TAKE AIM!
at Vocabulary

Research & Rationale

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Read Naturally's goal is to provide high-quality programs that assist students in developing the skills necessary to become successful readers. The Take Aim at Vocabulary program specifically develops vocabulary knowledge as a critical component of overall reading success.

Vocabulary Development Supports Success in Reading

Words are elemental to the texts and lessons that comprise the learning experiences of our students. As you know, a student's ability to understand words and their meanings is essential in all content areas. As curriculum increases in difficulty, so too do the words that make up that curriculum. At a very basic level, vocabulary underlies a student's ability to understand what is being taught.

Well-developed vocabulary is an essential component for success in reading. As teachers, we recognize that reading becomes a great challenge for students who lack adequate word knowledge. Indeed, research identifies that, "for adequate reading comprehension from grade three on, children require both fluent word recognition skills and an average or above-average vocabulary" (Biemiller, 2005, p. 41). Explicit instruction of vocabulary has been shown to improve reading comprehension for both English speakers and English language learners (Carlo et al., 2004; Beck, Perfetti, & McKeown, 1982). Furthermore, vocabulary instruction can develop the in-depth knowledge of specific words that promotes an increased appreciation of words and their power (Scott & Nagy, 2004). This interest in words is referred to as "word consciousness" and is likely to benefit students as they develop as readers (Graves, 2006).

Research Supporting Take Aim at Vocabulary

Research findings in the area of vocabulary development provide the foundation for Take Aim at Vocabulary. The Take Aim program was developed in alignment with research on word selection, teaching methods, learning strategies, learning principles, and intermediate grade-level achievement.

Word Selection

It is important for students to have a thorough knowledge of the sophisticated words they are likely to encounter in a wide assortment of texts (Beck, McKeown, & Kucan, 2002). Beck and McKeown (2007) refer to these words as "high-utility" because they are of high use to mature language users. Take Aim teaches many high-utility words, which were carefully selected using *The Educator's Word Frequency Guide* (Zeno, Ivens, Millard, & Duvvuri, 1995), *The Living Word Vocabulary* (Dale & O'Rourke, 1981), and *The Academic Word List* (Coxhead, 2000). Because the stories in Take Aim adhere to readability standards, students are also exposed to many easier and more common words from the Fry, Spache, Harris-Jacobson, and Dale Chall word lists.

Each level of Take Aim explicitly teaches 288 target vocabulary words. Read Naturally carefully selected these words to ensure that students are learning high-quality vocabulary. We define high-quality vocabulary as sophisticated, useful, and appropriate words that students in the intermediate grades are unlikely to know but likely to encounter often as texts increase in difficulty. Additionally, some words in Take Aim contain affixes which, once understood, can help students figure out unknown words with the same or similar word parts.

Teaching Methods

The high-quality words taught in Take Aim will benefit students only if students are able to learn them effectively. According to the National Reading Panel, "dependence on a single vocabulary instruction method will not result in optimal learning" (NRP 2000, p. 4-4). Take Aim uses the following research-supported methods to teach vocabulary words:

■ Explicit instruction of target words

■ Instruction of target words in context

■ Student-friendly definitions

■ Multiple exposures to target words

■ Multiple contexts for target words

■ Semantic mapping

Explicit Instruction of Target Words

Explicit instruction helps students increase their vocabularies (Baumann, Kaméenui, & Ash, 2003; Beck et al., 1982). Take Aim explicitly teaches each target word in a variety of formats, including a definition embedded in text, a definition with a part of speech and clarifying sentence, and questions and activities that deepen understanding.

Instruction of Target Words in Context

From the intermediate grades on, reading becomes the principal language experience for enlarging children's vocabulary (Cunningham & Stanovich, 1998). Incorporating vocabulary instruction into reading is thus an ideal way to teach new words. The National Reading Panel asserts that vocabulary instruction should be incorporated into reading instruction and that lessons should include direct instruction of vocabulary items required for the specific text (NRP 2000, p. 4-24). Research identifies that when words and easy-to-understand explanations are introduced in context, knowledge of those words increases (Biemiller & Boote, 2006) and word meanings are better learned (Stahl & Fairbanks, 1986). In Take Aim, students read high-interest, nonfiction stories along with a narrator three times as they learn the target words and student-friendly definitions in the context of the story. Students also complete exercises that give additional contextual support, such as reading each definition along with a clarifying sentence and answering questions that use target words in new contexts.

