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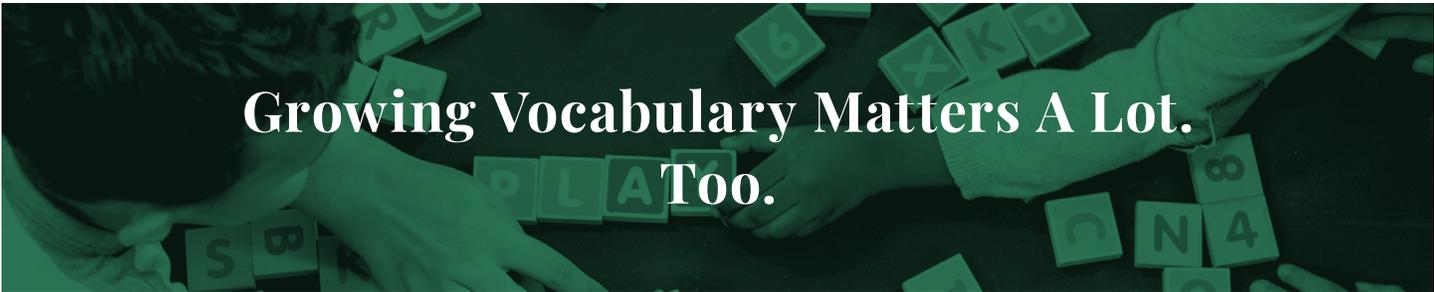
LITERACY ACCELERATOR #3 | **VOCABULARY & PERSONALIZATION**

Growing Vocabulary Matters A Lot. Too.

OVERVIEW

It's not hard to recognize that reading has a lot to do with words! As Marilyn Adams says, "Words are not just words. They are the nexus—the interface—between communication and thought. When we read, it is through words that we build, refine, and modify our knowledge. What makes vocabulary valuable and important is not the words themselves so much as the understandings they afford" (2009, p. 180).

Researchers have closely tied vocabulary to reading comprehension for nearly a century (Whipple, 1925). After looking at several assessments, researchers Chall and Jacobs (2003) noted that vocabulary and comprehension scores are so closely related that there is almost no reason to have separate assessments. One of the major studies conducted by the National Assessment of Educational Progress looked at the vocabulary results from the 2009–2011 NAEP assessment and concurred: The study found a strong correlation between vocabulary and comprehension. The study also pointed to stark disparities between students of differing SES and racial groups—a distressing and unacceptable finding (NCES, 2012).

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Works by Stanovich (1986) and Stanovich and Cunningham (2001) further corroborate the importance of vocabulary. They show that vocabulary levels play an enormous role in predicting differences in reading levels and acting as a major influencer in the educational "Matthew Effect," wherein the academic-world rich get richer, and everyone else suffers with respect to proficient reading. More recently, Oslund *et al.* (2018) examined the relationship between vocabulary and comprehension while focused primarily on adolescent students of color and students who received free or reduced lunch (study sample was 22 percent Black, 43 percent Hispanic, 33 percent White; 67 percent of all students were eligible for free or reduced lunch). The study found vocabulary knowledge played a primary role in explaining individual differences in adolescent reading comprehension, and these results, distressingly, correlated to race and SES. Vocabulary matters, and growing it for students who are still not getting what they need to thrive in school is a crucial instrument to address educational inequities.

> ## Vocabulary matters, and growing it for students who are still not getting what they need to thrive in school is a crucial instrument to address educational inequities.

HOW DOES VOCABULARY DRIVE COMPREHENSION?

The feature of complex text that causes students the most significant difficulty is vocabulary (Nelson et al., 2012). Having to stop to determine the meaning of too many words in a text slows readers up; the problem gets much worse when faced with ever-more complex text. Not knowing words on the page is debilitating.

Both vocabulary depth and breadth are independently correlated with comprehension (Binder et al., 2017). Breadth and depth, however, support different aspects of comprehension (Cain & Oakhill, 2014). Breadth encompasses the number of words in a student's mental dictionary or lexicon. Those are words for which that reader has either a general or more precise sense of their meaning. Most instruction in vocabulary has traditionally addressed the breadth of vocabulary—building students' lexicons. Vocabulary breadth helps students make the local inferences that alert them to what the text is saying at the sentence and paragraph level.

