



Mathematics and the Use of Manipulatives



Nicole Thomas
University of Hawaii- West Oahu

Abstract

It is clear that manipulatives are especially helpful to enlighten students rather than as a support in math lessons. Manipulatives help students make mathematical connections to a concept they can physically explore.

It also provides them the opportunity to engage in deeper sense making and build their problem-solving skills. While there is no relationship between the use of manipulatives and students' math achievement, there is a positive relationship between manipulative use and students' math learning (Uribe-Flórez & Wilkins, 2016).

Introduction & Research Question

- What is the importance and purpose of using manipulatives in mathematics?

- The topic of math and the use of manipulatives is important to math education because it is essential to understand why and how manipulatives can help students physically grasp certain math concepts that might be difficult to comprehend verbally or visually.

- If educators use manipulatives in mathematics lessons to further explain complex math concepts, then students will be able to grasp the concept better because they are being provided the opportunity to build an understanding through exploration with manipulatives.

Research Focus

The journals found and used in each resource supports my research question by identifying the usefulness of manipulatives in mathematics lessons and how they could best be implemented in the elementary classroom.



Results

My prediction is that students who make connections between concrete manipulatives and abstract mathematical ideas will be able to develop a deeper understanding of math lesson concepts.

This prediction can be supported by the Common Core Standards for Mathematics as it states, "Modeling links classroom mathematics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions" (CCSSM, 2010).

Discussion

Based on information from the resources used in this research, the teacher plays a critical role in helping students connect their manipulative experiences through manipulatives and other visuals to essential abstract mathematics.

Manipulatives also serve as concrete models for students to explore math concepts much like how professionals in professional fields use visual resources and learning tools, such as architects and the construction of building models.

Conclusions

- Manipulatives provides students with the opportunities to explore and connect math concepts to deepen their understanding.
- Virtual and physical manipulatives/learning tools allow teachers and students to illustrate and explore mathematical concepts.
- The purpose of using manipulatives in mathematics is to provide students with a visual and hands-on experience to build a better understanding of math concepts and make connections.

References

1. Wilkins & Uribe-Florez. 2016. Manipulative Use and Elementary School Students' Mathematics Learning.
2. Browne. 2018. What are manipulatives actually for?
3. Safi & Desai. 2017. Promoting Mathematical Connections Using Three-Dimensional Manipulatives.



Contact

Nicole Thomas
University of Hawaii- West Oahu
Email: nicole76@hawaii.edu