Student-Friendly Definitions

For students to fully understand the meanings of words, they must understand the terms used to define the words. "Student-friendly" definitions are definitions that characterize the word and how it is used and explain the meaning of the word in everyday language (Graves, in press). Research shows that such carefully worded definitions enhance word understanding (McKeown, 1993). All target words in Take Aim include student-friendly definitions and clarifying sentences.

Multiple Exposures to Target Words

A student's chances of learning a word increase with each time s/he encounters and experiences the word. Word meanings are acquired incrementally over time, and children require multiple exposures to learn a word's meaning (Fukkink & de Glopper, 1999; Stahl, 2003). In Take Aim, students encounter each target word in several instances. They encounter the word each time they read the story, the definition, and the clarifying sentence. They also answer several questions that use the target words and complete activities related to each word.

Multiple Contexts for Target Words

Vocabulary instruction should aim to engage students in actively thinking about word meanings, the relationships among words, and how we can use words in different situations. This type of rich, deep instruction is most likely to influence comprehension (Graves, 2006; McKeown & Beck, 2004). In Take Aim, students experience each target word several times in multiple contexts. For each unit, students read a clarifying sentence about each target word, sketch each word, apply each word to a specific situation through enrichment activities, and answer questions about each word. In addition, Read Naturally wrote the Take Aim stories in sets of four, around a theme, to increase the likelihood that students experience the words and their meanings in several contexts. Furthermore, over half of the target words in Take Aim appear in stories besides the ones in which they are explicitly taught. These multiple contexts support the rich instruction likely to boost comprehension.

Semantic Mapping

The use of semantic mapping is another method for providing rich instruction of vocabulary. Semantic maps help students develop connections among words and increase learning of vocabulary words (Baumann, Kaméenui, & Ash, 2003; Heimlich & Pittleman, 1986). Each unit in Take Aim includes word-mapping activities that require students to connect the target words to other words, parts of speech, synonyms, antonyms, or personal experience.

Learning Strategies

Research provides evidence that teaching specific strategies can help students develop vocabulary independently. These strategies will not only help students figure out the meanings of target words, but students can also transfer these strategies to unknown words they encounter in the future. These strategies are as follows:

- Using context clues

- Analyzing word parts

- Using a dictionary or glossary

Using Context Clues

When students learn how to use context clues to their advantage, they are better equipped to deduce the meanings of unknown words. According to researchers, the ability to use contextual information can produce substantial, long-term growth in vocabulary (Nagy & Anderson, 1985), and even a small improvement in the ability to use context has the potential to produce this growth (Baumann, Edwards, Boland, Olejnik, & Kaméenui, 2003). Because context clues play such a crucial role in word learning, each story in Take Aim includes an audio-supported mini-lesson that teaches students to use context clues to arrive at a target word's meaning.

Analyzing Word Parts

The ability to analyze word parts is another strategy that helps students when faced with unknown vocabulary. If students know the meanings of root words and affixes, they are more likely to understand a word containing these word parts. Explicit instruction in word parts includes teaching meanings of word parts and disassembling and reassembling words to derive meaning (Baumann, Edwards, Font, Tereshinski, Kaméenui, & Olejnik, 2002; Baumann, Edwards, Boland, Olejnik, & Kaméenui, 2003; Graves, 2004). Take Aim teaches roots or affixes through activities and audio-supported lessons that guide students through the process of using word parts to figure out the meanings of new words.

Using a Dictionary or Glossary

Students commonly come across unfamiliar words in texts. Using a dictionary or glossary is another way to confirm and further develop word knowledge (Graves, 2006). However, research demonstrates that correctly interpreting dictionary definitions is challenging for many students (Miller & Gildea, 1987). Imagine if, when students came across new words, their dictionary or glossary provided clear, student-friendly definitions and clarifying sentences that deepened understanding. Each Take Aim unit includes an illustrated, audio-supported glossary of all of the target words plus additional challenging words in the unit. Definitions are student-friendly, and most terms include clarifying sentences. Students are taught to reference this glossary each time they encounter an unknown word.

