



Let's Get Critical

Abigail W. Konopasky, Ph.D.

There is little doubt that the study of Greek and Latin roots improves vocabulary and reading comprehension. Numerous studies have demonstrated the benefits of careful word study: Ebbers, 2008; Kieffer & Lesaux, 2007; McQuirter, 2007 and National Institute for Literacy, 2008, just to name a few. At some level this simply makes sense: in order to read ever more complex texts, students must become experts at word decoding. An adolescent does not have enough pages behind her to know as many words as a 30-, 50- or 70-year-old, so she has to study the roots and patterns of word formation to give herself an edge.

It is not obvious, however, how the 'mere' study of words could teach *critical thinking*. My memories of frantically turning over little index cards smack more of desperation than critical thinking. And, truth be told, I do not really remember any of those words. The words I remember are the ones I discovered *on my own*.

This is one of the most innovative aspects of Word Voyage: its *critical approach* to word study. Within a structured, teacher-directed lesson, Word Voyage lets students discover word structure, meaning and origin *on their own*, engaging them in the process of critical thinking. Moreover, it guides them through this critical endeavor step-by-step (the schema below is based on **Bloom's Taxonomy**):

Step-by-Step Critical Thinking as facilitated by the Word Voyage lesson module: 'Word Parts with Meaning'

(1) First the student is asked to **build basic knowledge**:

- Pick out the prefix, base root and suffix.

(2) Then the student is pushed a bit farther to **apply that knowledge** to a novel situation:

- Knowing what the suffix is, what is the part of speech?

(3) Now the student can engage in critical thinking: she must **analyze** the knowledge she has by **breaking it into its component parts** and **synthesizing** it into a new format. For example, the word *autonomous* has the following roots and meanings:

1. Prefix: **auto** meaning *self*
2. Base Root: **nom** meaning *law, order*
3. Suffix: **ous** meaning *pertaining to*

Word Voyage asks the student to organize the individual root meanings into an order that states the ‘Word Meaning Up From the Roots’:

- *Pertaining to self law, order*

(4) Finally, the student is asked to make an **evaluation** as she **compares** the synthesized definition to the modern definition. Note that there is no judgment or conclusion made by the program here – simply an opportunity for the student to reflect, evaluate and compare:

- Word Meaning Up From the Roots: *pertaining to self law, order*
- Modern English Definition: *self-governing; independent; subject to its own laws only.*

Unlike the situation with me and my desperate index cards, this is a student-directed process of discovery. Students are not given an answer, rather they use their critical reasoning and their independent research of Word Voyage’s built-in etymological dictionary to solve a series of problems. And, in the end, they are presented with a contrast to evaluate. Thus, the ball is in *their* court, resulting in greater ownership.

Moreover, this kind of ‘assessment-based’ instruction – in which students answer questions instead of listening to theories – is more likely to engender ‘true’ learning. Bjork (2011) presents numerous studies showing that the simple act of asking someone a question before telling them the answer (rather than the ‘traditional’ teacher model of lecturing and *then* testing) leads to long-term retention. So the words that students explore in Word Voyage really will ‘stick.’

This step-by-step, critical approach to vocabulary acquisition has enormous benefits for teachers and students:

1. Breaking old habits and forming new ones

Because Word Voyage is Web-based, students have easy access to their lessons from school or home. Working online, teachers can create level-appropriate assignments that engage the students on a daily basis. This regular practice with *looking inside words* slowly begins to break the habit of *skipping over unfamiliar words*. Teachers and parents no longer have to beg young people to pick up their dictionaries and look up unknown words. They no longer have to preach about the great benefits of contextual analysis to discover word meaning. Instead, through practice in word analysis, synthesis and evaluation, students begin to develop a *curiosity* about word structure and they naturally begin to stop and *analyze* unknown words on their own: no propaganda necessary.

