

Math & Games

Geraldine Gasmen
University of Hawaii - West Oahu

Abstract

This study is about the benefit of incorporating academic games with the curriculum to help keep students engaged and excited about math. Research shows that games give students opportunities to deepen their mathematical understanding and reasoning, as well as allowing parents to learn and be involved in their children's mathematical thinking by having the games played at home (Rutherford, 2015). According to the National Council of Teachers of Mathematics, playing games not only allows students to find different strategies for solving problems but it also supports development in computational fluency when played repeatedly.

Introduction

Math can be an exciting subject for students to learn. There are so many ways to integrate math in other content areas and applying it to real world problems or daily life that students can relate to. However, the traditional way of learning math by having students take notes at their desk and being forced to memorize equations and formulas, takes away the excitement of learning math. There are many strategies to teach math, such as manipulatives for hands on learning, pictures for visuals, and academic games.

If students are given an appropriate amount of time during each math lesson to play academic games that correlate to their lesson, then they will be more willing to learn different math concepts, excel in class, stay engaged and participate because they're excited to use what they've learned in their game and challenges them in a different perspective.

Research & Data Collection

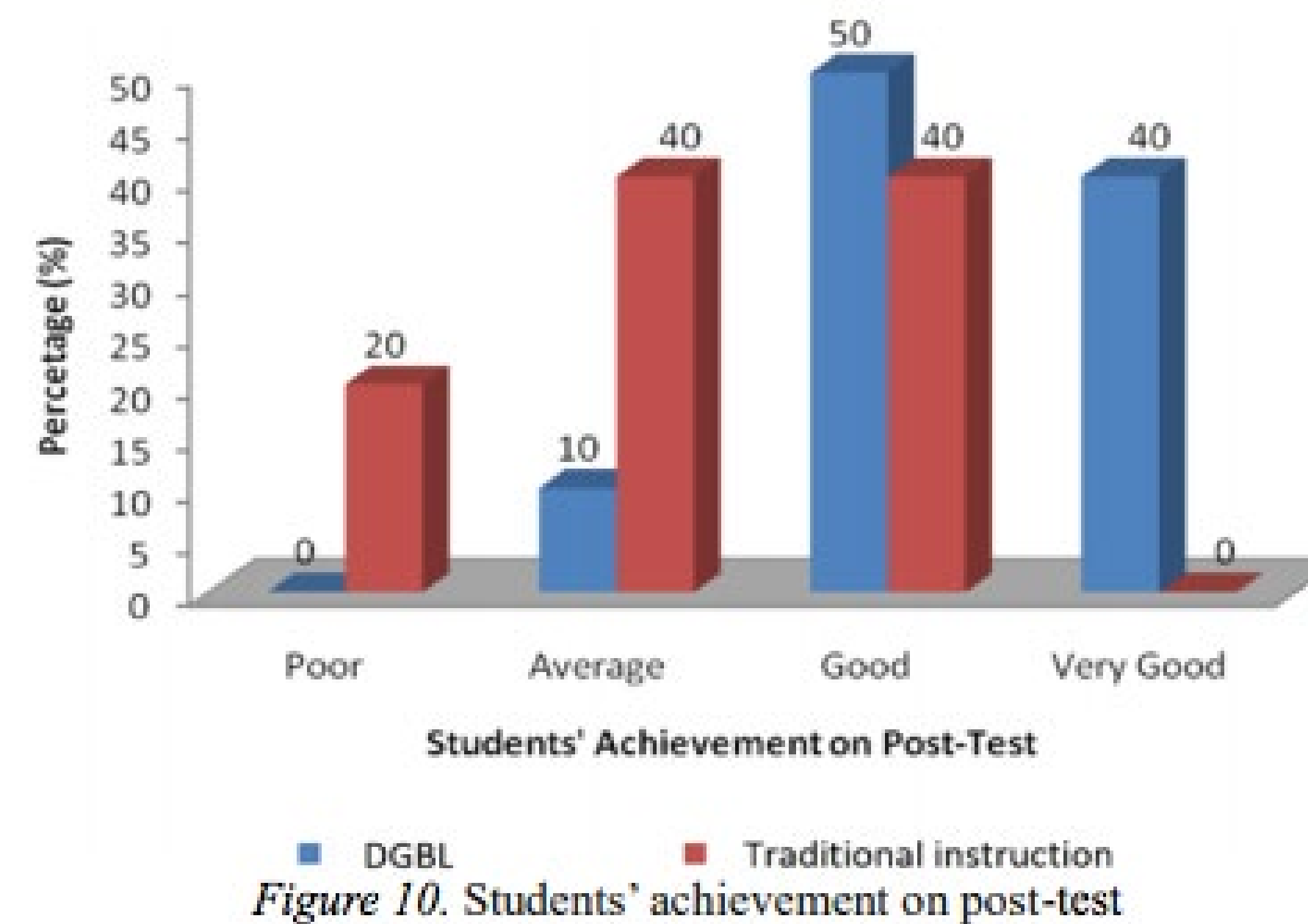
The research focused on one question:
Are academic games beneficial for students in the classroom?

