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Middle School Literacy Development Using Academic Language

Word Generation is a research-based vocabulary program for middle school students designed to teach words through language arts, math, science, and social studies classes.

The program employs several strategies to ensure that students learn words in a variety of contexts.

The program consists of weekly units that each introduces 5 high-utility target words through brief passages outlining controversies currently under debate in this country. The paragraphs are intended to help students join ongoing “national conversations” by sparking active examination and discussion of contemporary issues. The target words are relevant to a range of settings and subject areas. The cross-content focus on a small number

of words each week will enable students to understand the variety of ways in which words are related, and the multiple exposures to words will provide ample opportunities for deeper understanding.

The Word Generation program focuses on academic vocabulary, i.e., words that students are likely to encounter in textbooks and on tests, but not in spoken language. Interpret, prohibit, vary, function, and hypothesis are examples. Academic vocabulary includes (a) words that refer to thinking and communicating, like infer and deny, and (b) words that are common across subjects, but hold different meaning depending on the subject, like element and factor. Both types of academic vocabulary are likely to cause problems with comprehension unless students have been taught how to deal with them.

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What are the goals of the program?

Our intention is to create an easy, fun, and effective word study program that develops a repertoire of vocabulary-building practices among teachers and students, which will become “institutionalized” over time across all subject areas. In particular, we hope to reach the following goals:

- Build the vocabulary of middle school students through repeated exposure to frequently occurring academic words in various contexts;
- Cultivate general word knowledge and word study strategies among middle school students;
- Promote understanding and regular use of effective instructional strategies for vocabulary development among teachers;
- Facilitate faculty collaboration on a school-wide effort to improve vocabulary teaching and learning so that students are better prepared to comprehend academic texts in any subject.



Why this approach?

Word Generation is designed to provide teachers with opportunities to practice strategies for teaching vocabulary that they can apply more broadly and easily incorporate into established routines. Teachers across the content areas have told us they recognize their students’ problems with vocabulary, but don’t always know how best to help them. Word Generation presents teachers with a common language for discussing literacy and comprehension strategies across the curriculum. The program incorporates research-based principles of vocabulary learning, such as the need for multiple exposures to target words distributed over several days and different contexts, which can be difficult to honor in traditional vocabulary curricula.

A single program cannot address all the literacy needs of adolescent readers. However, programs targeting this population should be appropriate for the reading levels of the students involved and should allow for different learning styles, abilities, backgrounds, and interests. Activating prior knowledge; providing varied, high quality texts; linking texts and the lives of children; and facilitating collaborative interaction with the text are crucial components of successful programs.

Why these words?

Most of the target words for each week are drawn from the Academic Word List (AWL), which was originally developed as a support for instruction to second language learners of English. Although there are many word lists that provide candidates for explicit teaching and implicit enrichment of student vocabulary, the Academic Word List has compiled well-organized sublists of word families that occur with frequency in academic texts across academic domains. These lists can be found on the Web at <http://www.vuw.ac.nz/lals/research/awl/>.

We believe that the subset of AWL words we have selected to use in our materials are particularly useful for students to know. Even if students have some prior exposure to some of these words, they may not understand them in novel contexts or abstract uses. For example, we have found that many students know only one meaning for the words substitute and suspend -- a substitute teacher, and suspended from school. Yet these words are just two examples of high-frequency, high-importance, broadly useful words that deserve sustained attention so that they can be understood (and used) across a wider array of contexts. The focus words in Word Generation are widely used in academic discourse across disciplines, are at an appropriate challenge level for middle school students, and have properties that provide opportunities for teaching transferable word study strategies (e.g., polysemy, Greek/Latin roots, cognates, etc.).

Also included in the list of target words are “topic-specific” words per week (if applicable). These are words that, while potentially useful in a variety of contexts, have particular applicability to the topic under discussion. Students cannot debate the content of the Pledge of Allegiance, for example, without a detailed understanding of what “allegiance” means, nor can they consider the risks associated with the use of nuclear power without a firm grasp of “contamination.” These topic-specific words therefore facilitate thought and discussion.

