



Engaging Vocabulary Acquisition Strategies: How will the use of these strategies affect students' understanding and use of biology vocabulary?

Background

Sentinel High School, located in Missoula, Montana, has an enrollment of 1211 students. It is one of three public high schools in Missoula and home to the University of Montana. Sentinel's students are predominantly middle-class Caucasians, with seven percent Native American, African American, Asian American and Hispanic. Graduation requirements for science include one year of introductory biology, usually taken during a student's sophomore year. Biology is a language intensive science in both the quantity and difficulty of new vocabulary words presented to students. This research project evaluates the effectiveness of using engaging vocabulary strategies to increase students' understanding and use of biology vocabulary.

Research Questions

How will the implementation of vocabulary acquisition strategies impact students' understanding of biology terminology?

- What are the effects of vocabulary strategies on students' understanding of major biological concepts?
- How does the implementation of these strategies affect students' reading comprehension of primary and secondary text?
- How does the use of vocabulary strategies affect students' attitudes towards learning vocabulary?
- How will implementing these strategies affect my teaching, attitude, and time-management?

Student Sample

Students from four introductory biology classes will participate in this research project. Each class has an enrollment of 21 to 22 students, with approximately equal numbers of males and females per class. Eighty three percent of these students are sophomores, nine percent are freshman, and the remainder are juniors and seniors. All academic levels are represented in these four classes with ten percent of the students requiring additional academic assistance in the form of a study skills or resource class.

Treatment/ Design

The treatment for this project consists of implementing four different vocabulary acquisition strategies throughout a unit of study on cell biology. A strategy called word roots requires students to utilize word origins and word parts to decipher the meanings of new words. A word wall composed of student designed vocabulary cards will be used for continual review of terminology. Semantic feature analysis requires students to graphically organize key words and concepts to show existing relationships. By using a semantic word map, students will graphically link class generated ideas and concepts to a key vocabulary word.

Data Collection Methods

Research Questions	Data Source 1	Data Source 2	Data Source 3
Focus Question:	Pre and Post Self-Evaluation Vocabulary Checklist	Pre and Post Approximate Analogy	Field Notes/Direct Observation
Sub Question 1	Pre and Post Concept Survey	Pre and Post Concept Map	Post-treatment Teacher-made Test
Sub Question 2	Pre and Post Self-Assessment for Reading Comprehension	Pre and Post Reading Rating Sheet	Post-treatment Teacher-made Test
Sub Question 3	Pre and Post Student Interviews	Pre and Post Attitude Scale	Post-treatment Feedback Form
Sub Question 4	Teacher Journal	Field Notes/Direct Observation	Pre and Post Student Interviews

Proposed Results

I anticipate that my students' understanding and use of biology vocabulary as well as their reading comprehension will increase after the implementation and use of vocabulary acquisition strategies. Additionally, I expect that my students' attitudes towards learning science vocabulary will improve after utilizing these strategies. Confirmation of these proposed results is expected after the data collected from pre-treatment and post-treatment assessments is analyzed.

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