2. A critical approach to sentence writing

Word Voyage also provides a platform for a *sentence voyage*. The sentence-writing component gives students an opportunity to *synthesize* their knowledge of the word with their knowledge of sentence mechanics as they use their newly discovered word in a sentence. The teacher can specify the type of sentence (declarative, imperative, etc.), the structure (simple, compound, etc.), the number of parts, the minimum words, and even the inclusion of commas and specified conjunctions.

Teachers can even take this voyage beyond students' sentences to other class texts: have students select a sentence from their reading and *analyze* it by type, structure, number of parts, number of words, punctuation and conjunctions. And then have them *evaluate* that sentence: does it make a clear point? Why is it organized the way it is? How would each student do it differently?

3. Critical analysis for all

The individualized word instruction provided by Word Voyage allows students with a *variety of competencies* and at a *variety of levels* to participate in critical analysis. Whether students are working through an advanced Greek and Latin root words list or a basic spelling list, they are all *critically engaging with word structure*. Word voyage takes critical thinking and meets students *where they are*.

And, unlike other individualized classroom programs, the very nature of Greek and Latin prefixes, roots and suffixes means that there are a myriad of words of varying levels formed out of *the same pieces*. For instance, *accent, incantation, and disenchantment* all contain a word root meaning 'to sing'. Students could do a class project exploring the meaning of this common English root by working together and comparing the meanings of '*cant / chant / cent*' words (harder words for more advanced students, easier for less advanced). More advanced students could then go on to analyze the words for underlying meaning, synthesizing these meanings into a broader meaning, and evaluating how this meaning is used in our culture. Less advanced students could create word lists and interview friends and family about their insights into the words. Everyone will come back with different *critical insights* that legitimately and equally add to the ongoing conversation about our contemporary English language and how it functions in the world.

4. Starting an academic conversation

Word Voyage provides teachers and students *access* to a wealth of compelling critical conversations about the English language. Students develop a *metalinguistic vocabulary*, enabling them to step into the world of linguistic analysis and, therefore, cultural analysis. For example, with the tools that Word Voyage offers, teachers might ask, "how does word structure differ in nonstandard dialects?" The class could investigate a writer like Zora Neale Hurston, looking at:

- Word parts with sound (e.g., *prayin'*, *doin'*)
- Word parts with meaning (e.g., *we were a-walkin' for 3 days* – the prefix *a-* emphasizes the length of time of the activity of walking)
- Word origins and history (e.g., *ain't* from *am+not*)
- Sentence writing and grammar (e.g., sentences without a subject like *Got in trouble.*)

In this way, teachers can piggyback on critical word and sentence analysis, moving into critical dialect and even cultural analysis.

5. Critical authority

By teaching students to critically investigate words through knowledge *building, application, analysis, synthesis* and *evaluation*, students are gently led to a place of *authority*, to a place where they begin to take joint *ownership* of the English language.

Many of us have had the experience of being in a foreign country with one of those travel guides that spells out common phrases in phonetic transcription. These guides get us around, but we are forever in a position of powerlessness. We can't *see inside* those phrases and truly *understand what we are saying*. It is only when we study the language, learn the grammar, and memorize some of the vocabulary that we can return to the country as more legitimate participants. Only then can we ask and answer questions with authority.

I would argue that this is the experience of many young people. Unable to see inside the indecipherable phonetic symbols, they rush through the phrase book as quickly as possible, never truly *owning* either the language they read or the language they write. With Word Voyage, they are becoming native speakers of academic English, able to converse fluently and understand better both the phrases they read and the phrases they write. This allows them to become more invested in those phrases, to use them with more authority, and to be in a position to take a *critical stance*.