Why these topics?

Students require information about controversies currently attracting national attention, and skills for analyzing these issues, in order to be prepared to participate effectively in our democracy. Yet American schools tend to de-emphasize civics, leaving students ill-equipped to join the national conversation surrounding such issues as funding for stem cell research, use of affirmative action in college admissions, or the possibility of amnesty for undocumented immigrants. In a recent editorial, Justice Sandra Day O'Connor asserts:

I believe that the civics curriculum should focus on getting more students in the game. To do so, it must concentrate on issues of importance to their world; teach them to analyze and engage in constructive discussions regarding controversial and important issues of the day, in a setting that inculcates thoughtful discussion.

While the weekly topics, in most instances, will not connect directly to the regular curriculum, they will give teachers an opportunity to help students explore issues that are deeply relevant to their content area. The topics are divided into four strands, so that each teacher will have the opportunity to present issues connected to his or her own subject. Some topics are emotionally charged; the paragraphs are designed to encourage students to look beyond their initial response to examine the facts surrounding a particular controversy. The program includes suggested structures for facilitating debate and exposure to multiple points of view.



What are the main features of this program?

- A focus on the Academic Word List (AWL) – a set of word families that appear frequently in academic texts across disciplines;
- Word study curriculum materials, including topical paragraphs and associated activities, designed for flexible use by middle school educators and their students across the curriculum;
- An expectation that schools will dedicate at least 15 instructional minutes a day to school-wide (or grade-wide) study of weekly words;
- An opportunity for each school team to design a practical implementation plan that suits its own particular school context.

The WG program is built upon the idea that students learn new words best from multiple encounters with those words within meaningful contexts. While there are some core features that are common across school settings, other aspects of the program may vary from school to school.

The topics of the weekly paragraphs were selected for their relevance to middle school students' interests as well as to issues of vital importance to the public at large. They are written for 6th grade readability and demonstrate authentic use of important general-purpose vocabulary. These brief paragraphs are intended to spark rich, substantive conversation among students and their teachers. They are not expected to provide complete coverage of the topics at hand, though teachers are encouraged to point interested students to additional information about the topics when it seems appropriate.

What do the program materials include?

Student motivation and engagement are crucial conditions for adolescents' literacy development. Our focus with this word study program has been on developing classroom materials that engage adolescents in tasks that promote academic literacy within the context of content area instruction. These materials include the following:

- A teacher's guide that explains the structure of the Word Generation program and the rationale behind it
- A set of 24 engaging paragraphs, written about current topics in journalistic style that connect to real world issues and to students' lives
- Brief daily instructional activities associated with weekly topics and target words
- References to support teachers in implementing Word Generation activities

Students will maintain WG notebooks that they take to all of their classes. Each Monday, the teacher in the subject area associated with the strand currently under focus will introduce the week's paragraph. Each Friday, students will be asked to write a paragraph arguing a position on the weekly topic, using as many words as they can from the cumulative word list. Mid-week activities will ensure repeated exposure to the weekly words, focusing on how they are used in math, science, social studies, and/or English language arts.

This approach to word study depends on collaboration among teachers throughout the school. When everyone is focusing on the same words each week, the effect can be quite powerful. Participating teachers are only responsible for teaching one or two WG activities a week for 10-15 minutes. While activities are provided for each week, the program is designed to be flexible enough to accommodate local variations at different schools. Each school will develop its own customized implementation plan that is responsive to its schedules, staffing patterns, and other particular circumstances.



What might a Word Generation week look like?	Mon	Tues	Wed	Thur	Fri
	ELA	Science	Math	Soc St	ELA
<p>As mentioned in the previous section, our program is designed to be flexible enough to accommodate local variations; however, each week should begin with the introduction of the passage and end with the open-response writing activity. Any variation within the week is optional and should be decided upon by the implementation team. Most importantly, all content-area teachers should be implementing at least one of these activities a week.</p>	Establish word meanings	Establish science version of the definition	Apply the words in the context of math problems	Students take position on the issue	Taking a stand Essay
	Comprehend the gist of the passage	Analyze data in fictional micro-experiment	Discuss and solve math problems	Teacher facilitates classroom debate	

How will we know if the program is working?

