

A Scientific and Research History of the PAX (Good Behavior) Game¹

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More than 35 years ago, Harriet Barrish was providing advice to classroom teachers in Lawrence, Kansas. In one classroom, Harriet, then a graduate student, spotted a teacher using a sort of game to help the kids behave better. An idea was born.

Shortly, Harriet Barrish and Muriel Saunders and Mont Wolf (1969) published a study on the effects of something called the Good Behavior Game. The concept was simple. Children in a classroom were divided into teams. The teams “competed” against one another to earn a reward, which was earned if the teams refrained from “bad” behavior during normal instruction. The “Game” worked pretty well, and became a tool just about any serious student of applied behavior analysis learned. The Game was a simple, practical too. Almost any teacher could use the Game after brief explanation, with quick impact on classroom order.

Harriet and Muriel were “seniors” in the graduate program with Mont Wolf, while I was a “freshman” graduate student. Deeply enmeshed the behavior analysis model, none of us at the time foresaw long-term effects of the tricks of the trade like the Good Behavior game. We were happy to have a practical tool that made classroom a better place for learning to happen. Almost three decades later, I learned that the Game was much more than a “just a behavior mod trick.” What follows is a story of how some basic science and small-scale applied manifestations of that basic science might emerge as a powerful solution for multi-problem behavior, while informing the next generation of prevention theory and practice.

The result of all the research is the PAX Game based on lessons learned all over the world from hundreds of teacher and many scientists. This is the chronicle of the evidence behind the Game, that stretches back now almost forty years. Very few prevention strategies have this kind of a powerful history and track record.

¹ This review is aimed an teachers and others who desire to learn more about the Game, but do not wish to read scientific-journals. A more in-depth, peer-reviewed article on the scientific basis of the Game has been published previously: Embry, D.D. (2002). The Good Behavior Game: A Best Practice Candidate as a Universal Behavioral Vaccine, *Clinical Child and Family Psychology Review*, 5, 273-297.

Social Significance

In the summer of 1999, a few months after the Littleton tragedy, I met Dr. Shep Kellam at a special meeting called by the Secretary of Education, Richard Riley, the Director of the National Institute of Justice, Jeremy Travis, and the director of the Office of Juvenile Justice and Delinquency Prevention. About 15 of us as national experts had been invited to meet with key national leaders about what to do about the shocking acts of multiple-shootings in our schools.

Dr. Kellam's work was of general knowledge to me, especially his long-term follow up studies. I did not know something, however, which is what lead to our zeal. When Dr. Kellam stood up to talk, he began to tell a powerful story of this lifetime of work in the city of Baltimore, where some of the best science in the world has been done on the prevention of multiple problems of very high risk children, youth and families.

Dr. Kellam said, "We found that the use of the Good Behavior game, played in first and second grade, changed the life course of children in inner city of Baltimore. We randomly assigned the most aggressive children to classrooms in 19 schools. Then, we randomly assigned teachers to learn how to do a classroom management strategy, called the Good Behavior Game. We've followed those children for many years now. In middle school, only a few of the kids who got the game were in lifetime serious trouble. Among the kids who did not get the game, many more had lifetime serious problems."

"Shep," I asked, "was this the same game that Harriet Barrish, Muriel Saunders and Mont Wolfe devised back in the 1960s?"

"Yes."

"Oh, that's a miracle result, Shep. Every classroom in the world needs to use the Game."

Later, I returned home. I opened my copy of the journal, now discolored from sunlight and several across-the-country and world moves. I read what my friends and colleagues, Harriet, Muriel and Mont had written. It was a singular moment filled with intense emotion. Good science takes time to mature so that the world can be a better place. Harriet, Muriel and Mont were so pleased with their publication at the time. They had no idea at then that their discovery could allow so many children to live a fully productive, peaceful, and happy life

No one remembers the name of the teacher who had the basic idea, who is a hero.

Review of Prior Research

In the early 1960s, applied behavior analysis bloomed. It was largely the brain-child of three leading developmental psychologists: Donald Baer, Montrose Wolf and Todd Risley—all of whom were on my doctoral committee, with Don Baer as my chair. They were filled with enthusiasm and a vision of making the world a better place through very fine science.

General Theory and History

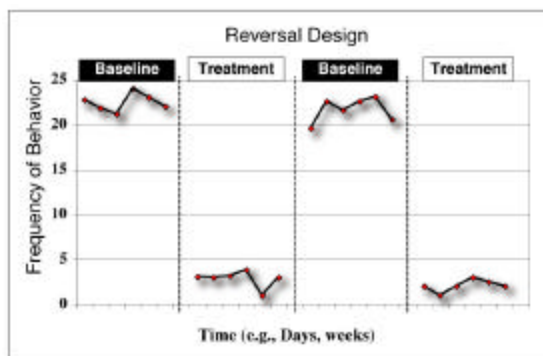
Some 130 years of solid psychological research shows that behavior varies as a function of its consequences. Thorndike first labeled this as the "Law of Effect" back in the early 1900s. Since that time, the observations have been codified into the most robust replicated general principles of the science of behavior such as the "Matching Law" (e.g. Herrnstein, 1970). There is a profound reason that scientists refer to this principle as a "law." It is universal, highly replicated, easily demonstrated and parsimonious. Against this backdrop, the graduate students like Harriet Barrish and Muriel Saunders and scientists like Mont Wolf thought disruptive, disagreeable behaviors by students might happen because they were somehow reinforced by peers and others in school settings. Perhaps, the smiles, giggles, laughs and even pointed taunting from other students were *reinforcing* the high rate of the behaviors that teachers found so difficult to handle or harmful to the learning process. In this context and time, the graduate students and senior scientists reasoned that some kind of group-based reward for *inhibiting* negative behavior might be a boon for classrooms. Already, there were powerful precedents for such an idea. The idea for the Good Behavior Game was born, after they saw a teacher spontaneously using the basic ideas.