Word Voyage certainly stands on its own as a powerful critical tool, but it becomes even more powerful when it is *integrated into other course activities*. Make Word Voyage a part of your reading, writing and thinking. Here are some ideas:

- Create word lists in Word Voyage for each book or unit you teach in class (e.g., the vocabulary from *To Kill a Mockingbird* or vocabulary which came into the English language at the same time as a particular historical event you are discussing).
- Offer incentives for finding Word Voyage words, prefixes and roots in other classes and even outside of school (e.g., for every 25 roots a student finds outside of class, s/he gets a free 'upgrade' on a quiz grade or a pass out of study hall).
- Do a 'synonym challenge' with a selected passage from a course text: ask students to substitute up to 5 of the words with Word Voyage words and then discuss the changes in tone and meaning.
- Create 'root trees': based on the idea of a family tree, have students find as many words as they can for a given root, placing them closer to the trunk if they came into English earlier and further out on the branches if they came in later.
- Have the sentence-writing component do 'double duty' and answer a question from social studies or science as well.

As teachers, we often struggle with the complexity of critical thinking and how to engage our students in it – Word Voyage can be that starting point. Words are incredibly powerful tools we can give our students: tools to communicate, tools to persuade, tools to change others' perceptions of their own realities. But in order to access the power of words fully, students need to follow the steps to critical engagement, **building knowledge** about words, **applying** them in new situations, **analyzing** their parts, **synthesizing** those parts in interesting and creative ways, and **evaluating** the ways words work, both on their own and in sentences. Word Voyage gives teachers a platform for this kind of critical thinking and true *academic* work.

The World Around the Word: Building Word Curiosity

Studying facts in isolation is both boring and unproductive (Politano & Paquin, 2000). This is why my 7th-grade social studies teacher's quest to have us all memorize President Reagan's cabinet without any *stories about* that cabinet was doomed to failure. The one figure I do remember (James Watt) is only stuck in my memory because of a story I made up about his name and light bulbs.

The study of words can also head in this unproductive direction: we give students lists to memorize, test them, and then move on, leaving behind no true and lasting *learning*. Word Voyage's 'Word Origins and History' component provides the stories *behind* the words, helping new vocabulary to 'stick' and building curiosity about **the world around the word**.

Slowing Down and Taking It All In

According to the National Institute for Literacy (2008):

“Successful readers are *mentally active* readers.”

These mentally active readers place what they read in *context*, connecting it to other knowledge and experiences and analyzing the parts of the words they don't know. In other words, they are *curious* about concepts and about *words*.

Word Voyage promotes this curiosity by asking students to slow down and consider the history of words. In searching for borrowings, students practice *metalinguistic knowledge*, a key literacy element (Martello, 2001). This process of looking at *related words* helps students 'see the forest for the trees': they become aware of the 'English-ness' of a word like *intangible* by seeing it in another form, *intangibilis*. As students continue to work with Word Voyage, they will begin to develop a *global linguistic perspective*, connecting the words they read to the words in French, Latin, Spanish, German and other world languages.

Extension Activity: Coordinate Word Voyage lists with school language teachers and have students keep 'word portfolios' of English words and the borrowings from the language they are studying.

“Deep Processing”

According to Stahl and Fairbanks (1986), some of the most successful vocabulary instruction programs “involved students in deep processing of the words' meanings.” (quoted in Kieffer & Lesaux, 2007) This kind of “robust vocabulary instruction” (Beck, McKeown, & Kucan, 2002) asks students to thoughtfully interact with word meanings, rather than seeing them as static. Word Voyage's innovative approach to word meaning gives students the opportunity to compare and analyze. For example the word *auspicious* comes from the Latin borrowing *auspicium*, meaning:

divination by observing the flight of birds

Word Voyage asks the student to compare this ancient meaning with the modern English definition:

fortunate; indicative of a successful outcome

The comparison above helps students to begin to understand the underlying meaning of the word. In looking at varying definitions for a single historical item, students will compare, contrast, and begin to make their *own* meanings. And, as Stahl and Fairbanks discovered, there is a side benefit: students' reading comprehension will improve!

Extension Activity: Give students access to multiple dictionaries and have them compare a wide range of definitions for a single word. Then have them write their *own* definition.