On the other hand, vocabulary depth indicates how much a student knows about a given word, including its synonyms, multiple meanings, and morphology. For example, a student might know *flurry*, as in snow flurries (breadth), but not a "flurry of activity" (depth). They might be aware of *ground*, meaning the soil or dirt (breadth), but not *ground* as in "Her ideas are well-grounded"; "he ground his teeth in despair"; they stood their ground as their enemy approached" (depth). Specifically, Cain and Oakhill (2014) showed that vocabulary depth might play a unique role in making global inferences that support comprehension. Global inferences support meaning at the whole-text level for concepts like setting, character, theme, and central ideas. These global inferences are essential to constructing Kintsch's "mental model" (**Accelerator #5**) of a text.

> ## But interventions aimed solely or primarily at vocabulary development in isolation are not likely to yield great results except for the impact on those words that are directly taught. Vocabulary is grown best when new words are learned in context.

A series of studies (Perfetti, 2007) has shown that the more a student knows about words, the stronger a reader they are. In addition to the depth of vocabulary already called out (multiple meanings, morphology), Perfetti has shown that knowledge of spelling, pronunciation, and part of speech about any given word all correlate with more excellent reading proficiency. Though we tend to think of a word as a unit or a single thing, it is truly made up of several elements: its meaning, any related meanings or senses, its parts (phonemes, syllables, prefix, suffix, root), spelling, pronunciation, part of speech (though often determined by context) and even its history or etymology. The more students know about a word, the more likely they are to be proficient readers and gather its nuance when they encounter the word while reading. Even more critical, this habit of paying attention to particular words—of finding them interesting to linger on—has not traditionally been supported through direct teaching as much as it should be.

But interventions aimed solely or primarily at vocabulary development in isolation are not likely to yield great results except for the impact on those words that are directly taught. Vocabulary is grown best when new words are learned in context. While no one can deny the importance of vocabulary scaffolding to support

this learning, it's important to emphasize that teachers should envision vocabulary instruction—a study of words, phrases, and clauses—as supporting the broader goal of developing greater reading comprehension. That would seem to be obvious, but the reverse happens, with teachers planning content instruction around meeting particular vocabulary aims—a risk in instructing ELs in particular (Bruna, Vann, and Escudero 2007). Not surprisingly, research is emphatic regarding the benefit of engaging ELs in vocabulary instruction—especially in tier two (general academic) vocabulary (Beck et al., 2013)—over the course of multiple lessons (Baker et al., 2014). ELs are becoming literate in a language they are simultaneously learning to speak and understand. Thus, they also are aided by a focus on everyday words (tier one) that are essential to understanding the core content of texts. These are words that native speakers have learned through everyday speech that ELs may not yet have encountered.

Successful approaches for vocabulary instruction enable students to come to know words and phrases through the discovery of their literal meanings as well as their connotations, syntactical uses, and morphological structures. Providing students with frequent and varied opportunities to use newly learned academic vocabulary—beyond memorizing definitions—cements new words and phrases into their working knowledge. Requiring students to use targeted academic words and phrases anchored in the texts they're reading as part of their writing and oral discourse and processing increases students' experiences with the words and phrases. Such understanding, in turn, provides students with the skills to learn new words and phrases on their own and to acquire the knowledge contained in texts that use academic vocabulary.

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HOW CAN WE ACCELERATE VOCABULARY?

The more words you have some understanding of, or at least, as noted above, some knowledge of the most common ways those words are used, the larger your vocabulary and the better your comprehension. Anderson and Nagy (1992) note that proficient students learn 2,000 to 3,000 words a year. That's a lot of words—too many to be learned just through direct instruction.

Let's define what we mean by direct and indirect instruction:

- Direct vocabulary instruction includes games, puzzles, workbooks, riddles, work with dictionaries or thesauruses, stopping to discuss an interesting word choice while closely reading; any lessons that include any combination of these. In addition to learning the meaning of words taught, direct instruction makes students more aware of words in general and, therefore, is more likely to focus on words they are not sure of while reading.

- Indirect instruction refers to learning the meaning of words from context while reading independently. The context is the other words in the texts students are reading and the topic or any knowledge demands the text presents. The more a student knows about these topics, the more she is likely to determine the meaning of unknown words.

