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Disciplinary Integration in the Fifth Grade *Everyday Mathematics* Textbook

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Integration in *Everyday Mathematics*

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Research Question

How is mathematics integrated in different content areas in a fifth grade math textbook?

Literature Review

- Czerniak, Weber, Sandmann, and Ahern (1995) found that due to the lack of a common definition of integration, there is no baseline for analyzing data.
- Kiray's (2012) Balanced Model utilized constructivist learning using seven levels of integration. Students who were taught an integrated lesson performed better when asked mathematics-science related questions.
- Kang and Pham (1995) and Chevalier, Pippen, and Stevens (2008) conclude that teaching mathematics as a language benefits ELL.

Methodology

- Content-analyzed *5th Grade Everyday Mathematics* book focusing on quality, quantity, and type of integration.
- **Quality:** How does integration enhance the lesson?
- **Quantity:** How often are integration techniques used?
- **Type:** How are disciplines being integrated?

Results and Data Analysis

- **Mathematics and Science**
 - Kiray's (2012) Balanced model is the most commonly used mathematics and science integration technique.
 - The lessons are still very mathematics centered, with science concepts used only to enhance the mathematics skills.
 - Science concepts are rarely assessed.
- **Mathematics and ELL**
 - Every unit has at least one differentiation technique for ELL (e.g., Word Banks, Venn diagrams) and the lessons that do are usually very vocabulary heavy.
 - Integration techniques were found in student practice and instructional materials, not assessment.
- **Mathematics and Literacy**
 - As students progress through EM, a stronger emphasis is placed on mathematizing read-alouds.
 - Connecting mathematics and literature is another technique that improves ELL comprehension.

Conclusion

- Integration techniques were found in student practice, mathematics centered and science assisted, and help students make connections between subjects (see *Figure 1*)
- EM values mathematics over a balanced mathematics-science lesson. Assessing both disciplines improve student comprehension.
- Creating lessons that are accessible for ELL is highly valued. This was by far, the most common form of integration found throughout EM.
- There are some social studies and art connections presented in EM, but little research could be found to verify the effectiveness of these connections.

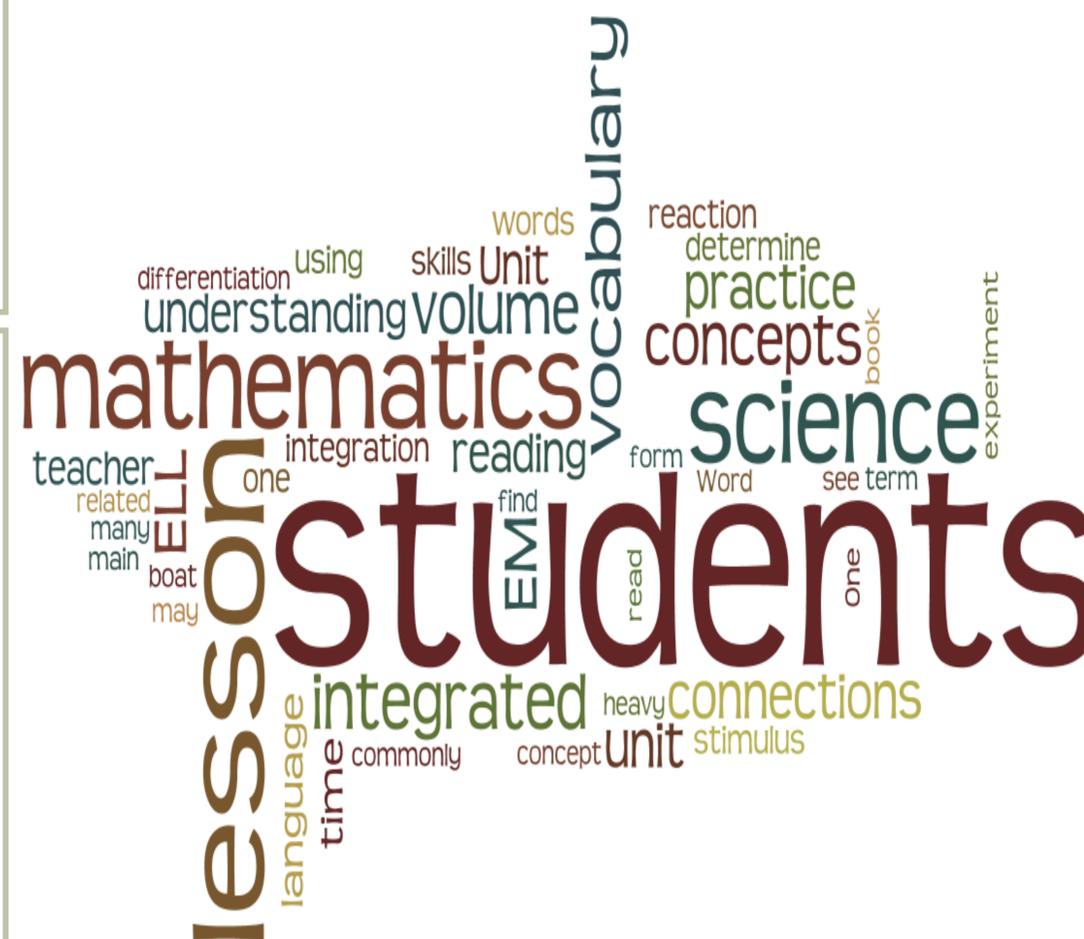


Figure 1: Results and Data Analysis Word Cloud