

**Aspects of Text Complexity
Vocabulary Research Base
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Introduction

This research base, organized as is, was drawn on to support the 1/13/2010 release draft of the Common Core Standards vocabulary section. As that standards draft moves into circulation and gets broad feedback, it would be most helpful to insure that this research base truly does reflect the best current thinking about how students learn words and networks of words.

In particular, we need to know about research and work we may be overlooking.

Widely accepted findings regarding vocabulary in general:

- Vocabulary has been empirically connected to reading comprehension since 1925 (Whipple 1925).
- The most succinct summary comes from the National Reading Panel's review of hundreds of studies; "Vocabulary instruction leads to gains in comprehension" (NRP 2000), see also *Reading Next* (Snow 2002)
- Vocabulary needs to be taught and developed from text, as the frequency of rare words in even educated adult conversation is 17.3 per 1000 words, and the ratio in *children's* books is 30.9 per 1000. (Hiebert 2009).
- Informational (non-narrative) text contains more rare words than narrative, yet constitutes only 7-15% of instructional material in elementary and middle school (Hoffman et al 1994, Moss and Newton 2002, Yopp and Yopp 2006).

The reason undergirding this last bullet is that informational text contains large quantities of Tier Three words (Beck, McKeown, and Kucan, 2002), which almost by definition are less common.

Accepted by most researchers:

- Vocabulary is one of the primary cause of the achievement gap (Becker 1977, Baumann & Kameenui, 1991, Stanovich 1986)
- Vocabulary instruction is neither frequent nor systematic in most schools (Durkin 1979, Scott and Nagey 1997, Biemiller 2001)

Awareness of this as a problem is now becoming wide spread and that may be why there has been an urgent calling for vocabulary to be included on its own in the CCS.

What is new but becoming more widely accepted:

- Content of vocabulary is ill-defined in state standards and assessments as well as core reading programs (Hiebert 2009, Marzano et al 2005, Biemiller 2005, Nagy et al 1989, Nagy and Scott 2000).

What we know about successful vocabulary instruction:

- It incorporates and integrates morphology, phonology, and orthography, and syntax as well as meanings (Perfetti and Hart 1985, Perfetti and Hart 2002, Landi and Perfetti 2006, Perfetti 2007, Perfetti, Yang and Schmalhofer 2008, and Bolger et al 2008, Moats 2005) *with college, high school and elementary students*
- It combines direct systematic instruction of words as well as indirect learning of words through reading and techniques to develop this ability (Snow 2007, Blachowicz et al 2006, NRP 20000, Stahl 1999, Moats 2005 and numerous others)

- It must include deliberate teaching of academic vocabulary (Snow 2007, Kiefer and Lesaux 2009, Lawrence and Snow 2009). See <http://elc.polyu.edu.hk/CiLL/eap/wordlists.htm> and Academic Word List Coxhead 2000
- The question of what constitutes academic vocabulary does not get the attention it deserves. It is not only tier three words, but the type of tier two words more likely to appear in academic texts e.g. relative, vary, formulate, specificity, accumulate... These words appear in academic texts and cause more problems than tier three words. Tier three words are introduced by the teacher, often explicitly defined in the text including a glossary, and repeated a number of times in each chapter. None of these supports are provided for tier two words.
- Students need to think actively about words; how and why specific words are used, how changing one word can change the meaning or tone of a text, how one word can have varied but related meanings depending on context and why another word might be more appropriate
- The meaning of words varies with the context, thus the more varied the context provided to teach the meaning of a word the more effective (Texas was admitted to the union, he admitted his errors, admission was too expensive...) Both differences and relations need to be explored
- Dictionaries alone don't work (Graves 2006 provides complete summary for this, also Beck et al 2002, Stahl 1999)

These findings make effective teaching of vocabulary from context difficult. An ELA teacher choosing to teach vocabulary using the literature she is working with (as opposed to a workbook or a vocabulary program) would need to do the following beginning with finding what words to teach:

- Find words that most of her students are not likely to know
- From this group choose the words essential to understanding the text
- However, there will likely be other words perhaps not essential to understanding the specific text being read, but important words for students to know. The criteria for determining these (Hiebert 2009) would be words that carry a lot of weight and words that are likely to appear in academic or literary texts students will need to read in future grades. From these, words that are part of a semantic group e.g. social, socially, socialite, society...should be given priority (Hiebert 2009)

Once this list is assembled, the words need to be taught, if done following the accepted research noted above, instruction would require the following:

- User friendly definitions, though not the bulk of the lessons, would need to be provided
- Words would need to be taught and reviewed in varied contexts, the more the better
- Activities requiring thinking about the word would need to be used as opposed to rote memorization.
- The figure for the number of repetitions needed before a word is learned seems to vary depending on which study you accept. Any of these numbers however include students' *previous* exposure to the word. The lowest number of repetitions we have found is six. If we assumed for instructional purposes that students may have averaged one previous exposure to each new word, we could go with five additional repetitions as a reasonable minimum. Students are not monoliths, as we know, and many children will need more repetitions and exposures to solidify solid learning.
- Distributed practice has long been shown to be superior to more concentrated practice so all of the above would need to be paced over a week or more.
- Finally, if we accept the work of Beck, Perfetti and McKeown 1982); (Stahl and Nagy 2006), morphology and etymology to some degree would need to be folded in to instruction.

Very few teachers are able to do this systematically, past elementary school, the number decreases. High school and middle school Language Arts teachers are required to teach literature, writing, and grammar. Where does the time for this needed vocabulary attention come from?

We believe teachers need to be given tools – not programs – that make this feasible. This is touched on very briefly at the end of this document. As well, standards pointing to the right priorities and toward the right practices should help teachers focus their energies for maximal student benefit.

Until relatively recently, debates about how to teach vocabulary centered on direct instruction of vocabulary versus learning from context through wide reading. Advocates for context pointed to the number of words students needed to learn as being impossible to teach directly within the school day/week/year. Thus the emphasis needed to be placed on wide reading. This was the origin of the “25 book standard” prominent in the mid 90’s and still present in many states’ standards. Direct instruction advocates argued that word awareness needed to be cultivated through systematic study of morphology and word lists.

The debate ended with a body of work (Nagy et al 1985, Cunningham and Stanovich 1988, Baker et al 1995, Beck et al 2002, Biemiller 2004, Moats 2005)) showing that not all words are created equal. Some words and classes of words appear far more frequently in texts students read; more importantly, learning these particular words makes students more likely to learn words independently from context. This effect is strengthened if instructional methods are research-based (Nagy and Hiebert 2007, Moats 2005, Beck et al 2002, Snow 2007). Thus teaching words directly enhances independent learning from context, and both are necessary.

That being said, another implication for vocabulary acquisition is that the texts students read need to increase steadily in complexity over time; an eighth grader might expand their vocabulary *somewhat* from a 5th grade text, but far more growth would occur with texts written at an 8th grade or higher level of complexity.

Nietzsche wasn’t thinking of modern American education when he wrote of eternal recurrence, though he could have been - vocabulary’s importance just may be making a comeback. That’s a good thing, as long we can develop tools and systems that support students’ development of a robust working vocabulary.

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