Learning Principles

The use of recognized learning principles increases all types of learning, including vocabulary. These principles include the following:

- Active engagement
- Deep processing

Active Engagement

For maximum results, a program should utilize a variety of methods that incorporate active engagement with the material (NRP 2000, p. 4-27). To keep students actively engaged, Take Aim incorporates many motivating activities. Examples include high-interest stories, graphs for monitoring progress, hink pinks and crossword puzzles, and sketching and mapping activities.

Deep Processing

Students learn best when instruction allows them to deeply process the information (Craik & Lockhart, 1972). To encourage thorough word learning, the activities in Take Aim provide multiple opportunities for deep processing of the words. The audio-supported lessons engage both auditory and visual senses. Students approach each target word using several senses as well—not only do they answer questions about each target word, but they also listen to the words, say them, sketch them, and map them.

Intermediate Grade-Level Achievement

Vocabulary instruction is likely to benefit students of any age, but research suggests that instruction is particularly important in the intermediate grades. Children with smaller vocabularies tend to fall significantly behind in grade four, and that decline accelerates in grades five and six as curriculum starts to include more abstract, academic, literary, and less-common words (Chall, Jacobs, & Baldwin, 1990). Take Aim supports intermediate grade students in developing the vocabulary skills necessary to read grade-level materials. The materials in Take Aim were developed for students who can read at a fourth-grade level and above.

Case Studies

Read Naturally conducted case studies at multiple sites across the country. Results show that the Take Aim curriculum effectively taught students high-quality vocabulary words. Results also show that students were able to retain knowledge of these words over an extended period of time.

Case 1: Minneapolis, Minnesota

During the fall of the 2007–2008 school year, a group of ten fourth-grade students receiving reading support in an intervention setting participated in a study of Take Aim curriculum.

Prior to the study, the Gates MacGinitie test of reading was administered to several students to obtain a baseline measure of vocabulary development. Ten students scoring between the 9th and 39th percentiles on the Gates MacGinitie vocabulary subtest were selected for participation in the study. Of these ten students, four served as the study group, while the other six served as the control group. The study group worked in six units of the Take Aim curriculum. The control group did not work in Take Aim curriculum.

At the beginning of the study, all ten participants were administered a study pretest. The pretest consisted of 24 words randomly selected from the 144 words taught in the six units of Take Aim curriculum in which the study group would be working.

After completing the pretest, the four students in the study group worked in the Take Aim curriculum for a period of 12 weeks. They worked in the program five times per week for approximately 30 minutes per day. They completed six units of Take Aim. The six students in the control group worked for 12 weeks on activities to improve their reading skills.

At the end of the 12 weeks, all ten students were administered a study posttest. The posttest consisted of the same randomly selected words used in the study pretest.

Results show that students in the study group made significant gains in learning the words taught in the Take Aim curriculum. Students in the control group showed limited growth in vocabulary. Eight weeks later, all ten students were administered a delayed posttest consisting of the same words used in the study pre- and posttests. Results show that students in the study group experienced an increase in knowledge of the vocabulary. Students in the control group did not show growth in vocabulary.

Table 1

School H-I

Group	Number of Students	Grade	Take Aim Units Completed	Gates MacGinitie Score	Study Pretest % correct	Study Posttest % Correct	Delayed Posttest % Correct
Study	4	4	6	9–29%	15	58	80
Control	6	4	0	9–26%	9	19	17