Behavior Analysis Studies

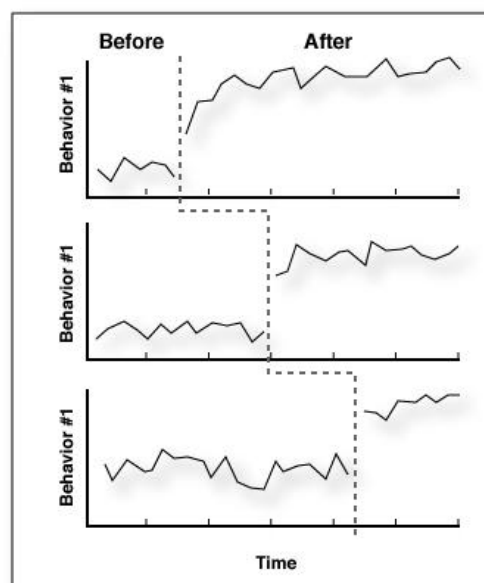
Behavior analysis studies are the foundation of virtually every "best practice" strategy. A reversal study shows that if something is put and then taken away, behavior changes. A multiple-baseline shows that a strategy works across different people, different behaviors or different places. These types of studies are powerful, valid, and very useful in the real world. Almost anyone can see the logic.

Figure ??: Simple Applied Research Designs

Reversal Design Example



Multiple Baseline Example



Virtually all of the named best practices for the treatment or prevention of such things as childhood behavior problems, conduct disorders, parent training, depression, substance abuse, depression, anxiety, independent living skills, etc. were well studied using these scientific designs before large-scale randomized control groups were undertaken. The logic is simple: if one cannot demonstrate “experimental control” in one of these designs with a few people, then it would be improbable and costly to try to show any meaningful statistical difference in several hundred or thousands of children, adolescents, or adults. The PAX (Good Behavior) Game has one of the best records of success in these studies of any named best practice, especially because so many different people and places have tested it—not just one scientist or one university.

First Test of the Game. In 1969, Barrish, Saunders and Wolf published the first study on the Good Behavior Game. A school had what teachers of every generation refer to as, “the classroom from Hell.” It was this class that became the first to try the game in a controlled study. The 4th grade children were observed during math and reading. Trained observers coded student behavior every minute for an hour 3-days a week for several weeks. They children were highly disruptive in the class. They were out-of-seat or talking out about 96% to 80% of each class period, making instruction nearly impossible. Bedlam would have described the class.

One day, the children learned about a new game from their teacher. She explained they would play it during math every day. The rules were simple:

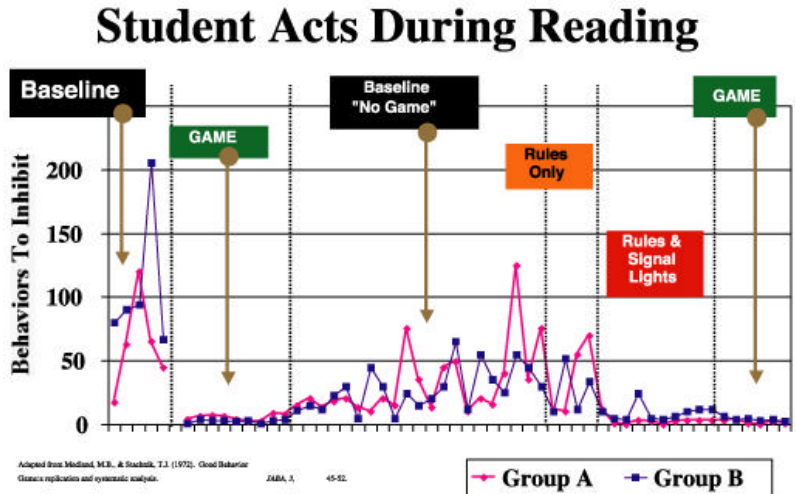
- Two teams, which was done by dividing the class down the middle row.
- A team or teams could win privileges.
- Whenever the teacher saw a team break one of the classroom rules (which now were broken every minute), the teacher would mark a tick on the board against that team.
- The team with the lowest marks or if both teams were less than six marks, team(s) would get to wear victory tags, get a star on the winner's chart, go first to lunch or have some free time at the end of the day.
- If a team had not received more than 20 marks in a week, it would get extra privileges at the end of the week.

The class started playing the game during math. The rate of disruptions fell immediately to about 19% to 10% of the hour, a great improvement. Meanwhile, the reading time stayed pretty much the same.

After a few weeks, they teacher switched which time she played the game. The kids stopped playing the game during math but started playing in reading. The results immediately showed the effect of the game. Behavior during math looked pretty bad again, just like “baseline.” Behavior during reading was great. After a week, the teacher played the game during both times, and the rate of problem behavior fell quite low.

Second Test Shows Game Components Involves Low Emotional Reaction for Rule Breaking: In 1972, Medland and Stachnik tested the good-behavior game in a 5th grade reading class consisting of 2 groups of 14 students each. They tested different components to see how they worked. Game components included rules, lights (response feedback), and group consequences of extra recess and extra free time. Observers counted

talking-out, disruptive, and out-of-seat behaviors. The graphs show that the game reduced the all the disruptive behaviors from their baseline rate by almost 99% of 1 group and 97% for the other. The component analysis revealed that after association in the game, the stimulus components of rules and lights were effective in reducing the problem



behaviors. What was particularly noteworthy was the fact that the students and teacher were able to cover 25% more academic material during the game.

The study also showed that using some simple “stop” and “go” signals as a non-emotional way of cueing behavior helped a great deal (which is why they are included in the PAX Good Behavior Game.



Third Test Shows Game Works

with Special Education Students. Grandy, Madsen, and De Mersseman tried the game with special-education students in 1973. Again, the disruptive behaviors went way down. This early study is just one that shows that the PAX Good Behavior can meet special education needs as required by law.

Fourth Test Game Teams Necessary: Harris and Sherman tested the game in 1973, and they too found that disruptive talking and out-of-seat behavior fell dramatically in fifth and six grade students. They way the did the study allowed for a better understanding of key, effective components of the game: division of the class into teams, consequences for a team winning of the game, and a low number of marks set as criteria for winning the game.

The PAX Good Behavior Game always uses teams, provides early rewards for winning that move to delayed rewards and requires low numbers of “Spleems” (disruptions) of three or less to win. The PAX Good Behavior Game also includes bonus prizes if all teams win.

 INSERT THE PAX TEAM WIN CHART HERE

Fifth Test Shows Game Works with Primary Grades. Bostow and Geiger evaluated the game's effects on second graders in 1976. Here again, it was effective. It was amazingly simple to put into practice and administer. It was useful to know that primary grade students would respond in the same way as older students.

Sixth Test Shows Games Works Better than Simple Teacher Praise: By now, the replications were showing that the Game was effective. Scientists started to ask broader questions, such as is the game better than some other alternative. In 1977, Warner, Miller, and Cohen compared the effects of the game against simple teacher attention for being good among 4th and 5th graders. The Game was much more effective and simpler to use.