Data was collected through interviews with long time math teachers as well as extensive research on journal articles, particularly one focusing on Digital Game-Based Learning.

Results

An Digital Game-Based Learning (DGBL), talked about how the advancing technology has evolved education from it's traditional methods of teaching to a more digital method because in today's society, students are surrounded by computers, video games, cell phones, and other modern technology. According to the article, "Children can actually learn and memorize things, even up to a list of 100 items, provided they are interested" and motivated students to make an effort to learn and excel in the classroom (p259).

The article mentions a study where a number of students are taught through traditional methods of teaching while the other half were taught through a digital based learning environment with educational games focusing on math. Their performance on a post test were compared and the data of their achievement is shown in the table below. Students who were taught with DGBL excelled higher than those who were taught traditionally.



Discussion

After researching about the experiment on game-based learning, interviews were conducted. An elementary school teacher, whose taught sixth grade math for over five years, the teacher encourages academic math games in the classroom as well as at home. The teacher explains that the games provide various ways for students to apply what they have learned from the lesson and provides a different medium of teaching, making it more fun and engaging for the students. Another teacher, whose taught third grade math for five years, explains the use of academic games during small group instruction as a means to review and sometimes reteach content.

Below are some of the academic games the teachers have provided that are being used in their classroom.



Conclusions

In conclusion, students should be allowed an appropriate amount of time to play academic math games in the classroom. Students who are engaged in the game are more motivated and likely to achieve higher in mathematics compared to those who are taught in a traditional method. Furthermore, games benefit the students as individuals because it allows them to learn at their own pace without the pressure of feeling like they are falling behind. Academic games are a fun and interactive way for students to apply what they are learning in the classroom.

References

1. Duncan, S. (n.d.). 4 Reasons to Promote Math Success through Games. Retrieved February 19, 2020, from <https://blog.mindresearch.org/blog/game-based-learning-tips-math>
2. Lee, A. M. I. (2019, November 25). How Games Can Help Kids Get Better at Math. Retrieved February 19, 2020, from <https://www.understood.org/en/school-learning/learning-at-home/games-skillbuilders/how-games-can-help-kids-who-struggle-with-math>
3. Rutherford, K. (2015, April 27). Why Play Math Games? Retrieved February 19, 2020, from <https://www.nctm.org/publications/teaching-children-mathematics/blog/why-play-math-games/>
4. Siew Pei Hwa. (2018). Pedagogical Change in Mathematics Learning: Harnessing the Power of Digital Game-Based Learning. Journal of Educational Technology & Society, 21(4), 259-276.



Contact

Geraldine Gasmen
University of Hawai'i - West Oahu
Email: geraldinegasmen@yahoo.com