Though not often noted, these two approaches to acquiring vocabulary have great synergy. The greater awareness (<u>Accelerator #2</u>) students have about a topic, the more likely they will notice words they do not know or are less sure of when they see them while reading independently and attempting to determine their meaning (Beck et al., 2013). This vocabulary knowledge can add to a healthy standard of coherence (<u>Accelerator #5</u>).

Recommendations

Below are a few possibilities that can take advantage of the research, so students realize gains in their store of vocabulary, which, in turn, will make them better readers. Here is where it gets really interesting because not all reading is created equal in yielding vocabulary growth! Again, we begin with the vocabulary-building approach with the maximum payoff:

1. CREATE OR TAP INTO A SERIES OF TEXTS CENTERED ON CONCEPTUALLY RELATED TOPICS TO GROW TIER-TWO VOCABULARY AS MUCH AS FOUR TIMES MORE (IN THE NUMBER OF WORDS LEARNED) THAN READING THE SAME QUANTITY OF TEXTS ON UNRELATED TOPICS (Landauer & Dumais, 1997)

Tier-two words are critical words that recur across texts regardless of content or subject matter (e.g., variety, especially). Specialized words that belong to a domain (e.g., photosynthesis, electoral college) are known as tier-three words. Tier-two terms are not associated with any one domain or subject area, and they are more sophisticated than everyday tier-one words (e.g., family, street, cat).

A seminal study by Cervetti et al. (2015), first pointed to in the knowledge section (<u>Accelerator #2</u>), reaffirmed these findings. Cervetti and Wright studied two groups of students: One group read a set of six conceptually connected texts about birds. The second group read six texts on six different topics, one of which was birds. The texts were modified to embed the same set of tier-two vocabulary words. It might seem counterintuitive that a collection of texts centered around one topic would grow more domain-independent (tier-two) vocabulary, but it did. The study showed that reading a set of connected texts on one topic led to a significant gain of tier-two vocabulary compared to reading the same number of texts on diverse topics. In other words, the students who read the six texts about birds learned more tier-two vocabulary words than students who encountered the same words but in a set of unrelated texts. Knowledge and vocabulary have a reciprocal relationship. While both aid comprehension (greatly), they

also act on each other. Gaining knowledge (Accelerator #2) aids the development of vocabulary, and growing one's vocabulary increases a reader's store of knowledge.

OPPORTUNITIES FOR PERSONALIZATION?

You bet! Tremendous opportunities to accelerate literacy outcomes exist—both human and tech-enabled—that are easy to use, easy to implement, and driven by students' identities, interests, and choice. One strategy—creating text sets—can serve double duty: building vocabulary and expanding students' knowledge (Accelerator #2). Teachers can make these sets, or tap into existing tech-enabled programs to allow students autonomy to read or research a volume of texts on a topic at varying levels of difficulty. Students should also be free to pursue topics and information that is culturally relevant, so the core curriculum is expanded to include multiple identities and perspectives. See Readworks Articles a Day sets (all resources free with registration) or Mindstar Books or Simple Wikipedia for examples of existing or easily modifiable resources. Such topic selection could be teacher directed, or could be focused on particular areas of interests targeted by students themselves. These text sets should, whenever possible, increase in complexity gradually, with earlier texts "bootstrapping" the later texts, as Adams (2009, 2011) and Lupo et al. (2018) suggest. The beauty of text sets is vocabulary does not have to be taught only directly. Students can access these texts with minimal teacher support. Landauer et al.'s and Cervetti et al.'s work shows that the word learning will be provided as an indirect by-product of the topic learning (1997, 2016).

2. EMPHASIZE THE CAREFUL, FOCUSED, COMMUNAL READING OF RICH, COMPLEX TEXTS.

Close reading is another strategy and one of the most potent tools instructors have to drive depth-of-vocabulary instruction. This strategy requires that teachers select a small number of high-value words and phrases from grade-appropriate texts. By discussing the deeper meaning of words in context, how that word is similar to or different from other words (why *confess* and not *admit, disclose, reveal...*) and why the author chose those words both enhances a reader's understanding of the text and helps retain that new word at a deeper level. Biemiller (2001), whose work addresses building breadth of vocabulary, has shown that in the context of texts students are reading (or hearing), they can learn many concrete words (e.g., *cabinet, host, remote, skirt*). They also can learn words that are less-common synonyms for words students likely know (e.g., *humongous, gregarious, typical, expedient*) if teachers quickly "drop-in" definitions during reading. His work has shown that students retain these words with as little as 30 seconds devoted to learning about a word.