We will look for effectiveness of this program from three sources: student learning, teacher satisfaction, and content improvements. Assessment of student learning is twofold. First, we have designed a test to assess student knowledge of Word Generation focus words which schools should administer before the program starts and again at the end of the program. In addition, the weekly writing assignment requiring students to respond to the controversy under focus should demonstrate their level of mastery of the target words.

We will systematically collect teachers' reactions to the program. We have designed a brief teacher report instrument that we ask everyone to fill out, in order to inform us about how the program is going. We will also designate a liaison in each building to get reactions from teachers as they launch the weekly activities.

Finally, we fully expect that the program design will change and improve, with feedback from the teachers who use it. We invite teachers who are using Word Generation to work with us in developing an enhanced version for future use, recognizing that those who are responsible for implementing the program in the classroom are the best source of ideas about how it should be designed.

What are some myths about word learning?

Experienced teachers consistently note that too many students comprehend their content area texts poorly, and that lack of vocabulary knowledge is a major challenge. Formal tests of reading comprehension and of vocabulary confirm teacher impressions, showing that students in urban schools, especially those from non-English speaking homes, are often far behind where they need to be on vocabulary knowledge. If students knew more of the words they confront in their texts (or knew how to learn about those words), then content-area teaching would be much more successful.

If we are to help teachers support their students' vocabulary learning, we need to be clear about what we mean by vocabulary learning, and what we know about how to support it. There are many widely held beliefs about vocabulary learning embedded in traditional practice, which recent research findings would challenge. Many of these beliefs should be classified as myths and directly confronted in professional development.

TWELVE MYTHS

1. Explicit teaching doesn't work.

We used to think that vocabulary was almost all acquired incidentally, just by encountering words in conversation and while reading. Indeed, many words can be learned in this manner. However, the learners who do the best job of acquiring new words this way are the ones who already know a lot of words. Especially for learners who have sparse vocabulary knowledge, and who need to learn lots of words quickly in order to catch up, explicit teaching of some carefully chosen words can be very productive and efficient.

2. Word meanings can usually be inferred from context.

Incidental word learning depends on the learner's capacity to figure out word meaning from context. Sometimes we can do this from a single exposure. For example, compare the following sentences:

- Cleopatra's subjects were amazed at her pulchritude.
- Cleopatra was popular because of her beauty; her subjects commented approvingly on her pulchritude.

In the first case, many interpretations of the word pulchritude are possible: power, money, intelligence, stupidity, shyness, dancing ability, even wardrobe could all be filled in for pulchritude. In the second sentence, it is possible to figure out that pulchritude means beauty. Unfortunately, sentences of the second sort are much less likely to occur in texts, so the efficiency of incidental learning is fairly low. Furthermore, incidental learning even from sentences like the second one is possible only for those students who understand the rest of the sentence. So again, the most advanced students do a better job of inferring the meaning of new words from context than the students who most need vocabulary.

3. Students can learn word meaning from dictionary definitions.

Perhaps the most common approach to vocabulary instruction is to ask students to look words up in the dictionary. Dictionary definitions can be an important tool as part of vocabulary instruction, but they rarely provide meanings sufficiently rich to support adequate learning by themselves. In 1974, George Miller studied sentences children had produced after studying

dictionary definitions for novel words. They show clearly that dictionary definitions give students rather limited and sometimes frankly incorrect information about word meaning. For example:

- The dishes come out of the dishwasher chaste.
- If you do that there will be nothing but consequences.

This is not to say that using dictionaries is a bad idea. Dictionaries can be very helpful, in confirming or disconfirming guesses about word meanings, but they need to be used in conjunction with other sources of information.

