



PAX Good Behavior Game: Real-World Impact

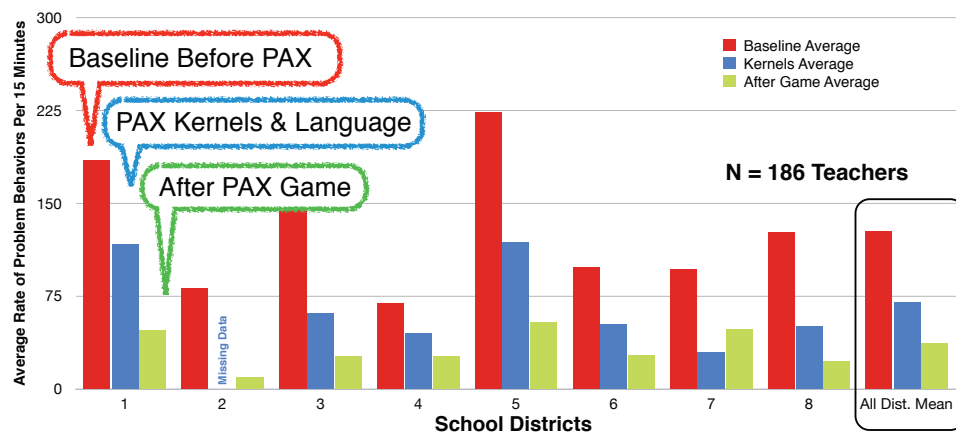
The PAX Good Behavior Game® teaches self-regulation and peer co-regulation during many different school activities. Every day, students plan and work *together* to create more PAX—meaning Peace, Productivity, Health & Happiness in their classes. This strengthens cooperation, concentration, and wellbeing. See www.GoodBehaviorGame.org.

Gold-standard prevention science like the good behavior game studies must also translate into real-world practice to have public-health benefits. Since 2010, nearly 10,000 teachers have received the training and materials to implement the PAX Good Behavior Game. Many teachers have successfully replicated some of the original findings at Johns Hopkins. This document summarizes examples of some of the benefits of the system that have been shown in replications of PAX GBG in the U.S., Canada, and Europe, providing real-world examples of present and future benefits:

✧ PAX GBG reduces student off-task, inattentive, unengaged, disturbing, or disruptive behaviors within 12 weeks^[1]

The most important immediate measure of success of GBG is a rapid reduction in inattentive or problematic behaviors, which predict changes in children’s mental and behavioral health.

3-Month Impact of PAX in Eight US School Districts on Disturbing, Disruptive, and Inattentive Behaviors Per 15 minutes



In 2010, the U.S. Center for Mental Health Services (CMHS) began funding diverse replications across the US of PAX Good Behavior Game. In 2013, CMHS specially commissioned the above project to test a 3-month rapid implementation.^[1] All of these schools are Title I settings, representing urban, suburban, and rural districts.

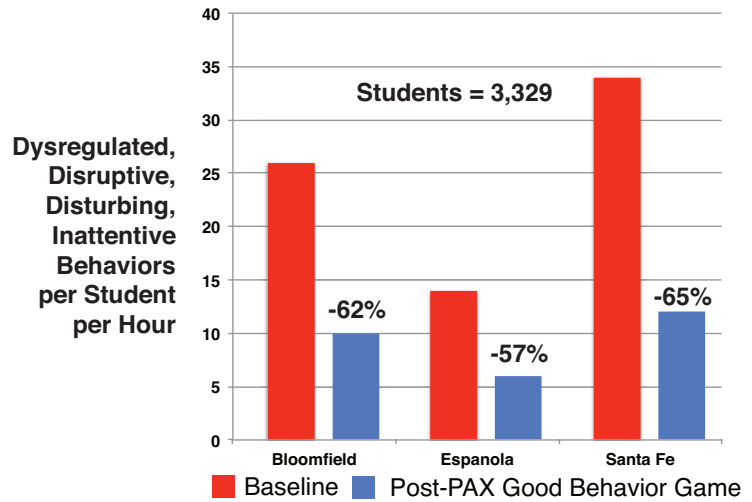
✧ PAX GBG allows teachers to teach and students to learn more each day

Irish scientists replicated similar results: a statistically significant decrease in the number of off-task, inattentive, unengaged, disturbing, or disruptive behaviors from pre intervention to post intervention. The analysis showed a statistical and socially significant reduction 95% of the classrooms, including the number of problem behaviors *per student* from pre- to post-intervention.^[2] Importantly, the change was independent of factors such as teacher, pupil gender or class size. Irish teachers also reported more time to teach effectively.