Seventh Test Reveals that Peer Competition Important to Game Success. Hegerle, Kesecker, and Couch directly replicated the Game again in 1979. They found that the peer pressure, competition and social recognition were all important components. This added to the understanding of why the Game might work. In the PAX Good Behavior Game, you will see teams as a key part of the effort, plus the teaching of ways to cue your team members to be better players. Additionally, the PAX Tootle Notes are all proven ways to improve social recognition from peers and family.

INSERT THE TOOTLE NOTE ILLUSTRATION FILED OUT HERE

These components fit well into the notion of the matching law (e.g., Embry and Flannery, 1999). The matching law (Herrnstein, 1970) can be expressed. As:

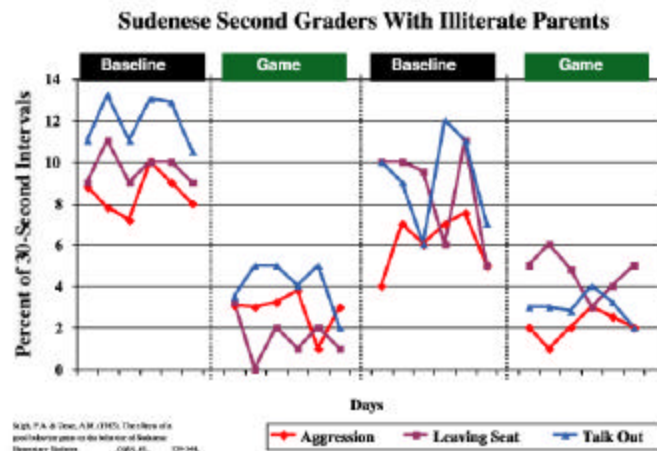
$$B = kr / r + re$$

"B" is the behavior in question. "k" is a constant and "r" is the rate of reinforcement of the "b"; this is divided by the same "r" plus "re" (the rate of reinforcement of all other behavior. Peer pressure and competition reduce the "re" term, thereby making the "r" (social recognition) more potent. This matching law effect helps explain why just putting check marks up by individual children's names is far less effective than the strategy of a mark for a child's team. The Matching Law is one of the most cited papers in behavior science, and has been shown to predict substantial amounts of behavior in classrooms.

Eighth Test Finds that Teachers Need Reminders to Play Game. How long might the effects of the game last after being played briefly with no coaching from somebody outside the classroom? Johnson, Turner, and Konarski answered that question in 1978. Among highly disruptive intermediate classrooms, they found that the effects of the Game did last but started to decay after two months when the "coach" stopped coming to the classroom to encourage the use of the game. This is why we have built such things as the job roles for students to cue playing the PAX Game, asked teachers to put the Game times in their planner and added strategies to the school-wide plan.

INSERT THE REMINDER JOB CARD HERE & CALENDAR ENTRY ART

Ninth Test Shows Game is Culturally Competent. Would the game work across different cultures? If so, then it might mean that the processes were very strong, profound and universal. Huber reported positive results in Germany in 1979. Saigh and Umar found strong effects among Sudanese 2nd graders whose parents could not read or write. The Sudanese study was the first to report that the Game reduced aggression.



Children in the multi-cultural replications received special symbols of winning the game, which is what lead to the idea of the PAX Leader name badges and the special PAX Game stickers for children to show to families and peers.

 INSERT SOME OF THE STICKER ART HERE

Tenth Test Proves Game Helps Behavior on Playground and Other School Settings:

Could the Game be adapted so that it could work in other settings or across settings in a school? Some trials started to emerge, which pointed to the fact that the Game could be a "universal" tool inside a school. In 1979, Fishbein and Wasik showed that the game could be played in the school library and bridge the classroom at the same time. A delightful twist involved having the students help set and define the rules, with no loss of effects. In 1998, Patrick, Ward, and Crouch found that the Game could be powerfully adapted to physical education or game-type activities outside.

This study is why the PAX Good Behavior Game involves children in defining a wonderful school in which they would see, hear, feel, and do more positive things (PAX), and they would see, hear, feel and do less of in a wonderful school (Spleems). The idea of spreading the PAX Good Behavior Game is modeled in the special take-home book, My Wonderful PAX School.

 INSERT cover of home book and the See, Hear, Feel & DO Graphics

Eleventh Test Demonstrates that the Game Helps Special Ed Kids in Regular Classrooms.

Did the Game work for really serious behavior problem children who were "mainstreamed" in a regular classroom when the whole class played the game? Yes, discovered Darveaux in 1984. She played the game in a classroom while observing two targeted children on each team. The two targeted behavior-problem children did improve when the whole class played the game. This suggested that classroom teachers would be

able to use the Game as an effective behavior management strategy for children at-risk for placement in special services. This particular study shows the importance of pre-training for children who have an elevated risk. This study was used in the planning of the 'extra-dose' procedures for included special needs children.

Twelfth Test Shows the Game Is Effective with Simple Activity Rewards. What kind of rewards work for the Game? This was something not clearly known, and Kosiec, Czernicki, and McLaughlin found that students did equally well when they played the game for activity rewards versus candy in 1986. Of course, children did like candy. It was useful to discover that activity rewards were powerful. Notice the PAX Game has three different lists of Activity Rewards—Teacher's Prizes, Granny's Wacky Prizes and Students Prize List.

SHOW GRAPHIC or PHOTOS of Activities & Granny's Wacky Prizes

Thirteenth Test Proves Game Works with Preschoolers and Teens: Would the game work with children who were younger, developmentally delayed or much older such as teenagers? Again, if so, this would make the Game much more useful and powerful as a science-based strategy. In 1986, Phillips and Christie found the game worked quite well for intellectually impaired students whose ages ranged from 12 to 23 years. Salend, Reynolds, and Coyle proved the Game worked for emotionally disturbed adolescents in 1989. The older students liked the game and stopped doing inappropriate verbalizations, inappropriate touching, negative comments, cursing, and drumming. Preschoolers turned out to respond to the Game, too. A special puppet helped the students learn the game in the study by Swiezy, Matson, and Box in 1992. Special colored badges helped the teacher track the preschoolers as they moved from place to place in the room.

Your PAX Good Behavior Game reference manual has suggestions for using the game with younger children and in K-8 settings.