4. We can understand texts in which we know 75% of the words.

All too often students are expected to comprehend texts in which there are many words they do not know. Of course it is not necessary to know ALL the words in a text, and one way to learn new words is to encounter them in print. But the capacity to learn those words depends on knowing almost all the other words in the text. Indeed, if students don't know at least 95% of the words in a text, comprehension of the main points is likely to be inadequate. Without comprehending the text, it is unlikely that students can learn any of the unfamiliar words in it. In other words, when we want to rely on providing students with texts as a resource in vocabulary learning, we need to be very careful to select texts that offer just the right level of challenge. For students who are functioning far below expectations, such texts might be very simple and may not offer exposure to the words needed for grade level work.

5. We can learn a word from just a few exposures.

Word learning seems remarkably fast and efficient, so it makes sense to conclude that a word that has been taught will have been learned. But in fact words are typically learned only after several exposures. Of course, something about the word might be learned from the first exposure – perhaps whether it is a noun or a verb, or some vague idea of what it means. But subsequent exposures are needed to nail down the meaning, to get clear exactly how the word is used, and to be sure it is remembered. Thus, effective vocabulary instruction has to build in opportunities for learners to hear or read target words several times over the course of a few weeks.

6. Word meaning is simple—a word means what it means.

Think of words that most three year olds know the meaning of—dog, spoon, table, run, eat. These are simple words, typically learned during daily interactions between parents and toddlers (e.g., the book is on the table; you dropped your spoon; eat your peas!). And we gladly give the three-year-old credit for knowing those words when they label dogs and tables, or say things like ‘wanna run’ or ‘mommy eat it.’ But knowing even these simple words well enough to understand them in advanced texts requires knowing much more about them than the three-year-old knows. Consider sentences like the following:

- His problems continued to dog him.
- They spooned up to keep warm.
- Let’s table the motion and consider it tomorrow.
- He ran the experiment as soon as the conditions were right.
- The comptroller found a way to eat the expenses.

Most words, even simple words like dog, spoon, table, run, and eat, actually have many closely related meanings, and when such words are used in academic discourse or in writing, they often carry a meaning that is not the common one familiar to young children.

7. There is only one route to word study.

Many of us have our favorite techniques for learning or teaching word meaning. Some of us learn words by discovering them in crossword puzzles or dictionaries. Others learn them from reading a lot. Others have a feel for the morphological variations in words, and thus can make good guesses about what complex forms mean. Still others know enough Spanish or Latin or Greek or German to be able to make reasonable guesses about the meanings of words

using etymology. All these routes to word knowledge are valuable, and yet none alone is sufficient to ensure rapid acquisition. When we are designing vocabulary curricula, we need to be sure that all of the routes are taught and implemented whenever possible.

8. False cognates dominate the cognate world.

Cognates, particular Latin-based words likely to have similar forms in Spanish, can be a good source of reasonable guesses about word meaning. Unfortunately, teachers often worry much more about the tiny proportion of cognates that are ‘false’ (i.e., the meanings in Spanish and English are not the same) than about the vast majority of cognates where meanings are very similar. Even many false cognates (e.g., the commonly cited *embarazada* (“pregnant”) and *embarrassada*) in fact are etymologically related, though the meanings in Spanish and English have drifted enough apart that the sense of being burdened now signifies pregnant in Spanish and abashed in English.

9. All infrequent words are of equivalent importance.

In general, of course, the words we hope that students will learn are the less frequent ones, the ones least likely to be used in spoken language. But it is important to realize that some of those less frequent words are weightier and more crucial in expressing distinctions in meaning than others. Some rare words, like the example *pulchritude* cited earlier, are nice to know for spelling bees, but are rarely encountered in key positions in text. One set of very important words includes the words used to talk about truth, evidence, and drawing conclusions. These include verbs like *affirm*, *deny*, *confirm*, *suggest*, *support*, *prove*, and *doubt*, nouns like *evidence*, *claim*, *theory*, *hypothesis*, *assertion*, *argument*, *proof*, and expressions like *call into question*, *cast aspersions on*, *relate to*, and *conform with*. These are words that are likely to be encountered in math, science, and social studies texts, though with slightly different meanings in those different contexts. They are crucial in understanding the sorts of information presented in textbooks.

