Research-Based Strategies for Teaching Vocabulary

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Vocabulary and successful reading comprehension appear to be intertwined, according to top researchers in the field. This paper will explore research about the latest methods that are proven to work in vocabulary instruction and how to effectively implement them in the classroom. Experts in the field will be identified and their findings explored in this crucial area of literacy. Strategies and techniques along with ways to integrate technology to enhance learning will be provided to give a complete vision of the process of teaching vocabulary, and thus improve reading comprehension.

KEYWORDS Teaching Vocabulary

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Vocabulary instruction should be a major part of any good reading program. According to Merriam-Webster dictionary, vocabulary is defined as "the words that make up a language; all of the words known and used by a person; words that are related to a particular subject" (n.d.). Vacca (2012) defines vocabulary as the "breadth and depth of all words we use, recognize, and respond to in meaningful acts of communication" (p. 303). No matter the varied definitions of vocabulary, its' impact on reading comprehension and society is huge. Reading researchers affirm vocabulary's importance to reading comprehension and the necessity of teaching it. There is an abundance of strategies, techniques, and technology activities to aid students with the acquisition of vocabulary knowledge.

Importance of Vocabulary

There is a strong relationship between vocabulary knowledge and reading comprehension (Mixan, 2013). Vocabulary knowledge is considered the best predictor for success in reading comprehension, according to Baumann, Kame'enui, & Ash, (2003). Understanding this importance requires beginning vocabulary instruction early, if lasting reading comprehension is the objective (Wright, 2012). Also, without vocabulary knowledge, language and communication is unattainable. The National Reading Panel shows vocabulary as one of the five components of reading needed for an effective reading program. The National Assessment of Educational Progress (NAEP) (2011) found that students scoring above the 75th percentile in reading comprehension had higher vocabulary scores, while students scoring below the 25th percentile in reading comprehension had low vocabulary scores. Thus, the link between reading comprehension and vocabulary is key.

The importance of vocabulary is obvious, but what does research show? The average student learns about 3,000 words per year (Nagy & Anderson, 1984). When you look at the vocabulary of children from the perspective of the socioeconomic level, children from higher levels attain 30 million more words than children from lower socioeconomic levels (Neuman & Wright, 2014). Many English learners have limited

vocabulary which makes it hard for them to comprehend texts. So, there is a need to help all students with vocabulary acquisition, if success is the goal.

Quinn, Wagner, Petscher, and Lopez (2015), share three hypotheses about the connection between vocabulary and comprehension. One is called the instrumentalist hypothesis. This hypothesis states that the better one understands the meanings of the words in a passage, the better they will comprehend the passage. The second hypothesis is called the knowledge hypothesis that states that vocabulary and reading comprehension are connected because they both are related to conceptual knowledge. The third is called the aptitude hypothesis that states vocabulary knowledge and reading comprehension are connected, because they are both related to verbal aptitude. Thus, how, when, and what you use to build vocabulary knowledge is important.

Implementation

One of the first concerns teachers have with teaching vocabulary is not what materials to use or practice, but what words to teach. Teachers may only be able to teach 8-10 new words per week, so they must choose words carefully (Wasik, 2012). There are three categories of words to consider. According to St. John and Vance (2014), these categories are labeled as tiers one, two, and three. Tier one consists of words that do not require much teaching, everyday words like, "find." These are words that children should have already heard at home and been familiar with. Tier two words are words that help aid comprehension. They are adjectives, nouns, verbs, and adverbs which may not have been heard in everyday conversation. Tier three words are usually content specific or specialized words. For example, mathematics might use the word, "polygon," while science might use the word, "polymer." Taking time to teach appropriate vocabulary for the content being learned before a lesson is vital, because students will be able to understand what they are reading and learning, and make the needed connections for depth.

Vocabulary is used across all disciplines. A vocabulary lesson can happen in mathematics just like it can in language arts. Actually knowing a word is not just learning one definition of that word. Knowing a word involves the depth of knowledge of a word. This means being able to use that word in multiple ways. Students must have exposure to a word over and over again to become knowledgeable. Teachers need to use the vocabulary words they are teaching in their everyday conversations, not just while teaching the lesson. Students should also use the words in their conversations. The students must be able to use a word in different contexts.

There are six principles to guide vocabulary instruction (Vacca, et al., 2012). The first principle is to select words for vocabulary that will be used often and give meaning to the students and what they are reading. Second principle is to teach vocabulary words in relation to known words. An example of utilizing this principle would be an activity that requires the student to choose which word does not belong from a group of words. The third principle is teaching students to relate new vocabulary to words in their background knowledge. Principles four and five are teaching words to activate background knowledge, and teaching them systematically in depth. The sixth principle is to be excited about the subject you are teaching. Displaying exuberance for vocabulary in any content area aids in influencing students' engagement and learning of vocabulary.