Recently, the State of New Mexico launched a similar public health implementation of PAX GBG with the same trend in reductions of problematic or unwanted behaviors, across diverse school districts in the state in 75 days. These results have led to a long-term commitment by New Mexico’s state government to implement PAX GBG, as a public-health policy initiative to prevent and treat childhood mental, emotional, and behavioral disorders. A similar statewide prevention effort is underway in Ohio. PAX GBG improves standardized reading and math scores.^[3] Naturally educators want to know if this proven strategy for mental, emotional, and physical health prevention has a well-documented impact on academics and graduation. In the original Hopkins studies, PAX GBG increases grade level academics, high-school graduation and university entry.^[4]

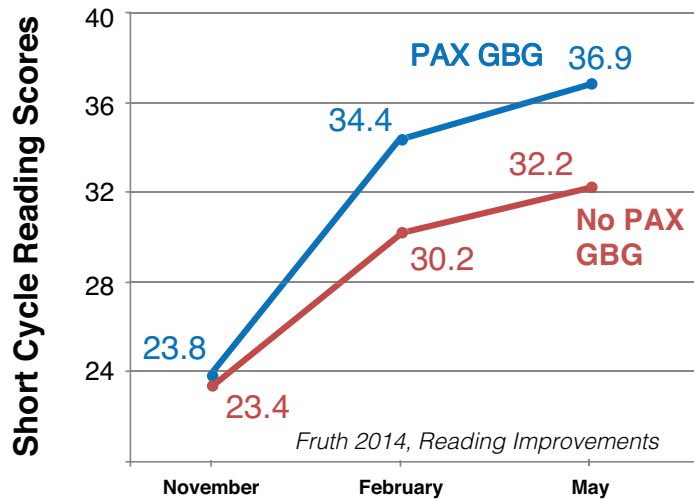
Changes In New Mexico Observed Student Behaviors in 75 Days (March thru May)



✦ PAX GBG improves standardized reading and math scores ^[4]

The answer is, “yes.”^[3,5] Though PAX GBG is not a curriculum; it increases academic success by reducing inattentive or problematic behaviors that distract and confound voluntary attention. PAX GBG also facilitates peer reinforcement for peaceful, productive, healthy, and happy behaviors. Teachers report less stress, which enables them to teach more effectively.^[2]

Randomly Assigned Students’ Reading Scores



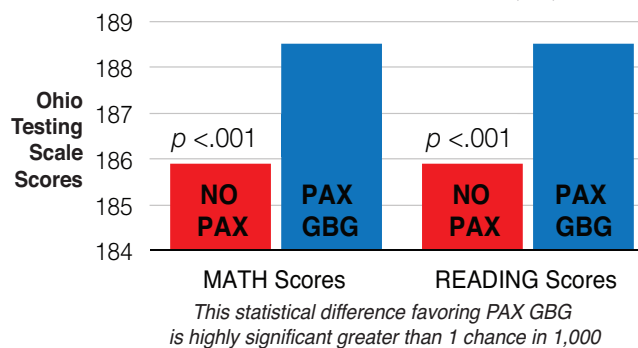
In a school with 4th graders randomly assigned to teachers who did or did not use PAX GBG, one can see the cumulative impact on commonly used short-cycle reading scores to measure reading progress as students increase self-regulation.^[5]

The original Hopkins studies show changes in standardized measures of academic success.^[4]
⁶⁾ There is increasing evidence of similar real-world effects of PAX GBG.

Licking County, Ohio, began promoting PAX GBG in 2006. It was slow to take off, but eventually bodies of schools (multiple different districts) elected to use it. This created a natural experiment, as the state has standardized testing for reading and math. The study shows that the poorest schools showed the greatest improvement in reading and math scores, regardless of the curriculum.^[3] How did PAX GBG do that? Teachers had more time to teach, and the students had better self-regulation and group-regulation skills for learning.

