

# New Research Proves Game-Based Learning Works—Here's Why That Matters



A great deal of initial [research](#) exists about blended learning techniques such as game-based learning, but adoption has stalled because of a lack of scalable, practical techniques that have also proven effective. Without proof of success, many school districts have opted not to adopt new technologies.

. . . students who played edgames outperformed their peers on standardized tests.

Now a soon-to-be released study from Vanderbilt University demonstrates the impact of rigorous, peer reviewed research into curricular tools, in this case showing that students who played edgames outperformed their peers on standardized tests.

Efficacy in edtech needs to be determined by conducting well-controlled, large sample-sized efficacy studies. If new edtech isn't supported by high quality research, then claims about efficacy are just that—marketing claims. There are a lot of opinions and fads in education, and they are not serving students well.

“In every district throughout the U.S., student needs vary greatly from one classroom or school to the next,” says Kevin Connors, Director of Personalized Learning for [Chicago Public Schools](#). “There are countless edtech programs in the market that claim to cater to these unique needs, but without credible third party research it is impossible to know whether any of these programs actually move the needle.”

## Founding a company based on research results

### Dr. Vadim Polikov Picks the 5 Most Influential Education Games

- [Oregon Trail](#)—The original edgame
- [Enders Game](#) by Orson Scott Card—A novel that conceptualizes a variety of game-based learning mechanics
- [Civilization](#) by Sid Meier—More than 35 million units sold worldwide; kids apply social studies lessons
- [Minecraft](#)—Teaches kids how to code through play
- [Angry Birds](#)—Illustrates simple trigonometry principles

The idea behind my company, [Legends of Learning](#), was that a unique approach to game based learning—short, simple edgames specially built and aligned to curriculum standards—would engage and teach students more effectively. But the idea was a hypothesis, and [hypotheses need to be proven](#).

Typically, companies are started, a product is built, there are sales, and then, after a few years, a small study bolsters marketing claims. As a former research scientist, this strikes me as completely backwards; why start a company before you know something works? What makes sense is to start a company if and only if the product is effective.

Last year, I conducted a major academic study with Vanderbilt University researchers to test the effectiveness of our approach compared to existing curricular tools. From the beginning, the study was intended to be rigorous enough to be published in a peer reviewed academic journal regardless of the outcome. This is how knowledge progresses.

The soon-to-be-released study, “[Substantial Integration of Typical Educational Games into Extended Curricula](#),” accomplished that. It also showed strong positive efficacy results.

Full size image [here](#). Source for all graphics: [Substantial Integration of Typical Educational Games into Extended Curriculum](#), by Legends of Learning and Vanderbilt University

The research found that the students who played the games outperformed their peers on standardized tests. Additionally, teachers saw dramatic increases in engagement and performance. The sample size was large enough—more than 1,000 students in seven states and in schools with differing student bodies, socioeconomic factors, and geographical locations—to answer the hypothesis in a statistically significant manner.

## FIRST WIDE-RANGING GBL STUDY SHOWS STRONG ENGAGEMENT AND CONTENT MASTERY



When used as part of the curriculum, simple standards-aligned games increase lesson retention and student engagement, and improve academic performance according to Vanderbilt University's new research study on game-based learning (GBL), “Substantial Integration of Typical Educational Games into Extended Curriculum.”

The study is the first of its kind to produce deep, wide-ranging, and statistically significant data across a large variety of game types. It not only validates curriculum-based games, but it does so in a large, multi-state, diverse study cohort over a significant time period.


