mathematics. Tables 4a through 4e on the following pages list, for each finding, the name of the outcome, when it was assessed, the sample and setting, the means and standard deviations in the *Good Behavior Game* and comparison groups, the effect size or design-comparable effect size, the improvement index, and whether the WWC determined the finding to be statistically significant. Table 5 summarizes contextual information about the 16 studies of *Good Behavior Game* that meet WWC standards and contribute to the effectiveness ratings in this report, including their study settings and participants. The [appendix](#) provides contextual information for each single-case design study.

Good Behavior Game had *positive effects* on student behavior and teacher practice and *potentially positive effects* on writing conventions and writing productivity. *Good Behavior Game* had *uncertain effects* on literacy achievement, mathematics achievement, intrapersonal competencies, and school climate because the average effect for each domain across all outcomes and studies was not statistically significant.

The WWC also reviewed supplemental findings in these studies, such as for subgroups of students and for longer follow-up periods. Dadakhodjaeva (2019) examined outcomes for three focal students who demonstrated high levels of disruptive behavior. Ialongo et al. (2019) examined subgroup findings for students receiving special education services and for students in general education classrooms who had high levels of aggressive and disruptive behaviors. Humphrey et al. (2018) examined findings during the one year follow-up period in the general literacy achievement domain. The supplemental findings do not factor into the intervention’s rating of effectiveness but can be viewed on the WWC website (<https://ies.ed.gov/ncee/wwc/ReviewedStudies/>). Links to each WWC study page are provided in the references. Other study findings that are not reported on the WWC website were either ineligible for review or did not meet WWC standards.

What is an effect size? The effect size is a standardized measure of the impact of an intervention that can be synthesized across outcome measures and studies. A positive effect size favors the intervention group and a negative effect size favors the comparison group. Effect sizes further away from 0 means there was a larger difference between the groups.

What is an improvement index? The improvement index is another measure of the intervention’s impact on an outcome. The improvement index can be interpreted as the expected change in percentile rank for an average comparison group student if that student had received the intervention. For example, an improvement index of +5 means that a comparison group student at the 50th percentile would have scored at the 55th percentile if they had received the intervention. The effect size and improvement index measure the same concept in different units, similar to meters and feet for distance.

What is statistical significance? A finding is statistically significant if the difference between the intervention and comparison group means was large enough that it is unlikely to have been obtained for an intervention without a true impact. The WWC considers *p*-values less than 0.05 to be statistically significant.

Table 4a. Findings from 10 studies of *Good Behavior Game* that meet WWC standards: Student behavior outcomes

Outcome	Timing of measurement and study	Study sample	Number of sites	Mean (standard deviation)		Findings		Statistically significant (<i>p</i> -value)
				Intervention group	Comparison group	Effect size	Improvement index	
Student behavior outcome domain								
Academically engaged behavior, based on researcher observation of classes	During SCD intervention sessions (Dadakhodjaeva et al., 2019)	59 students in grade K	1 school in southeastern U.S.	--	--	0.99	+34	Yes (<i>p</i> <0.01)
Disruptive behavior, based on researcher observation of classes	During SCD intervention sessions (Dadakhodjaeva et al., 2019)	59 students in grade K	1 school in southeastern U.S.	--	--	1.59	+44	Yes (<i>p</i> <0.01)
Disruptive behavior, based on researcher observation of focal students	During SCD intervention sessions (Donaldson et al., 2017)	11 students in grades K and 1	1 school in Maryland	--	--	1.18	+38	Yes (<i>p</i> <0.01)
Disruptive behavior, based on researcher observation of classes	During SCD intervention sessions (Donaldson et al., 2018)	53 students in grades K and 1	1 school in rural Texas	--	--	0.89	+31	Yes (<i>p</i> <0.01)
Academically engaged behavior, based on researcher observation of classes	During SCD intervention sessions (Ford, 2017)	66 students in grades 7 and 8	1 school in southeastern U.S.	--	--	1.57	+44	Yes (<i>p</i> <0.01)