OPPORTUNITIES FOR PERSONALIZATION?[1]

Yes, in some ways. Learning to make sense of rich, complex text must frequently be a social endeavor; not one learned predominantly in isolation where students are left to their own devices. There are tech-enabled programs, however, that can link to definitions of words. When students are reading an online text and don't know a word, they can click on it, and the definition will come up. Pictures or videos would enhance those definitions even more. Add to these Wordsmyth, which provides all kinds of support with one click, and freethesaurus and the Microsoft Immersive Reader, and this is a case in which students would personalize for themselves—they get to choose which words to click on. Or give students responsibility to uncover the meaning of unknown words encountered in print by teaching them how to load text excerpts into the Academic Word Finder to see what academic vocabulary in the

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[1] The products or approaches named here are called out because they are known to the authors and align to the research supporting this accelerator. They are examples that could work, not an exhaustive list. Careful evaluation against the Consideration Question and vetting should be undertaken before making any decisions about the utility of any of these products or approaches for your needs.

text are grade-level or above words, and then use an online word or picture dictionary to discover the meaning and etymology of unknown words.

As Baker et. al. (2014) explains word and phrase definitions can also be enhanced using tools such as graphic organizers and other visual strategies to tie a word or phrase to concrete examples and non-examples (e.g., *ant* and *baby* as non-examples of *enormous*). Identifying cognates in other languages that have a common etymological origin with English counterparts (e.g., *actividades* and *activities*, *centro* and *center*, *investigación* and *investigation*) is another way to clarify definitions of words and phrases.

Following are some additional methods to boost the vocabulary accelerator, with plenty of personalization opportunities:

3. ATTEND TO MORPHOLOGY STUDY AS A POWERFUL DIRECT INSTRUCTIONAL TOOL.

Nagy et al. (1989) estimated that in the middle grades and beyond, "more than 60 percent of the new words that readers encounter have relatively transparent morphological structure—that is, they can be broken down into parts." Cultivating awareness and understanding of morphology supports the independent acquisition of new words. Instruction in morphology includes "playing with words" by adding, removing, or substituting affixes to roots, seeing how affixes change the meaning and/or part of speech of a word, and using the same target word in different contexts (Binder et al., 2017). Again, the foundational reading support (Accelerator #1) of scrutinizing a word to discover its phonemic parts, its syllabic and phonic structure, and the meaning of its parts will help build depth of vocabulary. It will also solidify automatic word recognition in students whose foundational reading skills are not yet complete.

OPPORTUNITIES FOR PERSONALIZATION?

Yes! Tremendous opportunities to accelerate literacy outcomes exist—both human and tech-enabled— that are easy to use and easy to implement.

Imagine the games, puzzles, workbooks, and riddles that students could use to practice using word parts to discern meanings independently. Teachers can't provide instruction in the thousands of vocabulary words and phrases they need for academic success. Tech-enabled programs can teach readers to use word parts to predict a word's meaning and then use context to confirm or correct that prediction. See Common Sense Education for well-vetted reviews.

4. CREATE OPPORTUNITIES FOR STUDENTS TO USE THE WORDS THEY ARE LEARNING IN THEIR WRITING (ACCELERATOR #4) AND SPEAKING.

Instruction needs to create opportunities to do just that, and personalization can help.

OPPORTUNITIES FOR PERSONALIZATION?

Yes, because prompting students to practice using newly learned vocabulary is grounded in what we know about how the brain learns and contributes to the long-term flourishing of reading comprehension.

Opportunities to use newly learned academic vocabulary—beyond memorizing definitions—cement new words and phrases into their working knowledge. Requiring students to use targeted academic words and phrases anchored in the texts they're reading as part of their writing and small-group discussions

can increase students' experiences with the words and phrases. Teachers can also involve students in a range of fun and compelling games—human or tech-enabled—that are intellectually meaningful, such as Free Rice, Vocabulary Spelling City, or crosswords and charades, while increasing their exposure to high-value words and phrases. But again, these activities should provide a useful review of words and phrases previously taught.

WHAT HAPPENS NEXT?

