

# Arcademics Pilot Study

## Boulder Valley, CO



### Boulder Valley Schools

Boulder, CO  
[www.bvds.org](http://www.bvds.org)

### Student Population

72% Caucasian  
 14% Hispanic  
 8% African-American  
 6% Asian

### Call to Address Student Struggles

With a panoramic view of the Rocky Mountains in Lafayette, Colorado, Escuela Bilingüe Pioneer and Alicia Sanchez Elementary Schools serve nearly 709 students in preschool through fifth grade. Recently, a math instructional coach realized a number of students at each grade level were struggling with basic mathematical facts and basic number combinations. Because fluency recall of basic addition and subtraction, and multiplication and division facts is fundamental for success in mathematics he began searching for a tool that would supplement the regular classroom lessons and provide opportunities to engage the students and make the learning of these basic facts more enjoyable. Math coach David Woodward, along with his educator colleagues are always looking to adapt new teaching resources to help students better learn core curriculum. For this reason he decided to initiate the use of educational video games at both Escuela Bilingüe Pioneer and Alicia Sanchez Elementary School.

“Math can be a real struggle for some students,” said Woodward. “Luckily, educational game play kept our students engaged throughout continuous practice to the point where they didn’t even realize they were learning and strengthening their knowledge.”

### The Means to Increase Fluency

Throughout his 18 years of teaching, Woodward has always understood the power of innovative learning tools. After learning of Arcademic Skill Builders’ online educational games, Woodward knew he had found a promising solution in making the learning necessary math skills an easier, more enjoyable experience for his students. He instantly incorporated Arcademic Skill Builder’s games into his lesson plans at both Escuela Bilingüe Pioneer and Alisia Sanchez Elementary Schools.

Among the first in the education technology industry to incorporate multiplayer capabilities in educational gaming, Arcademic Skill Builders is a free online resource offering educational video games that present a powerful, twenty-first century approach to education.

“Innovative educational tools have so much potential,” said Woodward. “Arcademic Skill Builders’ games offered targeted learning and practice for students. Teachers at both schools had their students try out the games and found out how great they are and continued using them.”

### Description

The study covered two weeks with third in two elementary schools. Students began by taking a pre-test on a teacher-chosen multiplication set, then played the Arcademic multiplayer multiplication games totaling 3 hours over the two weeks, then completed a post-test on the same set. Below are the differences between the pre and post tests.

### Findings

**4%** Increase in percent correct

**24%** Improvement in rate

**18%** Improvement in students who scored below 75% in the pre-test

**10%** Increase in time spent practicing math facts outside of class.

**9%** Increase students' confidence of their math abilities.

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Woodward began incorporating Arcademic Skill Builders' video games into computer lab lesson plans throughout the 08-09 academic school year. At one point, approximately 100 students were using the games on and off at different time periods and school locations. Because each student had access to his or her own computer while in the computer lab, they experienced seamless implementation of the video games across grade levels.

Woodward's third graders participated in the Arcademics pilot study, funded by the National Science Foundation. This was a two-week study focusing on the effect of multi-player gaming on multiplication achievement. Students took a pre-test on multiplication tables, played the games extensively for two weeks, then took a post test. Through the study, Woodward and other teachers quickly witnessed positive feedback as the students became motivated to practice their tables.

Participating students in the study saw a 4 increase in percent correct on their multiplication table scores, which excited Woodward because the students had already learned the tables – their pilot study took place at the end of the school year. The students' rate (how quickly the students answered the problem) improved by 24 percent. Also, the study showed an 10 percent increase in how much students practiced math tables outside of class, 9 percent increase in student confidence in their math abilities, and 18 percent improvement of percent correct in students who scored below a 75 percent on the pre-test.

To Woodward's excitement, Arcademic Skill Builders presented his computer lab class with an impactful teaching strategy that presented a new take on both teaching and learning.

## Expectations When Incorporating Educational Video Games

Since integrating Arcademic Skill Builders, Woodward and his students have experienced achievement and thrill all around. Woodward hoped the games would help heighten student engagement while simultaneously creating a fun learning environment. He also expected students' fluency to increase as they were practiced basic addition and subtraction combinations and multiplication and division facts. Looking back, all of these expectations have and continue to be met and brought to life each time over with the use of Arcademic Skill Builders.

"Arcademic Skill Builders' games have created an unprecedented level of excitement among my students," said Woodward. "I have found them to be particularly effective with my Latino boys, which we have sometimes struggled to reach. We've even encouraged use at home at each school's website which has allowed parents to get involved and work with their children at home for additional practice."

Educational video games were undoubtedly an appropriate way in stimulating the students of Escuela Bilingüe Pioneer and Alisia Sanchez Elementary Schools with their math due to the interactive nature of the video games. Because a fun learning environment was provided, students felt comfortable and more willing to learn in this new atmosphere. Woodward continues to see the benefits of the educational technology, as students continue to express their interest in playing the games, and most importantly, setting their own performance goals that they hope to achieve.

"Educational game play kept our students engaged throughout continuous practice to the point where they didn't even realize they were learning and strengthening their knowledge."

- Mr. Woodward

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“It is beyond rewarding for me to see students engaged and learning in a game-centered atmosphere that promotes such positive group play,” said Woodward. “Because our students now have a tool that allows them to personally monitor their own progress as they play the games, they have begun to establish individual performance goals all on their own.”

## Keeping a Twenty-First Century Classroom

Educational technology initiatives play a major role in transforming classrooms into twenty-first century learning environments. Educators adopting new technologies in the classroom are able to address learning needs and facilitate unique connections between students and teachers. Drawing on a twenty-first century approach to learning offers students a chance to challenge themselves and become more well-rounded individuals who will have so much to offer the future. Students appreciate the new approaches to learning and in return, increase time on task and motivation.

Woodward intends continue to use Arcademic Skill Builders’ online games on into the future with students, because “they’re one of the best web-based solutions available to educators and students today.”

Contact Arcademics for more info:

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Mr. Woodward, Boulder Valley