Outcome	Timing of measurement and study	Study sample	Number of sites	Mean (standard deviation)		Findings		Statistically significant (p-value)
				Intervention group	Comparison group	Effect size	Improvement index	
Disruptive behavior, based on researcher observation of classes	During SCD intervention sessions (Ford, 2017)	66 students in grades 7 and 8	1 school in southeastern U.S.	--	--	0.90	+32	Yes (p<0.01)
Academically engaged behavior, based on researcher observation of classes	During SCD intervention sessions (Ford et al., 2020)	74 students in grades 9 to 11	2 schools in southeastern U.S.	--	--	0.57	+22	Yes (p<0.01)
Disruptive behavior, based on researcher observation of classes	During SCD intervention sessions (Ford et al., 2020)	74 students in grades 9 to 11	2 schools in southeastern U.S.	--	--	1.03	+35	Yes (p<0.01)
Total disruptive behavior score, based on researcher observation of classes	End of intervention (Ialongo et al., 2019)	3,421 students in grades K to 5	18 schools in mid-Atlantic U.S.	0.16 (0.24)	0.21 (0.28)	0.18	+7	No (p=0.23)
Social Health Profile Social Competence Scale: Social Competence Subscale, based on teacher report	End of intervention (Ialongo et al., 2019)	3,502 students in grades K to 5	18 schools in mid-Atlantic U.S.	4.06 (1.21)	3.90 (1.19)	0.13	+5	No (p=0.39)
Teacher Observation of Classroom Adaptation-Revised: Authority Acceptance Subscale, based on teacher report	End of intervention (Ialongo et al., 2019)	3,504 students in grades K to 5	18 schools in mid-Atlantic U.S.	4.80 (1.04)	4.81 (1.07)	0.01	0	No (p=0.95)
Teacher Observation of Classroom Adaptation-Revised: Readiness to Learn Subscale, based on teacher report	End of intervention (Ialongo et al., 2019)	3,492 students in grades K to 5	18 schools in mid-Atlantic U.S.	4.26 (1.28)	4.16 (1.29)	0.08	+3	No (p=0.61)
Student Internalizing Behavior Screener, based on teacher report	End of intervention (Long et al., 2018)	43 students in grade 5	1 school in southeastern U.S.	8.50 (3.63)	8.95 (3.50)	0.12	+5	No (p=0.78)
Student Externalizing Behavior Screener, based on teacher report	End of intervention (Long et al., 2018)	43 students in grade 5	1 school in southeastern U.S.	11.92 (6.94)	11.92 (5.95)	0.00	0	No (p>0.99)
Academically engaged behavior, based on researcher observation of classes	During SCD intervention sessions (Lynne et al., 2017)	65 students in grades 1 and 4	1 school in southwestern U.S.	--	--	0.63	+24	Yes (p<0.01)
Disruptive behavior, based on researcher observation of classes	During SCD intervention sessions (Lynne et al., 2017)	65 students in grades 1 and 4	1 school in southwestern U.S.	--	--	0.84	+30	Yes (p<0.01)
Disruptive behavior, based on researcher observation of classes	During SCD intervention sessions (Murphy et al., 2020)	22 students in grades K to 6	1 school in midwestern U.S.	--	--	0.74	+27	Yes (p<0.01)

Outcome	Timing of measurement and study	Study sample	Number of sites	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (p-value)
Academically engaged behavior, based on researcher observation of classes	During SCD intervention sessions (Murphy et al., 2020)	22 students in grades K to 6	1 school in midwestern U.S.	--	--	0.53	+20	Yes (p=0.02)
Classroom rule violations, based on researcher observation of focal students	During SCD intervention sessions (Tanol et al., 2010)	4 students in grade K	1 school in a large city	--	--	2.47	+49	Yes (p<0.01)
Summary for student behavior: positive effects						0.91	+32	Yes (p<0.01)

Notes: Means and standard deviations for the intervention and comparison groups are not displayed for findings from single-case design studies because single-case designs do not have a comparison group. The first column contains information about whether the outcome measures were assessed for the whole class or for focal students who were identified as having high levels of disruptive behavior. In all studies, *Good Behavior Game* was implemented with the whole class. The *PAX Good Behavior Game*® was used in Lalongo et al. (2019). The WWC could not determine which version was used in the other studies. Effect sizes are coded such that a positive effect size indicates a favorable outcome, and a negative effect size indicates an unfavorable outcome. SCD = single-case design study.

