



Let's Play Games in Math Class!

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Abstract

Playing games in math class is important to math education because it is a vital tool for learning. Research has showed that playing games in math class is an effective learning strategy. From different resources, each one discusses how games can effectively help students. A study on the use of commercial games in math class has proven to teach algebraic reasoning, spatial sense, and multistep problem solving (Lach & Sakshaug, 2005). Another study showed the effectiveness of playing math games on the learning environment and student attitudes (Afari, Aldridge, & Fraser, 2012). There are many benefits from playing games in math class.

Introduction

When it comes to learning mathematics, often times students are unmotivated. This lack of motivation can affect their academic success. One solution to increase student motivation is by playing games. The enjoyment of mathematics is one of the national goals of mathematics education according to the National Council of Teachers of Mathematics (NCTM). An effective way to meet this goal is through playing games. Student enjoyment is but one of the many benefits that come out of playing games in math.

Research Focus

The research project was focused around the questions:

"How can students benefit from playing games in math class?"

"How effective is playing games in math class?"

Results

Listed below is a chart from Effectiveness of Using Games in Tertiary-Level Mathematics Classrooms (Afari, Aldridge, & Fraser, 2012). The aim of this study was to evaluate the effectiveness of game activities in mathematics instruction at tertiary institutions in the United Arab Emirates. This study used a pre-post design, where questions were administered before and after the introduction of mathematics games. The results show that the use of games in the mathematics classroom facilitated a more positive learning environment, attitudes, and lessons.

Table 1

Average item mean, average item standard deviation and difference (effect size and MANOVA with repeated measures) between pretest and posttest scores on each modified What Is Happening In this Class? and attitude scale

Scale	Average mean item		Average item standard deviation		Difference	
	Pretest	Posttest	Pretest	Posttest	Effect size	F
Learning Environment						
Student Cohesiveness	4.20	4.23	0.66	0.68	0.02	0.46
Teacher Support	4.00	4.19	0.78	0.73	0.12	2.51*
Involvement	3.73	3.93	0.67	0.66	0.15	2.88**
Cooperation	3.97	4.04	0.78	0.75	0.05	0.82
Equity	4.28	4.35	0.62	0.66	0.05	1.07
Personal Relevance	3.59	3.86	0.78	0.70	0.18	2.68**
Attitudes						
Enjoyment of Mathematics	3.60	3.86	0.99	1.00	0.13	2.87**
Lessons						
Academic Efficacy	3.74	3.97	0.89	0.88	0.13	2.81**

N = 90 student in eight classes present for both the pretest and posttest

* $p < 0.05$; ** $p < 0.01$

MANOVA- Multivariate analysis of variance

Discussion

Based on the different resources that were researched, they all agreed that playing games in math class was not only effective, but beneficial to the students. When students play games in math, they are given opportunities to explore fundamental number concepts. Students are also more motivated and more involved with mathematics when games are included.

Conclusion

- Math games are an effective learning strategy.
- As an educational tool, games have the capacity to engage and motivate students.
- Playing games in math class encourages strategic mathematical thinking, builds fluency, and allows opportunities for practice.
- Playing games in math facilitates a more positive learning environment.



Games Used in Class

Connect Four. Milton Bradley, 1990.
Guess Who? Milton Bradley, 1996.
Izzi. Binary Arts, 1992.
Mastermind. Pressman Toy, 1998.
Muggins. Old Fashioned Crafts, 1990.
Rush Hour. Binary Arts, 1996.
Stormy Seas. Binary Arts, 1998.
Tangramables. Learning Resources, 1987.
24. Suntime International, 1998.

References

1. Afari, E., Aldridge, J. M., & Fraser, B. J. (2012). Effectiveness of Using Games in Tertiary-Level Mathematics Classrooms. *International Journal of Science and Mathematics Education*, 10(6), 1369-1392.
2. Lach, T., & Sakshaug, L. (2005). Let's Do Math: Wanna Play? *National Council of Teachers of Mathematics*, 11(4).
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