Stepping Out of the Vacuum

If looking at borrowings asks, “*Who* is this word related to?” and the definition comparison asks, “*What* does this word mean?”, then looking at the English period asks, “*When* is this word?”. Going back to the concept of *mentally active readers*, investigating the *when* of a word is critical. Students often think of ‘English’ as a static, monolithic object; it is, was and always has been and all words are created equal. Word Voyage’s focus on the historical context of a word helps students to see English as the living, changing, complex language that it is. The student is asked:

In what Period of English did this word enter the language?

This exercise helps students experience the shifting nature of English. Not only did English (and its predecessors) adopt words from other languages, these adoptions correlate with *geo-political events*! Much like the conquests of Bill Gates and Steve Jobs have brought with them an influx of words like *e-mail*, *ipod* and *cyberspace*, the Norman conquest in the year 1066 brought new words like *enter*, *opinion* and *perspective*. This awareness of the fluidity of English can give students a sense of *empowerment*: as living speakers of this language, they too possess the authority to use and change its words.

Extension Activity: Just below the ceiling, string a piece of yarn or line across the classroom. Have students mark out several feet for every major English period (Old English, Middle English, Early Modern English, Late Modern English). Every time they learn a new word, have them write the modern word, its ‘birthday’ (first attested date) and its older English form on a card and hang it in the appropriate section. This will create a visual model of both how *long* our language family has been developing and how *concentrated* most words are in several key centuries around several key events.

By asking students to slow down and think carefully about language, to interact with the meaning of words, and to place words in a historical context, Word Voyage gives students the tools to tell their own story about language. This not only gives students *access* to the ‘world behind the word’, it engenders *intellectual curiosity* about that world that will take them far beyond mere word learning into the rest of their scholarly endeavors.

Rewinding and Reinforcing:

The Long-Term Approach to the Skills Behind the SAT

Word Voyage offers lifelong vocabulary learning that carries students through and beyond high-stakes tests. Because they have learned *high-frequency roots*, *started early*, and *practiced*

frequently, Word Voyage students have the knowledge and the skills to grapple with the difficult vocabulary, challenging syntax and demanding writing of the SAT.

Rewinding and Reinforcing: True Skill-Building

Below is a list of 7 of the skills necessary to score well (in the 600-800 range) on the Critical Reading and Writing sections of the SAT as laid out by the College Board's SAT website (2011) and *Study Guide* (2009). Paired with these skills are the *methods* Word Voyage uses to teach these skills. Keep in mind that all of these methods are started *early* and are repeatedly *practiced*: the rewind and reinforce path to test success.

1. Consider related roots, prefixes and suffixes:

This advice for reading appears again and again on the College Board's website and other test preparation websites. In fact, according to the College Board, the tried and true, "use context clues to figure out the meaning," will only get you as far as a 590 on the Reading section. In order to make it those last 210 points, you will need to have subtle enough knowledge of Latin and Greek roots to be able to "understand how words can sometimes be used in unusual ways that directly refute common usage" (<http://sat.collegeboard.com/practice/sat-skills-insight>).

This is where Word Voyage's vocabulary preparation is superior. First, since Word Voyage students have been building skills incrementally over a long period of time, they are good at taking words apart. Second, they are *comfortable* taking words apart and investigating all of the potential meanings. Finally, Word Voyage's unique 'Word History and Origins' component helps students become aware of the subtleties of word history and how a word that joined the language in one period might have a very different connotation from one that joined the language a few hundred years later.

2. Determine the meaning of a word when there is little or no supporting context:

As discussed above, this is where the Word Voyage student shines. S/he is a critical expert in *the structure of the word*. There are a relatively small number of Latinate prefixes, roots and suffixes that make up the vast majority of SAT words. Word Voyage students work with these morphemes at home on their computers every day. More importantly, they are comfortable with the *process of word investigation*. Other bright and resourceful students may eventually be able to draw on buried root knowledge to determine a meaning, but the process of looking at a word from the perspective of its component parts is second nature to the Word Voyage student. For that student, the large, unknown word without context is a reasonable challenge.