Show some photo or illustration of preschoolers or middle schoolers

Fourteenth Study Proves Hundreds of Teachers Prefer Game Over Other Approaches: Would a large number of teachers like and prefer the Game over other alternatives? Tingstrom found out that over 200 teachers did like the Game and would use it over other alternatives. An important signal did come from that study in that teachers who did not "believe in positive reinforcement" were not as likely to adopt it. If you have concerns about the use of positive reinforcement, see the end of this section.

Randomized Control Studies

The "Gold Standard" of science presently is the use of random assignment to condition, especially large numbers if possible. The early phases of science are best served by repeated measure studies such as those used in applied behavior analysis. Such studies provide a powerful, simple way of determining if the procedure has any probability of effect and helps identify how it varies based on different conditions, something not easy to do in randomized control group studies or very, very expensive. The Game has been included in four major randomized control-group studies by different scientists—more than apparently any other prevention best practice.

Baltimore Prevention Project

By the late 1980s, it was apparent that the Game had strong effects and could be something to try in a large randomized trial. The Baltimore Prevention Project secured a large grant to do precisely that. Dr. Sheppard Kellam was the principal investigator, and he wrote:

The Prevention Program was begun after numerous studies had shown that poor achievement, aggression, and shy behavior in first grade increased the risk for problems during adolescence and adulthood. For example, learning difficulties in first grade often lead to depression in adolescence. Overly shy behavior tends to lead to anxiety, while aggressive behaviors, such as truancy, rule-breaking, or fighting, seem to predict later problems with alcohol and drug use, school drop-out, and delinquency. Given the strong link between these early risk behaviors and later problems in adolescence and adulthood, we concluded that we might be able to improve children's later outcomes by intervening as early as first grade with their learning problems, aggression and shy behavior.

In Baltimore, the Good Behavior Game was chosen to reduce aggressive and shy behaviors in the classroom and to promote cooperative behaviors. As in the earliest versions of the Game, classes were divided into teams, which were rewarded when members behaved appropriately and participated in classroom activities rather than broke rules and fought. Three teams were created per class, with equal distributions of aggressive and shy children. During the first weeks of the intervention, the Good Behavior Game was played three times each week, for a period of 10 minutes. Over successive weeks, duration per game period was increased by 10 minutes, up to a maximum of 3 hours.

A total of 864 first grade students from 19 Baltimore Public Schools participated in the study during the 1985-1986 academic year. Short-term results relied on assessments of all students in the Fall and Spring of first grade using three tools:

- **A Clinically Tested Survey.** The Teacher Observation of Classroom Adaptation Revised (TOCA-R), which measures clinical levels of conduct, attention and mood problems in children using teacher ratings.
- **Child Social Competencies.** The Peer Assessment Inventory (PAI), which measures children's self-report of problems and friendships.
- **Aggression and Disruption.** Direct observations of student behavior by classroom observers

The study had both control classrooms within and across schools, making for a more powerful but complicated study.

What were the early results? Dolan and the other Johns Hopkins scientists made an initial report in 1994. First, boys were rated as more aggressive by both teachers and peers. Second, boys were seen as more shy by teachers, but not by peers. Third, the Game had a significant short-term impact on teacher ratings of aggressive and shy behavior for both males and females. There were some useful sub-findings:

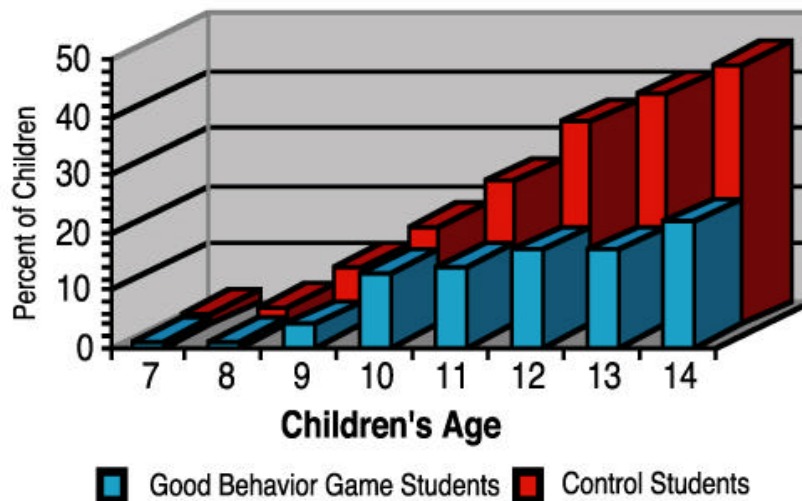
- The intervention had greater impact in reducing aggressive behavior in students who began the year with high aggressive ratings compared with students who began with low aggressive ratings. This means that the Game helps the difficult kids.
- Peer nominations of aggressive behavior among boys by their classmates were also significantly reduced. Only one of the three peer nominations of shy behavior showed significant impact ("has few friends") and that was only in the case of females.
- Finally, the Game increased students' on task performance in the classroom as assessed through direct observations. As in other studies, there was more time for teaching and learning—which was very good because the game is not a curriculum.

The Baltimore Prevention Project only used the Game in first and second grade. The Game was not used in 3rd, 4th, 5th or 6th grade.

What were the longer-term results? This are exceptionally important from a developmental perspective, because the real problems related to early predictors such as aggression do not show up until the adolescent years. In Baltimore, the longitudinal results were collected *six years* later. Kellam and others report:

Of the total number of students who participated in the same intervention or control condition in first and second grade, 590 students remained in the School District after the intervention and were assessed for the sixth year follow-up. After the positive effects reported by teachers during the intervention years waned somewhat in third and fourth grades, they reappeared in fifth grade and gained strength in sixth grade. Like the short-term results, the males who were more aggressive in first grade benefited most from the Game. The aggressive ratings for over 30 percent of males who were rated as highly aggressive by their first grade teachers dropped significantly by sixth grade. It appears that the positive effects of the Good Behavior Game intervention may become latent until life transitions - like that into middle school - act as catalysts for a resurgence of its effects.

There were other long-term effects, not whole predicted when the study started. For example, males were significantly less likely to initiate smoking (a 50% reduction in



initiation rate) in the early teens. Kellam and Anthony (1998) concluded from the long-term follow up in 1998 that targeting early risk of aggressive behavior is an important smoking prevention strategy, something that longitudinal tracking studies with no intervention had suggested but not proved.