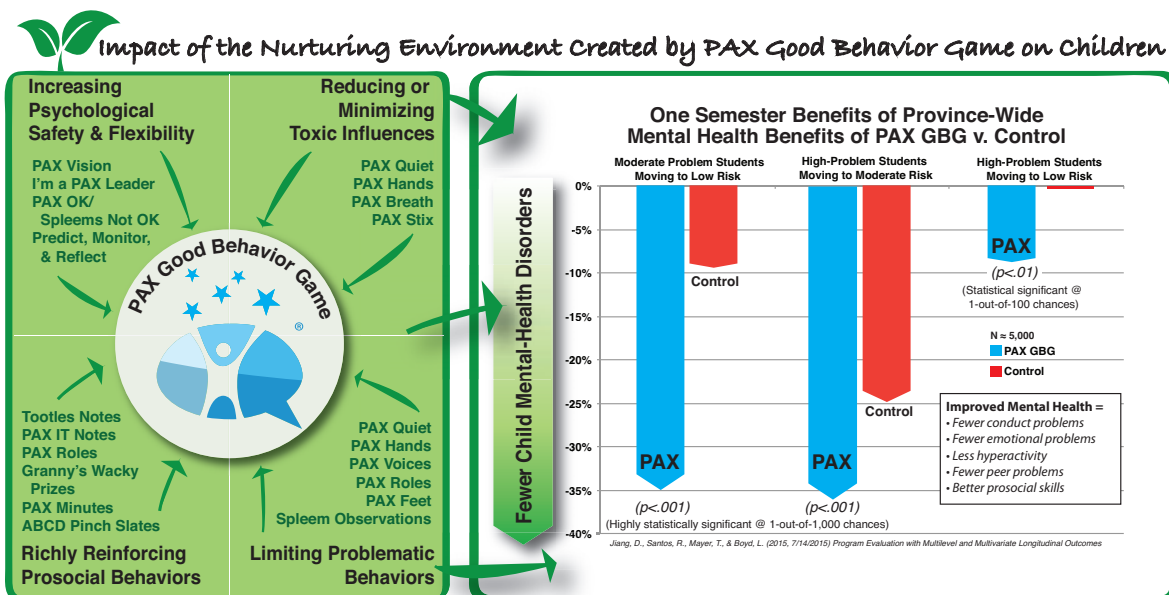
Improvements on Standard Measures of Academic Progress in High-Poverty Schools in Six Ohio Districts

Source: Weis, R., Osborne, K. J., & Dean, E. L. (2015).



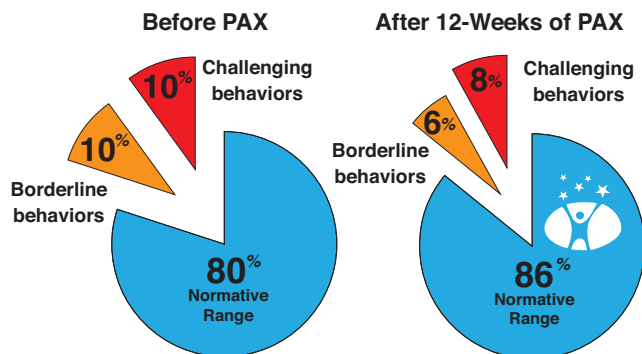
❖ PAX GBG results in significant early reductions of mental, emotional, and behavioral disorders^[7]

The change in observable behaviors created by PAX GBG turns the classroom into a Nurturing Environment,^[8] using specific PAX Language, evidence-based kernels/cues, and the PAX Game itself, as the figure below demonstrates. Within a semester of exposure to a well-implemented PAX GBG, there can be population-level treatment effects on reducing psychiatric and behavioral disorders in children, as demonstrated by the public health implementation of PAX GBG—province-wide in Manitoba,^[7] shown in the figure below.



The population-level results in Manitoba mirror early findings from the original studies at Johns Hopkins across several replications.^[6,9] Early indicators of behavior change are important, because long-term benefits only happen when there are clear early behavior changes.^[9,10] The core Manitoba findings have been replicated recently in two other countries: Ireland and Sweden.

An Irish study on PAX GBG reports outcomes similar to Manitoba, using the same instrument.^[2] The Manitoba results spanned nearly five months, while the Irish children had just 12 weeks of exposure to PAX GBG, which still produced similar outcomes on mental,



Conclusion: After 12 weeks of implementing PAX, Irish teachers report a significant improvement in students with hyperactivity or emotional disorders.

O'Donnell, M., Morgan, M., Embry, D. D., O'Kelly, N., & Owens, C. (2016). Supporting the development of pupils' self-regulation skills: Evaluation of the PAX GBG Programme in Ireland. *Irish Teachers' Journal*, 4 (1), 9-29.

What Irish Teachers Said After 12-Weeks

“The lasting skill that the students will take away is self-regulation – they can control their own behaviour. There is no naming of any child; they have to be responsible for their own behaviour.”
(teacher, school R)

“The skills that [my students] have developed relate to being more aware of other people, group work, team work, knowing that it is good to have a fun release and then to calm down and refocus. They are able to regulate themselves – even if they have two/three SPEEMS, they are able to pull themselves back. The pupils are definitely more self—they are able to know what they need to do to get things done.”
(teacher, school F)

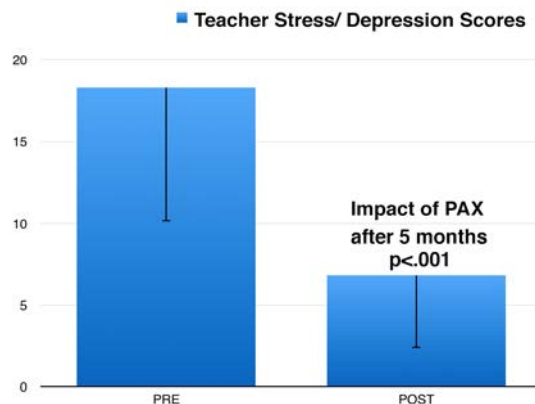
emotional, and behavioral indicators in the Strengths and Difficulties Questionnaire.^[7] Essentially in the Irish sample, one student per classroom moved to non-clinical range in 12 weeks on the screening tool for mental-health disorders. The results of this study for both quantitative data on student changes and teachers' comments were published in the *Irish Teachers Journal* December 2016.