 **1,002**  
Student  
Participants

 **3**  
Weeks

 **55**  
Games

 **16**  
Game  
Developers

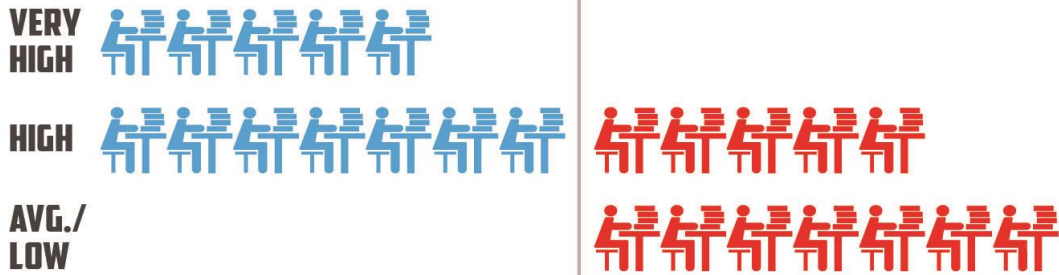
 **13**  
Teachers

 **BLIND GRADERS**  
People unaware of which students played games to learn the lessons scored the students' performance.

# DRAMATIC ENGAGEMENT INCREASE

Teacher's reported dramatic increases in engagement amongst students who participated in the game study.

■ With Games  
■ No Games



Tama Nunnelly, a middle social studies teacher at Guntersville Middle School in Alabama, participated in the study. “I was afraid it was going to be one of those things where they just focused on the game and not the content,” confesses Tama. “But they were talking back and forth across the room, not just about the game, but about the material.” Tama’s experience was a good one, and she looks forward to integrating more edgames into her classroom in the future. “I would definitely use games like these in a classroom again,” she says. “The games make a connection for students, and the subject becomes a little more exciting.”

## A MUST HAVE



# Educators Care about Research

## Five Books that Will Help You [Integrate Game-Based Learning](#) Into Your Classroom

- [Quest to Learn](#): Developing the School for Digital Kids
- [Leading Thinkers](#): Digital Media & Learning
- [The Gamification of Learning and Instruction](#): Game-Based Methods and Strategies for Training and Education
- [Gamify Your Classroom](#): A Field Guide to Game-Based Learning
- [The Multiplayer Classroom](#): Designing Coursework as a Game

I have found that educators who care deeply about their students want to participate in research. Teachers can help their students while at the same time providing input into the tools that will better education.

Teachers like Tama demonstrate this, and new teachers currently testing our new science edgames continue to be enthused about participating in research. As part of our launch, we are conducting a second, larger study with schools across the country, again with university research partners.

“Participating in live action research allows us to experience the effectiveness of a product right there in our classrooms, no contracts or obligations,” says Caitlin Unterman, a science teacher from Virginia’s Jefferson Forest Middle School. “It is important to me to be able to participate in research studies, like Legends of Learning, to not only stay on top of modern day educational resources, but also to have an impact on how our students learn!”

Dan Curcio, a science teacher from The Community School in New Jersey, concurs. “Game based learning is . . . [an] innovation that I have seen benefit my students,” he says. “The need for the research to expand these strategies worldwide has become a priority.”

## A Satisfactory Result, but More Research is Needed

The results from the Vanderbilt study validate the investment in Legends of Learning and in building out a suite of 900 games aligned to the full middle school science curriculum, covering all of Earth and Space, Life, and Physical Sciences. But it’s not enough. The industry needs more research to validate game-based learning and other digital learning techniques.

Even startups with limited resources can get the attention of academic centers if their product is compelling and their approach is rigorous. The key is working closely with academic institutions to design the studies and to be ready to publish the research regardless of outcomes. University groups like the [Jefferson Education Accelerator](#) can also help provide a bridge between startups and the academic community.

A lot of education studies get buried out of concern for negative results or a fear of revealing some proprietary “secret sauce.” We in the edtech industry need to get over that. Hiding outcomes doesn’t help anyone. What helps is rigorous research that is published and peer reviewed. It allows others to build on the findings. It moves the education industry forward.

For this reason, Legends of Learning will continue to fund original academic research and publish the findings, positive or negative. I hope others will follow suit. Our national education system needs research-based innovation to improve and prepare our children for a bright future. Innovation of this nature will push America to the forefront of global education, and help our country improve its competitive stature.