Once you have identified that you want to pursue a personalized approach and you have determined that it is tangibly tied to one or more of the literacy accelerators, ask yourself whether it:

1. **Advances the right content for your students?**

2. **Promotes equity and counteracts bias in both the assignment and delivery of the chosen instruction?**

3. **Offers opportunities to elevate student interest or agency in their own learning?**

4. **Is easy to use and implement?**

(See the Consideration Questions (Appendix A) for more detailed reflections.)

REFERENCES

Adams, M. J. (2009). The challenge of advanced texts: The interdependence of reading and learning. In E. H. Hiebert (Ed.), *Reading More, Reading Better: Are American Students Reading Enough of the Right Stuff*? (pp. 163–189). New York, NY: Guilford.

Adams, M. J. (2011). Advancing our students' language and literacy: The challenge of complex texts. *American Educator, 34*(4), 3.

Anderson, R. C., & Nagy, W. E. (1992). The vocabulary conundrum. *American Educator,* 16 (4), 14–18, 44–47.

Baker, S., Lesaux, N., Jayanthi, M., Dimino, J., Proctor, C. P., Morris, J., Gersten, R., Haymond, K., Kieffer, M.J., Linan-Thompson, S., & Newman-Gonchar, R. (2014). *Teaching Academic Content and Literacy to English Learners in Elementary and Middle School.* IES Practice Guide. NCEE 2014-4012. What Works Clearinghouse.

Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing Words to Life: Robust Vocabulary Instruction.* Guilford Press.

Biemiller, A. (2001). Teaching vocabulary: Early, direct, and sequential. *American Educator, 25*(1), 24–28.

Binder, K. S., Cote, N. G., Lee, C., Bessette, E., & Vu, H. (2017). Beyond breadth: The contributions of vocabulary depth to reading comprehension among skilled readers. *Journal of Research in Reading, 40*(3), 333–343.

Bruna, K. R., Vann, R., & Escudero, M. P. (2007). What's language got to do with it?: A case study of academic language instruction in a high school "English Learner Science" class. *Journal of English for Academic Purposes, 6*(1), 36–54.

Cain, K., & Oakhill, J. (2014). Reading comprehension and vocabulary: Is vocabulary more important for some aspects of comprehension? *L Annee Psychologique, 114*(4), 647–662.

Cervetti, G. N., Wright, T. S., & Hwang, H. (2015). The impact of thematic coherence in reading on the quality of student discussions. Paper presented at the annual meeting of the Literacy Research Association, Carlsbad, CA.

Cervetti, G. N., Wright, T. S., & Hwang, H. (2016). Conceptual coherence, comprehension, and vocabulary acquisition: A knowledge effect? *Reading and Writing, 29*(4), 761–779.

Chall, J. S., & Jacobs, V. A. (2003). The classic study on poor children's fourth-grade slump. *American eEducator, 27*(1), 14–15.

Landauer, T. K., & Dumais, S. T. (1997). A solution to Plato's problem: The latent semantic analysis theory of acquisition, induction, and representation of knowledge. *Psychological Review, 104*(2), 211.

Lupo, S. M., Strong, J. Z., Lewis, W., Walpole, S., & McKenna, M. C. (2018). Building background knowledge through reading: Rethinking text sets. *Journal of Adolescent & Adult Literacy, 61*(4), 433–444.

Nagy, W., Anderson, R. C., Schommer, M., Scott, J. A., & Stallman, A. C. (1989). Morphological families in the internal lexicon. *Reading Research Quarterly, 24*(3), 262–282.

Nelson, J., Perfetti, C., Liben, D., & Liben, M. (2012). Measures of text difficulty: Testing their predictive value for grade levels and student performance. Council of Chief State School Officers, Washington, DC.

Oslund, E. L., Clemens, N. H., Simmons, D. C., & Simmons, L. E. (2018). The direct and indirect effects of word reading and vocabulary on adolescents' reading comprehension: Comparing struggling and adequate comprehenders. *Reading and Writing*, 31, 355–379.

Perfetti, C. (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading, 11*(4), 357–383.

Stanovich, K. E. & Cunningham, A. E. (2001). What reading does for the mind. *Journal of Direct Instructions*, Vol. 1, No. 2, 137–149.

Stanovich, K.E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. Reading *Research Quarterly*, 21, 360–407.

Whipple, G. M. (1925). *Report of the National Committee on Reading (Twenty-fourth Yearbook of the National Society for the Study of Education, Part I).* Bloomington, IL: Public School Publishing.