Table 4b. Findings by outcome domain from two studies of *Good Behavior Game* that meet WWC standards: Teacher practice outcomes

Outcome	Timing of measurement	Study sample	Number of sites	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (p-value)
Teacher practice outcome domain								
Behavior-specific teacher praise, based on researcher observation of teachers	During SCD intervention sessions (Lynne et al., 2017)	3 teachers in grades 1 and 4	1 school in southwestern U.S.	--	--	0.67	+25	No (p=0.12)
General teacher praise, based on researcher observation of teachers	During SCD intervention sessions (Lynne et al., 2017)	3 teachers in grades 1 and 4	1 school in southwestern U.S.	--	--	-0.10	-4	No (p=0.66)
Instructor correction for problem social behavior, based on researcher observation of teachers	During SCD intervention sessions (Rodriguez, 2010)	5 instructional assistants in grade K	1 school in the Pacific Northwest U.S.	--	--	0.75	+27	Yes (p<0.01)
Instructor praise for social behavior, based on researcher observation of teachers	During SCD intervention sessions (Rodriguez, 2010)	5 instructional assistants in grade K	1 school in the Pacific Northwest U.S.	--	--	1.49	+43	Yes (p<0.01)
Summary for teacher practice: positive effects						0.79	+29	Yes (p<0.01)

Notes: Means and standard deviations for the intervention and comparison groups are not displayed for findings from single-case design studies because single-case designs do not have a comparison group. The WWC could not determine which version was used in Lynne et al. (2017) or Rodriguez (2010). Effect sizes are coded such that a positive effect size indicates a positive outcome, and a negative effect size indicates an unfavorable outcome. SCD = single-case design study.

Table 4c. Findings by outcome domain from three studies of *Good Behavior Game* that meet WWC standards: Academic achievement outcomes

Outcome	Timing of measurement	Study sample	Number of sites	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (p-value)
Writing conventions outcome domain								
Number of writing sequences with acceptable word and punctuation use	During SCD intervention sessions (Fallon et al., 2020)	6 students in grades 1 and 2	1 school in the northeastern U.S.	--	--	0.31	+12	Yes (p=0.05)
Summary for writing conventions: potentially positive effects						0.31	+12	Yes (p=0.05)
Writing productivity outcome domain								
Total words written	During SCD intervention sessions (Fallon et al., 2020)	6 students in grades 1 and 2	1 school in the northeastern U.S.	--	--	0.75	+27	Yes (p<0.01)
Summary for writing productivity: potentially positive effects						0.75	+27	Yes (p<0.01)
Literacy achievement outcome domain								
Hodder Group Reading Test	End of intervention (Humphrey et al., 2018)	2,504 students in grades 2 and 3	77 schools in the United Kingdom	--	--	0.03	+1	No (p=0.30)
Northwest Evaluation Association Measures of Academic Progress: Reading Achievement	End of intervention (Weis et al., 2015)	949 students in grades 1 to 3	6 school districts in midwestern U.S.	188.97 (13.86)	186.12 (15.41)	0.20	+8	No (p=0.17)
Summary for literacy achievement: uncertain effects						0.07	+3	No (p=0.30)
Mathematics achievement outcome domain								
Northwest Evaluation Association Measures of Academic Progress: Mathematics	End of intervention (Weis et al., 2015)	703 students in grades 1 and 2	6 school districts in midwestern U.S.	192.11 (13.57)	188.31 (15.98)	0.26	+10	No (p=0.12)
Summary for mathematics achievement: uncertain effects						0.26	+10	No (p=0.12)

Notes: Means and standard deviations for the intervention and comparison groups are not displayed for findings from single-case design studies because single-case designs do not have a comparison group. Means and standard deviations for the intervention and comparison groups are not displayed for findings from Humphrey et al. (2018) because they were not provided for the analytic sample. The AIR version of *Good Behavior Game* was used in Humphrey et al. (2018), and the PAX *Good Behavior Game*® was used in Weis et al. (2015). The WWC could not determine which version was used in Fallon et al. (2020). Effect sizes are coded such that a positive effect size indicates a positive outcome, and a negative effect size indicates an unfavorable outcome. SCD = single-case design study.