The recent study by the Swedish Karolinska Institute found stronger impact on the Strengths and Difficulties Questionnaire, when the students were exposed to 5-months of PAX GBG, across all five domains of mental, emotional, and behavioral health ($p < .001$, $d = 0.56$).^[11]

✿ PAX GBG reduces stress for teachers^[2, 12]

Teacher stress and burnout are epidemic in many Western countries, which is why about half of new teachers in America quit teaching after five years. Walking into an in-service training for teachers, the prospect of ‘yet another program’ often creates more stress because of histories of false promises. Vendors promise that their educational programs or practices are “brain compatible” or the next big thing or flavor of the year. Very few educational or prevention programs have measured impact on teachers' wellbeing, but PAX GBG has. Our first study tested variations in PAX to determine whether adding social-emotional components improved teacher wellbeing, which turns out to be true.^[12] The 4th Edition PAX GBG and teacher mentoring added more of those core components, and a recent Swedish study revealed that the additions had a reduction on teacher stress of more than 60%.^[11]

Specifically, after five months of implementation of PAX GBG, significant improvements in teacher wellbeing and reductions in stress happened. New efforts are underway to replicate these findings in the U.S.



❖ PAX GBG improves family relationships [6, 13]

Research has shown that PAX GBG increases parental reinforcement and decreases rejection of their children, a key focus of virtually every evidence-based parenting program. How does this happen?



PAX GBG students are far less likely to get into trouble at school, be sent to the principal's office, be suspended, develop mental or behavioral disorders that create family conflict.^[4]

Children's increased self-regulation skills promote parents to be more reinforcing and less rejecting of their children.^[6, 13]

PAX GBG students are not only less likely to be suspended, but also less likely to use alcohol and drugs, become engage in violent or delinquent behavior, or in early sex—things that dramatically increase family conflict.^[13, 14]

PAX GBG reduces likelihood that children will need special education services, and increases their likelihood to graduate from high school, enter college and have employment. All of these things have been well documented in long-term follow up of students were exposed to PAX GBG.^[4, 13-19]

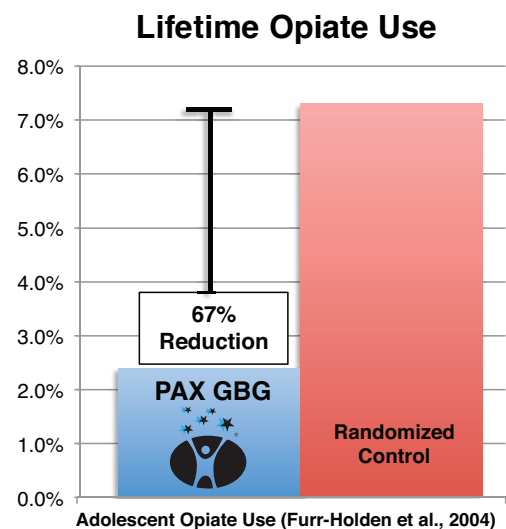
PAX GBG materials and training employ previously proven, evidence-based kernels^[20] that are well-documented to improve parent-child interactions as well as school success.^[21]

❖ PAX GBG as a universal public health approach, has dramatic social impact

Few prevention strategies have the replicated impact on lifetime developmental outcomes, as the good behavior game and its evidence-based kernels.^[22] PAX GBG is scalable as a universal, public health strategy to prevent mental, emotional, psychiatric, and psychiatric disorders.^[23] Because of the multiple replications, it is possible to estimate its benefits when students reach their twenties. Thus, if 10,000 students receive well-implemented PAXGBG for two years, the following outcomes are predicted, including 67% reduction in opiate use.

What might happen if 10,000 students experience 2-years or more years of PAX GBG when they become young adults?

- 860** Fewer young people will need any form of special education services
- 557** More boys will likely graduate from high school.
- 668** More boys will likely enter university
- 888** More girls will likely graduate from high school (less teen pregnancy)
- 694** More girls will likely enter university
- 97** Fewer young people will commit and be convicted of major violent crimes
- 961** Fewer young people will likely develop drug addictions
- 658** Fewer young people will likely become regular smokers
- 354** Fewer young people will likely develop alcohol addictions
- 485** Fewer young people will likely contemplate suicide
- 658** Fewer young people will likely attempt suicide



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