Reducing tobacco use alone will save many lives, reduce health care costs and, in the short term, reduce the initiation of alcohol and other drugs.

In 1999, Ialongo and others reported on the results of comparison between random assignment to the Good Behavior Game or a parenting program in Baltimore. A total of 578 children were randomly assigned to the conditions, and the classroom condition with the Good Behavior Game produced the best results on reducing aggression, inattention and other problems compared to the family program. This suggests that a teacher alone, without a family intervention, can dramatically improve the developmental outcomes of a high-risk child. The PAX Good Behavior Game gives teachers power to change the future—even if the families do not help! Note, the PAX Good Behavior Game does, however, include strategies for families to accelerate the impact.

Then in 2001, Ialongo and colleagues published long-term follow up. At grade 6 (or age 12), the children who received Game were significantly less likely to show conduct problems, to meet the diagnostic criteria for Conduct Disorder, or to have been suspended from school during the last year. In addition, children who received Game showed significantly lower rates of child mental health service need, special education and utilization of services. The Game saves huge amounts of money in the school district, in community services and in juvenile justice or prison costs.

Details of these findings can be found in several recent reports published by the team from the Baltimore Prevention Project in 1998, 1999 and 2000.



The PAX Good Behavior Game is a blue-ribbon best practice. It is perhaps the only proven practice that an individual elementary teacher can use that reduces substance abuse, tobacco use, violence, and other problems.

Project Lift in Oregon Communities

Linking the Interests of Families and Teachers (LIFT), a prevention program designed for delivery to children and parents within the elementary school setting (e.g., Eddy, Reid & Fetrow, 2000) in 12 public elementary schools with about 700 students in higher risk neighborhoods. The LIFT targets child oppositional, defiant, and socially inept behavior and parent discipline and monitoring—many of the variables targeted by the scientists in

Baltimore. The LIFT are (a) classroom-based child social and problem skills training, (b) playground-based behavior modification using an adaptation of the Game, and (c) group-delivered parent training. At 30 months post-test, children from the treatment group were significantly less likely to have been arrested. Micro-coding of real-time playground aggression showed that intervention benefited the most aggressive children at recess (Stoolmiller, Eddy and Reid, 2000).

The LIFT effort by Reid and his colleagues is noteworthy, because it is a systematic rather than direct replication of the Game, which was imbedded in a larger effort. This means that the Game can be incorporated with family and social skills interventions with no apparent adverse effects.

The PAX Good Behavior Game embeds both social skills and parenting interventions, though not at the level of Project LIFT—which is a more intensive approach requiring considerable time from the teacher and staff. The original version of the Game did not include these bonus interventions included in the PAX Good Behavior Game shown below:

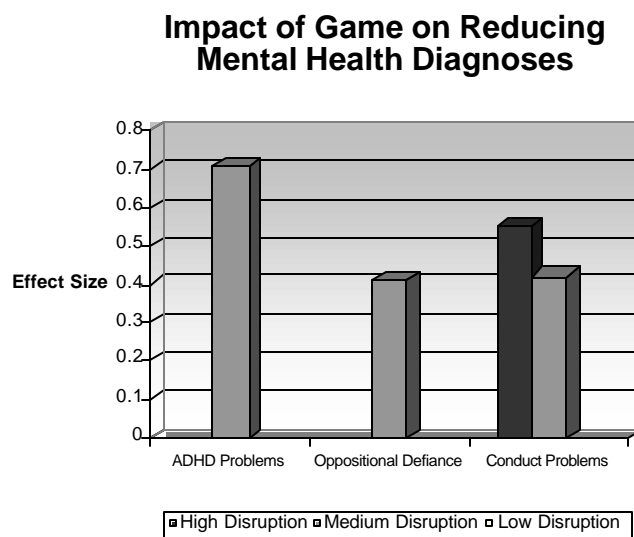
PAX Game Included Social Skills	PAX Game Included Parenting Skills
<ul style="list-style-type: none"> • PAX Toole notes teach children how to accept and give compliments to peers and adults. • PAX Quiet, Voice and Beat the Timer improve children’s ability to follow adult instruction and complete school-related tasks • PAX Game jobs teach and provide peer recognition for being helpful and respectful. • PAX Vision and related activities change children’s internal thinking from blaming others to “bettering their world and themselves.” 	<ul style="list-style-type: none"> • The My Wonderful School workbook helps parents back up school rules, so that teachers and parents are not split by children. • PAX Tootle Note (positive home notes) for home have been shown to be powerful ways of improving behavior at home and at school. • Shared activities and home links help parents use the same procedures that are working at school. • The approach sets the state for other interventions because trust is built up between home and school.

Longitudinal Prevention Trials in the Netherlands

In the closing months of 2002, a major study was reported from the Netherlands (e.g., van Lier, 2002) involving nearly 700 elementary school children in 13 schools. This randomized control group study is remarkable, because the dose of the Game was less intense than the Baltimore and other studies. Children played the game for only a 10-minutes per day three times per week for two months, then three times per week about one hour a time. After that, children were told that the rules of the Game were in force at other times, though no prizes or rewards happened. This happened over two years. What were the results, comparing classrooms that got the game versus classrooms that did not?

One of the measures was teacher report of attention-deficit hyperactivity disorder (ADHD), using the Child-Behavior Checklist (which is often used to diagnose such problems). Across all the children, the Game reduced ADHD significantly.

While the Netherlands prevention trials did not reduce ADHD symptoms in the most severe children, the version used there did reduce serious symptoms of conduct orders significantly—a very important finding. Importantly, the Game also reduced oppositional defiant symptoms. The Game did not make low-risk children worse, which some people fear. Given how simple the Game is to implement, the effect size change on these serious mental-health problems is very positive. As might be expected, the Game had the most consistent positive impact on the medium-risk children (moderate levels of disruption at baseline) across all mental-health diagnoses.