"Vocabulary building must be an activity that is enjoyable for students of all ages so they will find joy in learning new words and will be looking for new, "spicy, tasty words (Baumann, Kame'enui, & Ash, 2003) that roll off the tongue" (DeVries, 2015, p.147). The dictionary is not considered a good tool for learning new vocabulary as it does not commit vocabulary words to long term memory. Words can be taken apart, scrambled and put back together to activate long term memory. Word games, art, pictures, acting and music can be utilized to help students find meaning in vocabulary.

Technology is a way to incorporate fun, meaningful resources that will reinforce concepts and vocabulary, as well as allow the teacher to assess the students' progress. Students today have accessibility with ever-changing technology that can be utilized positively and advantageously to aid in instruction. Educational websites and online videos can be used as supplements in lessons to add engaging media, learning, and offer teachers ways to assess progress at the same time. A good website example is www.vocabulary.co.il that categorizes free games and activities to aid in vocabulary learning and assessment. Too, websites such as *Pinterest* and *Crayola* provide ideas for enhancing vocabulary instruction, and *Wordle* and *Tagxedo* allow students to create word clouds. The internet offers a plethora of websites for having fun learning vocabulary through free games and activities. Figure 1 provides a list of website and app suggestions to incorporate in a rich and rewarding vocabulary program. Videos are also a way to help students understand words (Figure 2). These games and videos with words help students have a better understanding of the vocabulary.

Techniques and Strategies for Vocabulary Learning

Christ and Wang (2010) reveal that students need introduction to, engagement with, and strategies for new vocabulary to be successful. Vocabulary development activities and methods should be developed by the teacher after considering the needs of a particular class or students to be taught. There are many effective vocabulary strategies that can be modeled by the teacher, learned, practiced, and implemented by students. Copying key terms at the beginning of each chapter of the textbook and looking up the definition from the glossary is not an effective vocabulary strategy. There must be connections beyond the short-term memorization of the vocabulary for the students to remember and keep from struggling to comprehend new concepts.

Good vocabulary instruction combines both implicit and explicit instruction (Berne 2008). Scientific research-based strategies for vocabulary must be taught directly, but some learning takes place indirectly. Indirect vocabulary learning is when students learn vocabulary when they hear and see words used in many different contexts. Children learn word meaning indirectly by engaging daily in oral language, listening to adults read aloud, and reading extensively on their own. It is important for a teacher to read aloud to students, have them engage in discussions about words, and read more themselves, but direct instruction is critical. Students learn vocabulary directly, when they are explicitly taught both individual words and word learning strategies. Modeling, practicing strategies, and learning which strategies to use at what time is important, too. Using dictionaries and other reference aids will assist the students in their learning.

There are various proven strategies than can be used in lessons that focus on different ways to make vocabulary meaningful and engaging, as well as, help students move new information from their short-term to long-term memory (Figure 3). Vocabulary instruction should be present in all content areas, and with fiction and non-fiction texts, because students will be more proficient in learning new concepts, and specific content vocabulary. This allows students a richer knowledge of the vocabulary for both verbal and written communication. Immersing students in vocabulary-rich texts needs thought and planning to engage all diverse learners in a meaningful way.

Involving students in different literature and non-fiction texts shows different perspectives that relate to the same concepts and vocabulary words, making the learning experience relevant. Any subject area can bring in literature, whether it be science or mathematics, or other content areas. Figure 4 contains a list of books that can be used with students to enhance vocabulary knowledge. The literature selections along with textbooks from the curriculum help students look at the vocabulary in a different way, and apply it to what they are learning.

Students need experience and guided scaffolding, facilitated by the teacher. The more students are exposed, the better chance they will have with comprehension and understanding. Teachers can model strategies for

learning and self-regulating, then allow students to lead the activity and exploration. Activities and resources for the class room should include things like class word walls with vocabulary words chosen by the class. Discussion before reading of the new words from the word wall, previewing pictures that visually represent the words and meanings will aid in reading comprehension. Also, asking for predictions based on the words, studying similar words, and creating graphic organizers to show their connections will increase the depth of their comprehension.

Graphic organizers are great resources for students to make comparisons and use context clues to discover the meaning of a word and make connections based on their reading. One example is the sematic map. It uses webs to create connections between words, visually representing relationships to not only define words and topics, but to help students make sense of how it fits with the context. This also is a valuable way to assess the student on their understanding. Foldables are booklets or visual representations that students can create to record their vocabulary words as a way to practice, allowing them to visually represent their interpretation with words and pictures. Other strategies, like word sorts and list-group-label, use the same visual representation or categorization of words to show their connections. Words with a particular theme and connection can be used with simple activities like bingo, crossword puzzles, word searches, and word clouds.