Table 4d. Findings by outcome domain from two studies of *Good Behavior Game* that meet WWC standards: Intrapersonal competencies outcomes

Outcome	Timing of measurement	Study sample	Number of sites	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (p-value)
Intrapersonal competencies outcome domain								
Social Health Profile Social Competence Scale: Emotion Regulation Subscale, based on teacher report	End of intervention (Ialongo et al., 2019)	3,502 students in grades K to 5	18 schools in mid-Atlantic U.S.	4.08 (1.27)	3.97 (1.28)	0.09	+3	No (p=0.57)
Child Self-Control Rating Scale, based on student report	2 weeks after end of intervention (O’Keeffe et al., 2019)	355 students in grade 1	15 schools in Northern Ireland	4.02 (0.67)	3.69 (0.81)	0.27	+11	Yes (p=0.04)
Rosenberg Self-Esteem Scale, based on student report	2 weeks after end of intervention (O’Keeffe et al., 2019)	350 students in grade 1	15 schools in Northern Ireland	1.79 (0.51)	1.69 (0.48)	0.12	+5	No (p=0.39)
Summary for intrapersonal competencies: uncertain effects						0.14	+5	No (p=0.22)

Notes: The *PAX Good Behavior Game*® was used in Ialongo et al. (2019) and O’Keeffe et al. (2019). Effect sizes are coded such that a positive effect size indicates a positive outcome, and a negative effect size indicates an unfavorable outcome.

Table 4e. Findings by outcome domain from one study of *Good Behavior Game* that meet WWC standards: School climate outcomes

Outcome	Timing of measurement	Study sample	Number of sites	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (p-value)
School climate outcome domain								
Researcher-adapted Caregiver Interaction Survey: Harshness Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	1.34 (0.30)	1.30 (0.31)	-0.23	-9	No (p=0.25)
Researcher-adapted Caregiver Interaction Survey: Permissiveness Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	2.15 (0.46)	2.22 (0.50)	0.25	+10	No (p=0.14)
Researcher-adapted Promising Practices Rating Scale: Appropriate Program Structure Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	3.21 (0.36)	3.10 (0.38)	0.21	+8	No (p=0.26)
Researcher-adapted Promising Practices Rating Scale: Chaos Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	1.44 (0.45)	1.55 (0.40)	0.14	+6	No (p=0.55)
Researcher-adapted Promising Practices Rating Scale: Level of Engagement Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	3.07 (0.42)	2.92 (0.41)	0.33	+13	No (p=0.10)
Researcher-adapted Promising Practices Rating Scale: Supportive Relations with Adults Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	2.91 (0.47)	2.81 (0.50)	0.19	+8	No (p=0.32)
Researcher-adapted Promising Practices Rating Scale: Supportive Relations with Peers Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	3.13 (0.46)	3.02 (0.35)	0.29	+11	No (p=0.10)
Youth Program Quality Assessment: Choice Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	3.72 (0.91)	3.63 (0.89)	0.15	+6	No (p=0.44)

Outcome	Timing of measurement	Study sample	Number of sites	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (p-value)
Youth Program Quality Assessment: Conflict Resolution Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	2.70 (1.05)	2.39 (1.06)	0.18	+7	No (p=0.27)
Youth Program Quality Assessment: Staff Engagement Subscale, based on researcher observation of classes	End of intervention (Smith et al., 2018)	Students in grades 2 to 5	73 after-school programs in Pennsylvania	3.56 (0.72)	3.52 (0.65)	0.03	+1	No (p=0.89)
Summary for school climate: uncertain effects						0.15	+6	No (p=0.43)

Note: The PAX *Good Behavior Game*® was used in Smith et al. (2018) and delivered to all students. Effect sizes are coded such that a positive effect size indicates a positive outcome, and a negative effect size indicates an unfavorable outcome. .