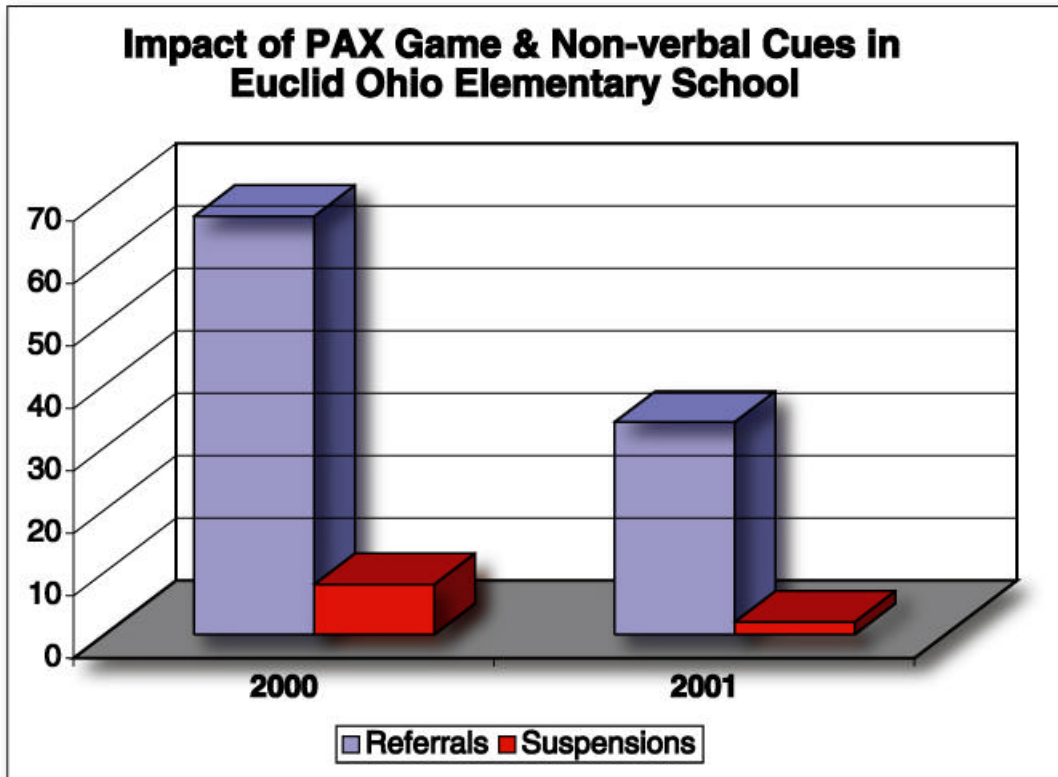
Please note that the Netherlands version of the Game was played less often with less intensity than the recommended practices of the PAX Good Behavior Game. Your version of the strategy was structured to be more powerful.

Diffusion Trials of the PAX Good Behavior Game

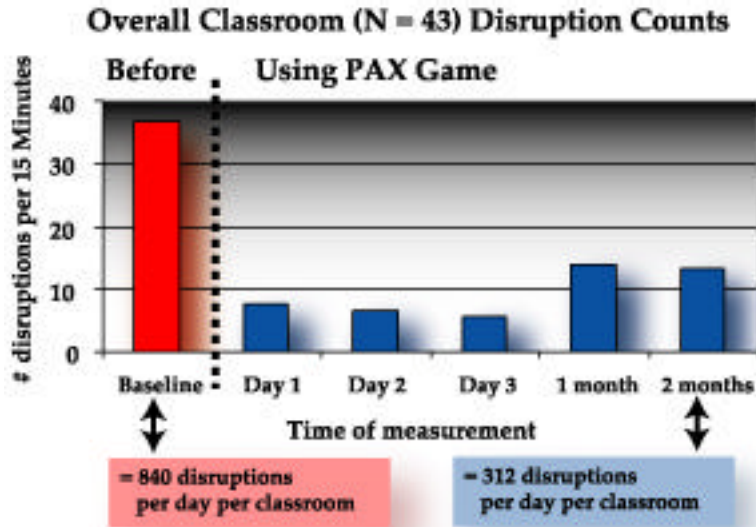
PAXIS Institute has lead the way in developing the Game as a strategy that can be used by real teachers in real classrooms in real-world schools all across American. The PAX Good Behavior Game—which is a trademark name for the Good Behavior Game has now practically tested in several hundred classrooms in Ohio, Arizona, Illinois, California, and Wyoming—from inner city classrooms, to suburban classrooms to almost one-room schools. The PAX Good Behavior Game has been used in special education classrooms, in primary grades, in intermediate grades, and even middle or high school. The PAX Good Behavior Game package has been used in classrooms with students whose first language is not English. Remember, unlike other things you can buy, the PAX Good Behavior Game is NOT a curriculum. It is a rain-building habit or character development approach to use in normal instruction and classroom practices. The PAX Good Behavior Game has been used by regular classroom teachers; by art, music and

physical education teachers; and by substitute teachers. The package has been tried by brand-new teachers as well as seasoned teachers. The Game has been used in lunchrooms, bathrooms, and playgrounds, too.

Here are a few results of the diffusion trials of the PAX Good Behavior Game. For example, Lincoln Elementary School in Euclid, Ohio saw a major reduction in referrals and suspensions when the whole school implemented it.



In the Chicago area, the introduction of the Game in some 40+ classrooms produced major reductions in disruptive behavior measured by observers in the classrooms.



The PAX Good Behavior Game package cannot be guaranteed to work—no more than the very best medications can be guaranteed to cure every case of common childhood diseases. The Good Behavior Game, however, seems to have consistent, positive effects in many diverse circumstances and conditions; few other behavioral interventions have this much positive results and replications.

Praise, Recognition and Rewards: Braingenomics

A few people say, “I don’t want to do the PAX Good Behavior Game because it uses rewards. Children should just behave, because they ought to do it.” Occasionally, some folks may mention this or that popular book or expert who claims rewards, praise and recognition turn children into monsters.

If a person is unwilling to examine and think about what scientific research really says, then they are likely to have a very half-hearted attempt in using the PAX Good Behavior Game. What follows here is a brief review of the real science.