3. Use clear, precise and appropriate vocabulary:

In some sense, this is the mirror image to the skills above, but for writing. A crash course with a test preparation company may actually improve your Critical Reading score, but the ability to *use* a word requires a deeper understanding than a flash card can provide. Furthermore, only after repeated rounds of practice will students confidently reach for advanced Greek and Latinate vocabulary in their writing.

Word Voyage provides both that understanding and that practice. Its innovative 'Word Meaning Up From the Roots' component focuses the students on the root meaning of the word and how it compares to the modern definition. In the 'Word Origins and History' section, the student is given an opportunity to research the word's use in another

language. This level of engagement gives Word Voyage students a subtle and multi-dimensional understanding of word meaning.

Word Voyage also offers the practice that is necessary to use appropriate vocabulary in the stressful context of a standardized test. Its ‘Sentence Writing and Grammar’ component lets students flex their vocabulary muscles by practicing difficult words (a) with different sentence structures (simple, compound, complex, compound/complex), (b) in long, multi-part sentences (the teacher can require a minimum number of words) (c) with specified numbers of nouns, commas, conjunctions and even a semicolon. Moreover, they are flexing those muscles under the trained eye of their teacher, who can guide them to use language ever more precisely. After practicing this throughout the year with Word Voyage, the student is well prepared to engage the sentence-writing exercises on the SAT.

4. Access a broad and extensive vocabulary within a variety of syntactical structures and contexts:

Access and context are something that psychologists are very interested in (Howard & Kahana, 2002) – how do we retrieve information stored in our brains and what role does context play? Unfortunately for students who want a quick fix to vocabulary acquisition, much human learning *is* context-bound (although see Anderson et al., 1996, for some constraints on this). This means that seeing a vocabulary item *once*, in *one* sentence, is definitely not going to be enough for long-term learning. So a quick review of numerous vocabulary items will not solidify them for the SAT.

Furthermore, even consistent reviewing of the same materials is not sufficient: seeing a vocabulary item numerous times in the same sentence *will* promote long-term learning, but it will not allow that item to be *accessed* “within a variety of syntactical structures and contexts.” In order to have easy access to vocabulary, students need to use the same roots in different words, in different sentence types, and in different contexts (U.S. Department of Education, 2008). This is what the combination of Word Voyage’s extensive SAT word lists and sentence writing tasks achieves: practice with a *broad and extensive vocabulary* within a *variety of syntactical structures and contexts*. And even better: it happens over time and under the practiced eye of a trained teacher.

5. Recognize correct use of complex syntax:

While vocabulary is certainly the primary foundation of most standardized tests, syntax comes in a close second. Knowing a wide variety of words is critical, but if students cannot decipher the relationship of the words to one another, a large vocabulary does no good.

As discussed above, Word Voyage’s holistic approach does not stop at the boundaries of the word. Its ‘Sentence Writing and Grammar’ component gives students opportunities to move beyond merely *recognizing* complex syntax to *using* it. Throughout the year, teachers can move students stepwise from simple sentences, to compound sentences, to complex sentences, and finally to compound/complex sentences. They can increase the minimum number of words, starting at 5 or 6 and finishing the year at 18 or 20. In this way, students will actually be *practicing* using SAT words in increasingly complex syntactic environments so that when they see new words in those environments, they will have the skills to decode them.

6. Vary the sentence structure:

Again, writing a variety of sentence types – from simple through compound/complex – is something Word Voyage students practice repeatedly. This prepares students to write essays in class, out of class, and certainly in a testing environment. As an additional benefit, it sharpens the student’s ability to perform on the SAT sections: Improving Sentences and Identifying Sentence Errors.

7. Apply conclusions drawn from a text to other contexts:

The College Board wants its applicants, particularly in this information-rich age, to be able to move information fluidly from one context to another. This is a critical skill in higher education, in which interdisciplinary classes are becoming more the norm than the exception. In order to solve the increasingly complex problems facing our globe – economic, environmental, political, linguistic, and social – we need thinkers who can draw upon theories from a wide range of disciplines and fields.

