



The Importance of Implementing Kinesthetic's During Math Instruction To Improve Student Engagement & Learning

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Abstract

From *Why Hands On Learning Is So Effective*, "Students who practice in hands-on environments are capable of retaining three times more information than a child who merely learns through lecturing" (Khalife, 2015).

From *An Arts-Based Approach to Teaching Fractions*, there was a focus on the implementation of kinesthetic strategies during math instruction. Students would walk on the number line and stop at a certain fraction. (There would be times where teachers would touch base on numerators and denominators as well in order for students to visual parts of a whole). Then other students would step on another number line to show the equivalent fraction (Goral, 2007).

From *Kinesthetic Movement to Algebraic Functions*, the teacher had students actively perform an activity which allowed assessment on whether students could recognize algebraic functions. "Beginning algebra 1 students lack the much-needed skill of recognizing pattern or relationship" (Goral, 2009).

Introduction

Implementing kinesthetic learning into math instruction is something that has become scarce in classroom instruction. Teachers are so focused on sticking with the curriculum that the school stands behind, that going the extra mile to ensure students fully grasp math concepts, are put on the back burner. When students are allowed to investigate problem through hands-on activities, it benefits their overall understanding of what is being taught, and it could also trigger more curiosities that may be addressed by the teacher. If kinesthetic teaching is implemented into math instruction, students will be more engaged and will show better results in assessments.



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Research Question & Hypothesis

Research Question

What are different ways to improve student engagement and to help improve student competency in Math?

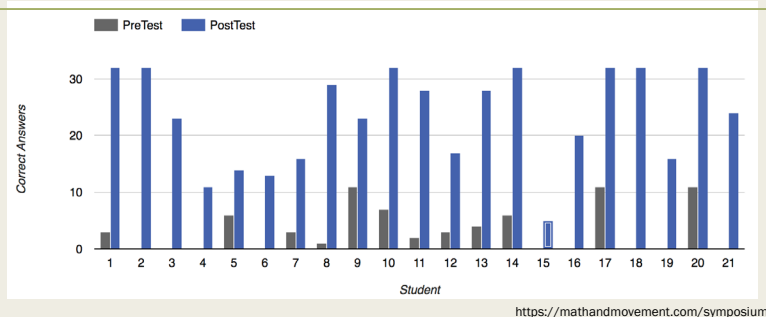
Hypothesis

If Kinesthetic learning strategies would be implemented into math instruction, then student engagement and performance would increase.

Research Focus

Research focus surrounded an approach *Math & Movement* which is a kinesthetic, multi-sensory approach when teaching content areas such as mathematics and ELA.

Study was done on 3rd graders who were given a particular math test which had a focus on mixed multiplication facts. Five students were isolated (chosen by observation on level of need). These group of students had no additional services from G.E. teacher, but instead met with *Math & Movement* for **30 mins. over a 7-week time period**. Symposium: Grade level focus- 3rd Graders. 22 student participants. Pre & Post test were admitted based on basic multiplication skill. Variable during symposium was Math & Movement floor mat activities.



Results

Study:

- Growth measured in control group: +35%
- Growth measured in Math & Movement group: +213%

Symposium (Graph)

- 12 out of 22 students showed growth from pre-test
- 10 out of 22 students showed no growth or regression from pre-test
- Pre-test class average: 11
- Post test class average: 23

Discussion

Starts with educators gaining a full understanding of the type of learners in the classroom.

Students are a big fan of movement. Implementing movement could be through games or simple tasks that take math concepts and transforms them into different modes of learning.

Evidence from study & symposium show the positive effect kinesthetic learning has on students and math concepts.

Conclusions

Find common ground between math concepts and physical activities that could be created into new learning strategies

Take any opportunities on using strategies that nurture various learners

Use additional outside resources (Ex: Math & Movement) to help aid with student growth

References

1. Goral, M. (2009). From Kinesthetic Movement to Algebraic Functions. *Mathematics Teaching In The Middle School*, 14(7), 388-391.
2. Goral, M. B., & West, L. R. (2007). An Arts-Based Approach to Teaching Fractions. *Teaching Children Mathematics*, 14, 74-80.
3. Ponce, G., & Tuba, I. (2015). Synthesizing Strategies: Solving Linear Equations. *Mathematics Teacher*, 108(6), 416-421.
4. Why Hands-On Learning is So Effective. (2015, November 06). Retrieved from <https://www.surpriseride.com/hands-learning-effective/>