Long-term, Longitudinal or Twin Studies

One popular book, often cited, argues that the reason children are failing in school, doing drugs and engaging in generally bad behavior is because their parents and teachers praised those children, gave them stickers, and gave rewards for behavior. This would suggest that the principal’s office, the police station and the juvenile hall would be filled by kids whose teachers said, “You did well on that assignment” or whose parents who praised their children for doing well at school or with some accomplishment such as “congratulations, son, for bringing up your grades this quarter.” One finds the reverse in published, peer-reviewed studies, which are numerous. Scientists in New Zealand, in the United States, in Canada and the United Kingdom have studied what happens to children and/or at school—measuring praise and recognition from parents and teachers. Those studies are quite clear: consistent praise, recognition and even simple rewards for effort and accomplishment from parents and/or teachers dramatically improves children’s long-

term development—reducing risk of substance abuse, reducing criminal behavior, increasing school achievement, reducing school failure, etc. The lack of expressed praise, recognition and reward for effort and achievement harms long-term resiliency and outcomes. This has been tested in studies following kids from birth, from studies of twins, and from experimental studies following children over many years. These are real-world, consistent effects. Indeed, if the argument were true that praise, recognition and rewards made kids worse, everyone of one independent studies of the Game would show that it made kids worse, which did not happen. Indeed, the studies have shown the Game made the kids two-four times better over the long haul. Another claim is sometimes that the children will become terrible over time if they don't get rewarded every single time. Again, look at the long-term results. In the Baltimore studies, teachers only used the Game in 1st and 2nd grade, yet it had effects that lasted well into middle school.

Does this mean that praise, rewards and recognition can never be misused? Of course not. That is why the PAX Good Behavior Game contains many suggestions based on lots of experience to reduce misuse and improve positive, long-term results.

The Thanksgiving Dinner Effect: Laboratory Studies on “Intrinsic Reward”

Some popular books cite short-term laboratory studies showing that performance declines after reward. They make a big deal of this effect. Behavioral scientists all this, the “satiation effect.” What does this mean? A real-world example illustrates it well. Most of us in the United States look forward to our Thanksgiving meal. We get up early to work on it. We anticipate the meal by its smells and past enjoyment. Then we eat, and we eat. We are stuffed, “not another bite” we say after a relative offers one of the family's traditional delights passed down across generations. If your Aunt who equates eating her food as loving you and your Aunt approaches you to give you something more to eat an hour later, you will likely decline. You are full. You are satiated. Many of the laboratory studies have research paradigms like this. They give a reward, then probe right away if the child is still interested in the task. Rarely do these laboratory studies, which are done mostly by graduate students who cannot undertake a long-term study, measure days, weeks, months or years later. One such long-term study did, however, measure the effect of the Book-IT program that rewards students with pizzas for reading many books. Critics have claimed that it would destroy the love of reading. As it turns out, one study followed kids into college. Young people who participated in Book-IT read more books in college compared to those that did not participate.

Another important distinction to note. Adult praise is not the same as an extrinsic reward such as money, toys, or food. Most all of the studies of intrinsic motivation actually define praise and social recognition as part of intrinsic motivation.

If you would like to read more about this type of research, visit the PAXIS Institute web site, www.paxtalk.com

Braingenomics

Reinforcement triggers the dopamine circuits in the brain, which are highly related to intelligence and goal setting. Medications like Ritalin stimulate dopamine in the brain. Behavioral studies with animals and humans suggests that rewarding activities stimulate brain dopamine. Some children are born with different wiring in their brains that requires

more reward than other children. Some children's need for immediate reward gets turned on by exposure to traumatic events. Another document reviews the brain science thought to be related to the PAX Good Behavior Game

Awards and Recognition

The positive effects of the Good Behavior Game have been recognized by a number of sources. The Game is one of the few "universal", simple strategies identified by the Colorado Violence Prevention Blueprints Project, funded by the US Centers for Disease Control as meeting the scientific standards for a truly promising violence prevention practice. The Substance Abuse and Mental Health Administration has also identified the Game as a research-based promising practice.

These awards and recognition are all the more remarkable, because the Game is the only such intervention that individual teachers as well as a whole school can implement. The number of replications of the Game by so many different investigators across time only strengthen the honors and awards. None of the researchers who have proven the Game works received payments for selling or promoting the Game—they were independent evaluators from all over the world. No other prevention practice has this distinction.

INSERT List of Best Practice Awards for the Game

U.S. Center for Substance Abuse Prevention
U.S. National Institute on Drug Abuse,
U.S. Office of Juvenile Justice and Delinquency Prevention
Surgeon General of the United States Report on Youth Violence
Center for Effective Collaboration and Practice
School Violence Resource Center
Behaviorists for Social Responsibility
Hamilton Fish Institute
Center for the Study and Prevention of Violence

Evaluating the Game in Your Class or School

What if you want to evaluate how well the Game works in your classroom, with your students, at your school? No problem. PAXIS Institute absolutely encourages new studies, replications, refinements, and other inquiries that will improve the benefits of previously proven strategies like the PAX Good Behavior Game.

You can download a special “Everyday Scientist” kit to help you at ww.game.paxis.org. You must have your password from the purchase of the Game or previously registered at the site. This evaluation kit is free, with the stipulation that you share the results of your effort so that we can improve the Game for future teachers, students, families, schools, and communities.

The kit contains measurement tools, experimental design suggestions that will meet the standard for most master theses, for publication in many journals, and the demands of most grants and funders. You can find out how well the Game works for you, and what you might need to do to make it work even better.

Summary

The PAX Good Behavior Game stands as one of the most potent, universal prevention strategies documented to date. It comes with a strong pedigree of theory and systematic replications, including well designed randomized control-group studies with long-term follow up. PAXIS Institute has worked with scientists to make the Game easily to use with high probability of major impact in classrooms all over the world.