Word Voyage encourages this kind of critical thinking by asking students to move fluidly through a study of the *sound*, the *morphemes*, the *grammatical category*, the *overall meaning*, the *foreign source-word*, the *English period*, and a *syntactic context* for a single word. Through daily practice, students begin to see patterns among these different contexts and learn to use, say, the morphemes to determine the grammatical category, or the language of the borrowing to guess the English period. They are learning to move fluidly among intellectual contexts.

Beyond this, however, Word Voyage is at its most valuable when teachers use it throughout the curriculum, making word lists of the science terms for the week and, conversely, creating research projects out of the insights from the ‘Word Origins and History’ component. Word Voyage is a valuable addition to a classroom that encourages creative thinking across the curriculum. And, in this role, it sets students up to be able to move among the varying SAT contexts.

Thus, the skills that Word Voyage teaches are not only critical for standardized entrance exams like the SAT, they also teach students skills that are essential throughout their lives: knowledge of – and comfort with – the internal structure of words; a clear, precise and appropriate vocabulary; access to an extensive vocabulary across syntactic contexts; the ability to recognize and use complex and varied syntax; and creative, interdisciplinary thinking abilities.

About the Author

Abigail Konopasky received a Ph.D. in Linguistics and Slavic Linguistics from Princeton University in 2001 and a Ph.D in Educational Psychology and Research Methods from George Mason University in 2016. She is currently the curriculum consultant for Word Voyage and also the research specialist and project manager for research studying parent-child interactions in informal STEM environments through George Mason University.

References

- Anderson, J., Reder, L. & Simon, H. (1996). Situated Learning and Education. Educational Researcher 25 (4), 5-11.
- Beck, I. McKeown, M. & Kucan, L. (2002). *Bringing Words to Life: Robust Vocabulary Instruction*. New York: Guilford Press.
- Bjork, R. (2011). Individual Styles of Learning Versus Ways We All Learn. Session at National Institute on the Teaching of Psychology, January 3. St. Pete Beach, Florida.
- Ebbers, S. (2008). Linking the Language: A Cross-Disciplinary Vocabulary Approach. Retrieved from: <http://www.readingrockets.org/article/34015> on February 17th, 2011.
- Carnevale, L. (2007). Hot Words for the SAT, 3rd ed. Barron's.
- Common Core State Standards Initiative. (2011). English Language Arts Standards > Language > Grade 11-12. Retrieved from <http://www.corestandards.org/the-standards/english-language-arts-standards/language/grade-11-12/> on February 20, 2011.
- Howard, M. & Kahana M. (2002). A Distributed Representation of Temporal Context. Journal of Mathematical Psychology, 46: 269–299.
- Kieffer, M. & Lesaux, N. (2007). Breaking Down Words to Build Meaning: Morphology, Vocabulary, and Reading Comprehension in the Urban Classroom. *The Reading Teacher*, 61, 134-144.
- Martello, J. (2001). Talk about Writing: Metalinguistic Awareness in Beginning Writers. Australian Journal of Language and Literacy, June.
- McQuirter, R. (2007). Word Study and Reading Comprehension: Implications for Instruction. Brock University, Canada, Faculty of Education. Retrieved from: www.edu.gov.on.ca/eng/research/mcquirter.pdf on February 17th, 2011.
- National Institute for Literacy (2008). Key Literacy Component: Text Comprehension. Retrieved from: <http://www.adlit.org/article/27882> on February 17th, 2011.
- Politano, C. & Paquin, J. (2000). Brain-Based Learning with Class. Winnipeg, MB: Portage & Main Press.
- Stahl, S. & Fairbanks, M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. Review of Educational Research, 56, 72-110.
- The College Board. (2009). The Official SAT Study Guide, 2nd ed. College Board.
- The College Board. (2011). SAT Skills Insight website. Retrieved from <http://sat.collegeboard.com/practice/sat-skills-insight> on February 18, 2011.
- U.S. Department of Education. (2008). Explicit Vocabulary Instruction. Retrieved from <http://www.adlit.org/article/27738> on February 18, 2011.