Graph 1
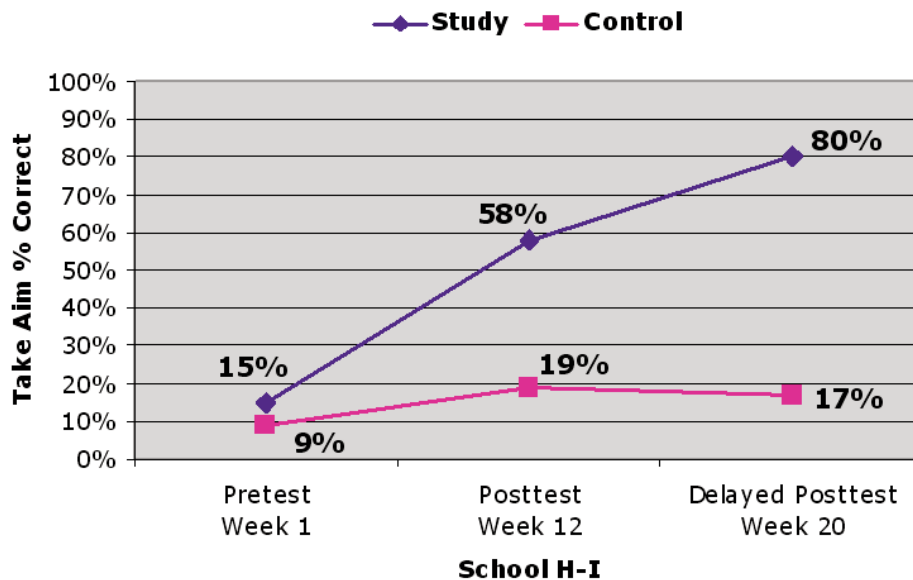
Case 2: Minneapolis, Minnesota

During the fall of the 2007–2008 school year, students from two fourth-grade classrooms participated in a study of the Take Aim curriculum.

Prior to the study, the Gates MacGinitie test of reading was administered to both classrooms to obtain a baseline measure of vocabulary development. Ten students scoring at the 63rd percentile or below on the Gates MacGinitie vocabulary subtest were selected for participation in the study. Of these ten students, five served as the study group, while the other five served as the control group. The study group worked in six units of the Take Aim curriculum. The control group did not work in Take Aim curriculum.

At the beginning of the study, all ten participants were administered a study pretest. The pretest consisted of 24 words randomly selected from the 144 words taught in the six units of Take Aim curriculum.

After completing the pretest, the five students in the study group worked in the Take Aim curriculum for a period of 12 weeks. They worked in the program four times per week for approximately 30 minutes per day. They completed, on average, five of the six units of Take Aim available to them. The students in the control group worked in their core reading curriculum and also participated in some vocabulary development activities during their literature block.

At the end of the 12 weeks, all ten students were administered a study posttest. The posttest consisted of the same randomly selected words used in the study pretest.

Results show that students in the study group made significant gains in learning the words taught in the Take Aim curriculum. Students in the control group made less significant gains. Eight weeks later, all ten students were administered a delayed posttest consisting of the same words used in the study pre- and posttests. Results show that students in both groups experienced an increase in knowledge of the vocabulary.

Table 2

School H-W

Group	Number of Students	Grade	Take Aim Units Completed	Gates MacGinitie Score	Study Pretest % correct	Study Posttest % Correct	Delayed Posttest % Correct
Study	5	4	5	20–63%	24	69	72
Control	5	4	0	42–63%	31	41	52

Graph 2
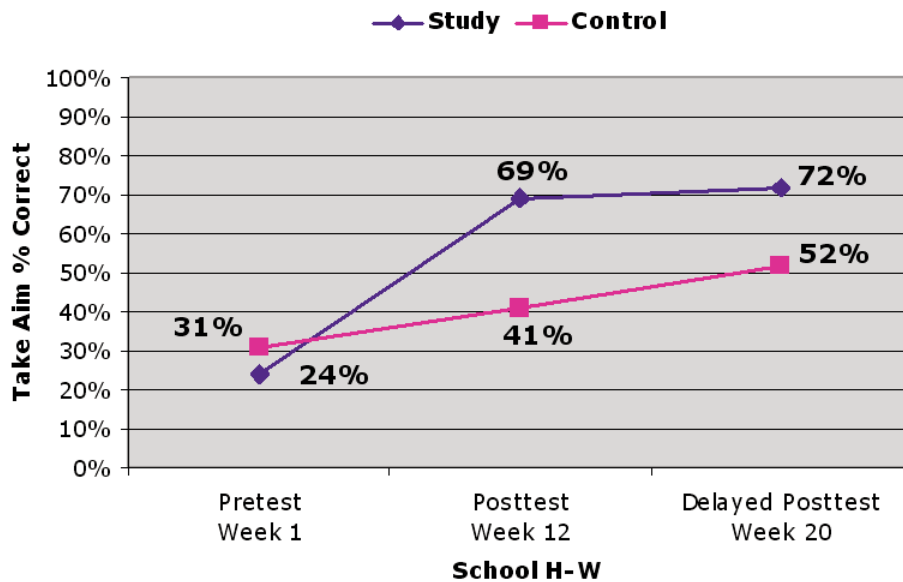
Case 3: Cumming, Georgia

During the fall of the 2007–2008 school year, students from a fourth-grade classroom participated in a study of the Take Aim curriculum.