A final strategy that is simple, but effective when trying to increase students' vocabulary, is conversations. Teachers and parents need to engage children in purposeful and strategic conversations that help them understand new words. Students should know about 5,000 words before entering kindergarten and should learn at least 3,000 words per year. The more words students hear and use, the larger their vocabularies will be.

Assessment

Vocabulary assessments should not simply be matching or multiple choice tests. They must be designed to assess depth in vocabulary knowledge and growth, and be authentic. Teachers can use anecdotal notes or checklists to assess student knowledge and growth. The assessment needs to be as varied as instruction and give a true picture of what the student has learned. As in any valid test, a variety of items should be used to assess student knowledge. According to Vacca et al, (2012), informal, authentic assessments are a critical part of literacy instruction. This should be done frequently, as in all core subjects for a true picture of what each individual knows and needs to know or learn. There are websites online that will allow students to practice vocabulary by assessing it and recording the results (Figure 5).

Conclusion

Research indicates that having a wide vocabulary understanding is necessary for comprehension of any text. Comprehension affects everything in a student's life from reading and understanding their mathematics textbook to understanding the driver's education manual. Without vocabulary knowledge, there would be no understanding. Vocabulary is specialized for content areas and common for everyday communication. So, knowing different tiers of words is important. Although vocabulary words can be learned through experiences in the lives of students, sometimes words have to be taught explicitly.

The ways to teach and learn the words are vast, because there are many strategies, games, videos, and other resources available through technology to enhance the process. The teacher must model strategies, teach students when to use them, and provide practice time for implementation. Students need to become proficient with using strategies, so they will use them independently and improve their chances of success. Having a cache of strategies is important for learning vocabulary knowledge, but so is ongoing assessment of vocabulary.

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Assessing vocabulary knowledge informs the student and teacher about what they know and the depth of that knowledge. The assessments can be administered before and after the lesson. This will inform them about what needs work, and if they learned what is needed to be successful in the comprehension of the content.

Another essential component to consider in vocabulary development, is the motivation factor. Introducing vocabulary through fun techniques, games, videos, books, and strategies helps students stay engaged and excited. Encouraging students to build their vocabulary, will help them be lifelong learners and successful in reading comprehension.

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Figure **1: Suggestions for Websites for Vocabulary Building**
http://www.puzzlemaker.com create word searches, crossword puzzles etc. for vocabulary
http://www.wordle.net/   make word clouds
http://www.tagxedo.com/app.html create word clouds with vocabulary words
http://www.vocabulary.co.il/ interactive vocabulary games
http://www.eslgamesworld.com/members/games/vocabulary/index.html games for ESL
http://www.mathwords.com/ website with online dictionary for mathematics words
http://www.wordhippo.com/ defines, rhymes, provides synonyms and antonyms for a word
http://insidestoryflashcards.com/printable_flashcards/index.php digital flashcards with pictures
http://www.gamequarium.com/evocabulary.html games for vocabulary
http://www.thesaurus.com/ thesaurus
Suggestions for Apps for Vocabulary Building
World's Worst Pet - Vocabulary
The Opposites
Vocabulary/SpellingCity
Mad Libs
Chicktionary
Vocab Catcher
Bluster!

Figure 2: Suggested Videos for Vocabulary Building
https://www.youtube.com/watch?v=bQuQquEf-XI vocabulary; Peppa Pig English Episodes
https://www.youtube.com/watch?v=Z4IysKzYwYU free clip of Busy Beavers vocabulary
https://www.youtube.com/watch?v=-JIm_ztLoTU Teaching Pet vocabulary for ESL
https://www.youtube.com/watch?v=PaiNKEcaHEc Elf Kid videos for nature vocabulary

Figure 3: Suggestions for Strategies for Building Vocabulary
Graphic Organizers/Semantic Maps
Word Walls
Word Sorts
Crossword Puzzles/Word Searches
Morphology Bingo
List-Group-Label

Figure 4: Suggestions for Children's Books for Building Vocabulary
Big Words for Little People by Jamie Lee Curtis
Thesaurus Rex by Laya Steinberg
The Boy Who Loved Words by Roni Schotter
Hairy, Scary, Ordinary: What is an Adjective? By Brian Cleary
Pig, Pigger, Piggest by Rick Walton–book using comparative superlatives
Chicken Cheeks by Michael Ian Black
King Hugo's Huge Ego by Chris Van Dusen
What About Moose? by Corey Rosen Schwartz and Rebecca J. Gomez

Figure 5: Suggested Online Vocabulary Assessments
https://getkahoot.com/ build a quiz with Kahoot
https://www.plickers.com/ Students answer verbal questions by teacher with plicker cards
http://testyourvocab.com/
https://www.flocabulary.com/pre-and-post-tests/

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