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Using Vocabulary to Enhance the Understanding of Mathematics as a Language

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Research Questions

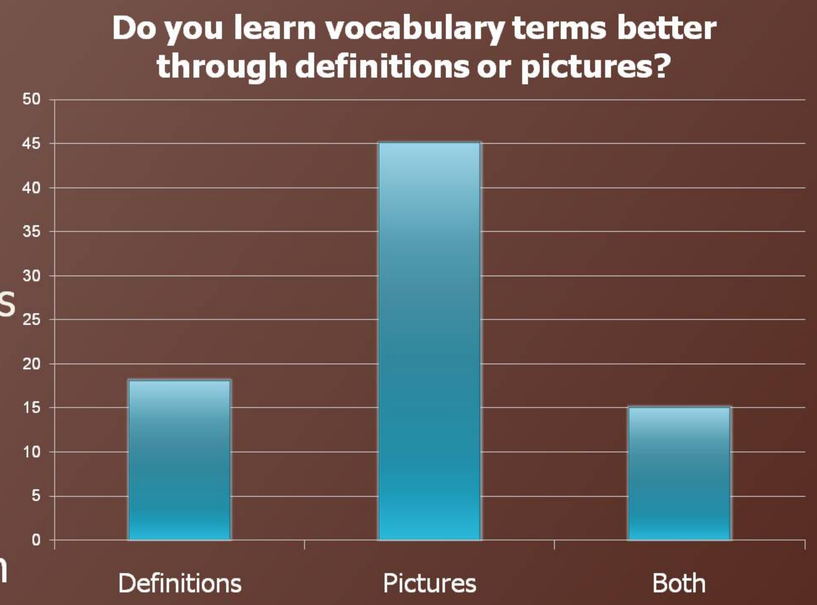
- What types of activities emphasizing vocabulary help students learn mathematical concepts?
- How can writing in the mathematics classroom enhance students' mathematical understanding?

Methodology & Framework

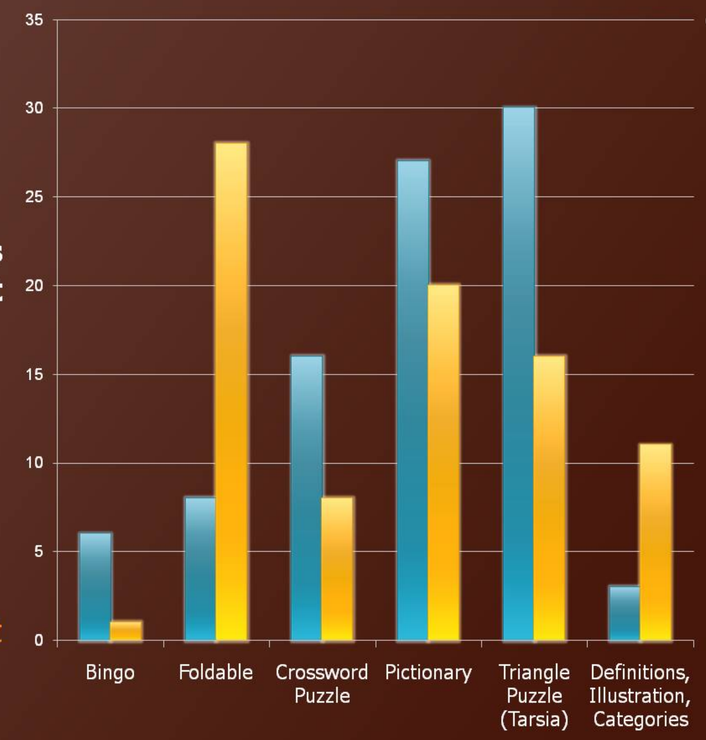
- The study took place at a rural high school in Central Illinois.
- Participants were students in grades 9-12 in 1 of 4 geometry classes.
- Six vocabulary-centered lessons were implemented in a semester long *teaching experiment.*
- Data collected and analyzed were student work, post-teaching reflections, and students' perceptions of vocabulary use in the mathematics classroom.

Lessons & Activities

- Bingo
- Foldable
- Crossword Puzzle
- Pictionary
- Triangle Puzzle (Tarsia)
- Definitions, Illustrations and Categories



End of the year surveys demonstrated students' perceptions on vocabulary and strategies that help them be familiar with the material.



Students recognize the difference between identifying their favorite activity and the most beneficial activity. Two of the three least favorite lessons showed the largest increase in votes from favorite to most helpful.

"Vocab can get you familiar with the words you are learning. It can help you prepare yourself more for class and tests. You won't get lost in class and you will know what is being talked about." – Regina

"Knowing your vocabulary in geometry is like the building blocks to understanding the rest of the class." – Ken

Literature Summary

- Research studies and literature reviews focused on literacy in the mathematics classroom.
- Studies reviewed fall under three categories: comparing mathematics vocabulary and everyday English, implementing instructional strategies for teaching mathematics vocabulary, and communicating mathematically through reading and writing.
- Studies emphasized the significance of getting students excited and engaged in the development of their own mathematical literacy.

Conclusion

- Activities that allow students to write, speak and visually represent vocabulary help students gain confidence in mathematics.
- Writing allows students to assess their knowledge. Teachers should analyze student work for feedback to identify gaps between teaching and learning.
- Vary lesson types and delivery techniques to reach all students. Include pictures and words when introducing new vocabulary and completing activities.