Prior to the study, the Gates MacGinitie test of reading was administered to the classroom to obtain a baseline measure of vocabulary development. Nine students scoring between the 26th and 52nd percentiles on the Gates MacGinitie vocabulary subtest were selected for participation in the study. These nine students worked in six units of the Take Aim curriculum.

At the beginning of the study, all nine participants were administered a study pretest. The pretest consisted of 24 words randomly selected from the 144 words taught in the six units of Take Aim curriculum.

After completing the pretest, the students worked in the Take Aim curriculum for a period of 12 weeks. They worked in the program four times per week for approximately 30 minutes per day. They completed six units of Take Aim.

At the end of the 12 weeks, the students were administered a study posttest. The posttest consisted of the same randomly selected words used in the study pretest.

Results show that students in the study made significant gains in learning the words taught in the Take Aim curriculum. Eight weeks later, the students in the study were administered a delayed posttest consisting of the same words used in the study pre- and posttests. Results show that they maintained their knowledge of the vocabulary.

Table 3

School C

Group	Number of Students	Grade	Take Aim Units Completed	Gates MacGinitie Score	Study Pretest % correct	Study Posttest % Correct	Delayed Posttest % Correct
Study	9	4	6	26–52%	23	54	54

Graph 3
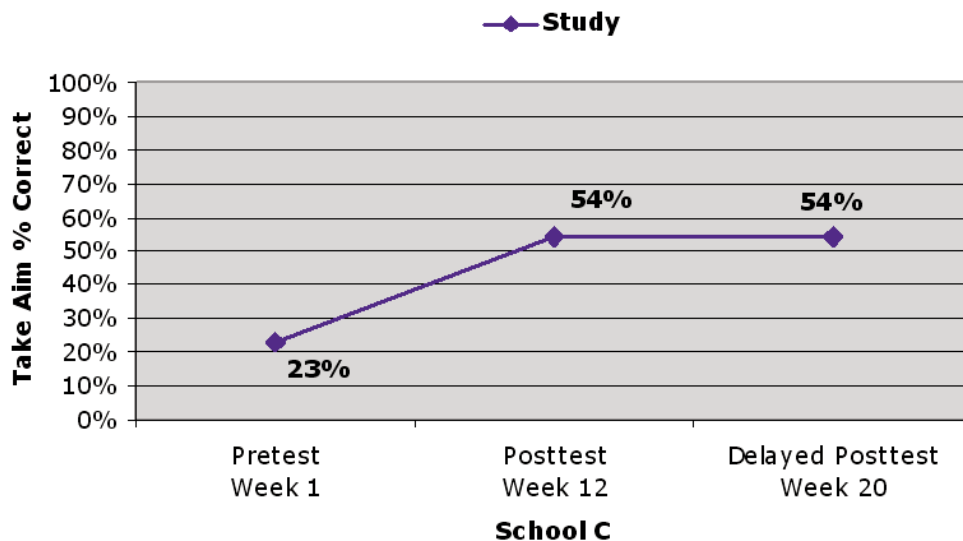
Case 4: Hazen, North Dakota

During the winter/spring of the 2007–2008 school year, a group of four fifth-grade Title I students participated in a study of the Take Aim curriculum.

Prior to the study, the Gates MacGinitie test of reading was administered to the students to obtain a baseline measure of vocabulary development. The students' scores ranged between the 15th and 48th percentiles on the Gates MacGinitie vocabulary subtest.

At the beginning of the study, the participants were administered a study pretest. The pretest consisted of 24 words randomly selected from the 144 words taught in the six units of Take Aim curriculum in which they would be working.

After completing the pretest, the students worked in the Take Aim curriculum for a period of 10

weeks. They worked in the program four times per week for approximately 30 minutes per day. They completed four to six units of Take Aim.

At the end of the 10 weeks, the students were administered a study posttest. The posttest consisted of the same randomly selected words used in the study pretest.

Results show that the students made significant gains in learning the words taught in the Take Aim curriculum. A delayed posttest was not administered, as students were still working in the materials at the end of the school year.

Table 4

School HZ

Group	Number of Students	Grade	Take Aim Units Completed	Gates MacGinitie Score	Study Pretest % correct	Study Posttest % Correct	Delayed Posttest % Correct
Study	4	5	4	15–48%	23	27	79

Graph 4