References

- Barrish, Harriet H.; Saunders, Muriel; Wolf, Montrose M (1969). Good behavior game: Effects of individual contingencies for group consequences on disruptive behavior in a classroom. *Journal of Applied Behavior Analysis*, 2(2), 119-124.
- Bostow, Diane, and Geiger, O. Glenn. (1976). Good behavior game: A replication and systematic analysis with a second grade class. *SALT: School Applications of Learning Theory*, 8(2) 18-27.
- Carlson, Caryn L; Pelham, William E; Milich, Richard; Dixon, Joanne. (1992). Single and combined effects of methylphenidate and behavior therapy on the classroom performance of children with attention-deficit hyperactivity disorder. [Journal Article] *Journal of Abnormal Child Psychology*. 20(2), 213-221
- Darveaux, Dion X. (1984). The Good Behavior Game Plus Merit: Controlling disruptive behavior and improving student motivation. *School Psychology Review*, 13(4), 510-514.
- Dolan, Lawrence J; Kellam, Sheppard G; Brown, C. Hendricks; Werthamer-Larsson, Lisa; et al. (1993). The short-term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement. *Journal of Applied Developmental Psychology*. 14(3), 317-345
- Dolan, Lawrence J; Kellam, Sheppard G; Brown, C. Hendricks; Werthamer-Larsson, Lisa; et al. (1993). The short-term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement. *Journal of Applied Developmental Psychology*. 14(3), 317-345.
- Fishbein, Jill E; Wasik, Barbara H. (1984). Effect of the good behavior game on disruptive library behavior. *Journal of Applied Behavior Analysis*. 14(1), 89-93
- Gadow, Kenneth D; Nolan, Edith E; Sverd, Jeffrey; Sprafkin, Joyce; et al. (1990). Methylphenidate in aggressive-hyperactive boys: I. Effects on peer aggression in public school settings. *Journal of the American Academy of Child & Adolescent Psychiatry*, 29(5), 710-718
- Grandy, Gordon S.; Madsen, Charles H.; De Mersseman, Lois M (1973). The effects of individual and interdependent contingencies on inappropriate classroom behavior. *Psychology in the Schools*, 10(4) 488-493.
- Greenwood, Charles R, Terry, Barbara, Utley, Cheryl A., Montagna, Debra, et al. (1993). Achievement, placement, and services: Middle school benefits of Classwide Peer Tutoring used at the elementary school. *School Psychology Review.*, 22(3), 497-516.
- Hegerle, Dana R.; Kesecker, Mary P.; Couch, J. V. (1979). A behavior game for the reduction of inappropriate classroom behaviors. *School Psychology Review*, 8(3) 339-343.
- Herrnstein, R. (1970). On the law of effect. *Journal of the Experimental Analysis of Behavior*, 13, 243-266
- Huber, Hermann (1979). The value of a behavior modification programme, administered in a fourth grade class of a remedial school. *Praxis der Kinderpsychologie und Kinderpsychiatrie*, 28(2) 73-79.

- Ialongo, Nicholas S, Werthamer, Lisa, Kellam, Sheppard G, Brown, C. Hendricks, Wang, Songbai and Lin, Yuhua (1999). Proximal impact of two first-grade preventive interventions on the early risk behaviors for later substance abuse, depression, and antisocial behavior. *American Journal of Community Psychology*. 27(5), 599-641.
- Ialongo, N., Poduska, J., Werthamer, L., & Kellam, S. (2001). The distal impact of two first-grade preventive interventions on conduct problems and disorder in early adolescence. *Journal of Emotional and Behavioral Disorders*, 9:3, 146-160.
- Johnson, Moses R.; Turner, Paul F.; Konarski, Edward A. (1978). The good behavior game: A systematic replication in two unruly transitional classrooms. *Education & Treatment of Children*, 1(3) 25-33.
- Kellam, Sheppard G and Anthony, James C. (1998). Targeting early antecedents to prevent tobacco smoking: Findings from an epidemiologically based randomized field trial. *American Journal of Public Health*, 88(10),-1495.
- Kellam, Sheppard G, Ling, Xiange, Merisca, Rolande, Hendricks Brown, C and Ialongo, Nick. (2000). Erratum: The effect of the level of aggression in the first grade classroom on the course and malleability of aggressive behavior into middle school. *Development & Psychopathology*. 12(1), 107.
- Kellam, Sheppard G; Ling, Xiange; Merisca, Rolande; Brown, C. Hendricks; Ialongo, Nick. (1998). The effect of the level of aggression in the first grade classroom on the course and malleability of aggressive behavior into middle school. *Development & Psychopathology*. 10(2), 165-185.
- Kellam, Sheppard G; Mayer, Lawrence S; Rebok, George W; Hawkins, Wesley E. (1998). Effects of improving achievement on aggressive behavior and of improving aggressive behavior on achievement through two preventive interventions: An investigation of causal paths. Dohrenwend, Bruce P. (Ed), et al. *Adversity, stress, and psychopathology*. (pp. 486-505). New York, NY, USA: Oxford University Press. xv, 567 pp
- Kosiec, L. E; Czernicki, M. R; McLaughlin, T. F. (1986). The Good Behavior Game: A replication with consumer satisfaction in two regular elementary school classrooms. *Techniques*.2, 15-23.
- Mathes, Patricia G, Howard, Jill K, Allen, Shelley H, Fuchs, Douglas. (1998). Peer-assisted learning strategies for first-grade readers: Responding to the needs of diverse learners. *Reading Research Quarterly*, 33, 62-94
- Medland, Michael B.; Stachnik, Thomas J. (1972). Good-behavior game: A replication and systematic analysis. *Journal of Applied Behavior Analysis*, 5(1), 45-51.
- Patrick, Craig A; Ward, Phillip; Crouch, Darrell W. (1998). Effects of holding students accountable for social behaviors during volleyball games in elementary physical education. *Journal of Teaching in Physical Education*. 17(2), 143-156.
- Phillips, Derek; Christie, Fiona. (1986). Behaviour management in a secondary school classroom: Playing the game. *Maladjustment & Therapeutic Education*, 4(1), 47-53.
- Salend, Spencer J; Reynolds, Catharine J; Coyle, Eileen M. (1989). Individualizing the good behavior game across type and frequency of behavior with emotionally disturbed adolescents. *Behavior Modification*. 13(1), 108-126.

- Slavin, R.E. (1992). When and why does cooperative learning increase achievement? Theoretical and empirical perspectives. In R. Hertz-Lazarowitz & N. Miller (Eds.), *Interaction in cooperative groups: The theoretical anatomy of group learning* (pp. 145-173). New York: Cambridge University Press.
- Tannock, R. Schachar, R.J. Car, R.P. Chajczyk, D., & Logan, G.D. (1989). Effects of methylphenidate on inhibitory control in hyperactive children. *Journal of Abnormal Child Psychology*, 17, 473-491.
- Tingstrom, Daniel H. (1994). The Good Behavior Game: An investigation of teachers' acceptance. *Psychology in the Schools*. 31(1), 57-65.
- Tonnock, R. Schachar, R.J., and Logan, G. (1995). Methylphenidate and cognitive flexibility: Dissociated dose effects in hyperactive children. *Journal of Abnormal Child Psychology*, 23, 235-266.
- Van Lier, P.A.C. (2002). Preventing Disruptive Behavior in Early Elementary School Children. Erasmus Medical Center, Department of Child and Adolescent Psychiatry: Rotterdam, the Netherlands.
- Warner, Steven P.; Miller, Frank D.; Cohen, Mark W. (1977). Relative effectiveness of teacher attention and the good behavior game in modifying disruptive classroom behavior. *Journal of Applied Behavior Analysis*, 10(4) 737.