Table 5. Characteristics of the 16 studies of *Good Behavior Game* that meet WWC standards and contribute to the effectiveness ratings

	Group design studies	Single-case design studies
What was the study design?	<ul style="list-style-type: none"> • Four studies used cluster randomized controlled trial designs. • One study used an individual-level randomized controlled trial design. • One used a cluster quasi-experimental design. 	<ul style="list-style-type: none"> • Two studies used multiple baseline designs across classrooms • One study used a multiple baseline design across teachers. • Seven studies used reversal-withdrawal designs. <p>All 10 single-case design studies are described further in Appendix Table 1.</p>
What was the WWC study rating?	<ul style="list-style-type: none"> • Four studies—Humphrey et al. (2018), Ialongo et al. (2019), Long et al. (2018), and O’Keeffe et al. (2019)—are rated Meets WWC Group Design Standards Without Reservations because they are cluster randomized controlled trials with low cluster-level attrition and individual nonresponse. • Smith et al. (2018) is rated Meets WWC Group Design Standards Without Reservations because it is a randomized controlled trial with low attrition. • Weis et al. (2015) is rated Meets WWC Group Design Standards With Reservations because it is a quasi-experimental study that satisfies the baseline equivalence requirement for the individuals in the analytic intervention and comparison groups. 	<ul style="list-style-type: none"> • Seven studies—Dadakhodjaeva et al. (2019), Donaldson et al. (2017), Ford et al. (2020), Ford (2017), Lynne et al. (2017), Rodriguez (2010), and Tanol et al. (2010)—are rated Meets WWC Single-Case Design Standards Without Reservations because they have sufficient number of phases and assessments per phase to completely satisfy WWC single-case design standards. • Three studies—Donaldson et al. (2018), Fallon et al. (2020), and Murphy et al. (2020)—are rated Meets WWC Single-Case Design Standards With Reservations because they are single-case design studies with a sufficient number of phases or assessments per phase to partially satisfy WWC single-case design standards.
Where did the study occur?	<p>The students were in kindergarten through grade 5 in 111 elementary schools and 73 after-school centers across Pennsylvania, other unnamed states in the United States, Northern Ireland, and the United Kingdom. One study did not list the number of elementary schools included in its sample.</p>	<p>The students were in kindergarten through grade 11 in eight elementary schools, one middle school, and two high schools across Maryland, Texas, and other unnamed states in the United States.</p>
Who participated in the study?	<p>The study samples ranged from 43 to 3,504 students. Overall, the composition of these samples was approximately 42% Black, 41% White, 3% Hispanic or Latino, and 1% Asian.</p> <p>In addition, 61% were eligible for free or reduced-price lunch, 49% were female, 24% students were English learners, and 15% received special education services.</p> <p>One study focused on 43 students demonstrating high levels of disruptive behaviors. The other group design studies included all students in study classrooms or schools.</p>	<p>The study samples ranged from 4 to 74 students. Overall, the composition of these samples was approximately 53% Black, 26% White, 3% Hispanic or Latino, and 1% American Indian or Alaska Native.</p> <p>In addition, 61% were eligible for free or reduced-price lunch, 48% were female, and 14% received special education services, and none of the students were English learners.</p> <p>Six studies selected students or classes demonstrating high levels of disruptive behaviors. One study was conducted in a school that served students identified as needing intensive behavior and mental health supports. The remaining single-case design studies either selected students experiencing academic difficulty or did not describe how students were selected.</p>

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Additional sources

The WWC examined additional sources (such as preliminary reports, working papers, or other associated publications) related to the citations in the references to complete its review of these studies. The additional sources are listed on the WWC web pages for each study review.