10. Discourse connectives get learned incidentally.

Another set of words that are very helpful in talking about truth, claims, and conclusions are words that signal relations between sentences. Some of these discourse connectives are quite frequent, simple at least in their core meaning, and get learned incidentally (e.g., *and*, *then*, *so*, *but*). Others are less

frequent, more complex in meaning, and often skipped over by less skilled readers, yet if noticed and understood they can be very helpful in structuring comprehension of a text. This list includes words like *unless*, *although*, *despite*, *thus*, *nonetheless*, and *however*. It is not a very long list, so it is very likely that some strategic explicit teaching of these items could help students enormously.

11. Students know when they don’t know words.

Very often vocabulary instruction relies on students selecting the words they don’t know from a text. While self-identified words should certainly be attended to in vocabulary instruction, we should not be fooled into thinking that poorer readers always know what words they don’t know. First, they may know a word in its simplest meaning but not know it in the more specialized meaning with which it is used in a particular text. Second, many words seem familiar; unless students are doing a good job of monitoring their comprehension, they may not even realize that they don’t fully understand what particular words mean.

12. If you can spell/pronounce a word you know it.

Knowing how to pronounce words suggests that students have encountered them before, and knowing how to spell them is certainly important. However, these aspects of word knowledge can be acquired without much attention to meaning. Correct pronunciation and spelling should be seen as ways to consolidate knowledge about words and to ensure they can be easily recognized and retrieved; however, knowing about meaning and use is much more important than just being able to say the word correctly when it is encountered in print.

Summary

These myths about vocabulary learning and word knowledge need to be confronted, because they can block the most efficient use of vocabulary teaching time. Too many students in U.S. schools are too far behind where they should be in word knowledge to persist with inefficient and ineffective teaching methods.

Research on Vocabulary Development

How does word learning work?

Now that we have examined some myths about how word learning works, it is important to examine some truths. A few important strategies have been identified by research as important tools for vocabulary instruction. For word learning to occur, instruction should focus on words in such a way as to encourage multiple exposures, meaningful use, polysemy, structural analysis, and cognate identification.

Multiple exposures

Researchers have also found that students are more likely to truly retain the new words they learn if they are exposed to them multiple times (Beck, McKeown, & Kucan, 2002). These exposures should not be memorization exercises, but rather meaningful interactions with words in a variety of different contexts. Word learning happens naturally in context, so word learning that repeatedly mimics context-type word learning is likely to be effective (Stahl, 1999).

- ▶ *The Word Generation program introduces the focus words at the beginning of the week and then revisits them in several different content areas as the week progresses to provide multiple exposures to the same words.*

Meaningful use

Students are also much more likely to develop deep and lasting knowledge of new words if they use the words in meaningful contexts. Students should think actively about what words mean and how those words connect to other words (McKeown & Beck, 2004). By using words to discuss meaningful ideas and issues, students are more likely to develop a deep sense of what the words mean.

- ▶ *By embedding focus words into passages about issues, Word Generation provides a mechanism for students to read, write, and discuss a topic that lends itself to using the focus words. In addition, the focus words were chosen because they apply to multiple content areas and are frequently seen in academic texts.*

Polysemy

Words have multiple meanings which are often unrelated or tangentially related, and these meanings should be introduced to students. If a word appears more frequently in a language, it is more likely to have multiple meanings (Nagy & Scott, 2000). Providing access to these meanings and direct instruction about when these various meanings are applicable will help students develop deeper understanding of words.

- ▶ *The examination of weekly focus words across content areas emphasizes their polysemous nature and encourages students to develop a multifaceted understanding of each.*

Structural analysis

Reading researchers have found that teaching students to recognize the various elements of a word is a highly effective means of expanding their vocabularies (Nagy, 1999). This structural analysis can examine word parts such as prefixes and suffixes. For example, the suffix un- (unhappy, undo) can be used to begin deciphering the meaning of many words. Building a repertoire of these smaller word chunks can help students develop a “toolbox” of information to understand the meanings of less familiar words.

- ▶ *The Word Generation weekly lessons provide teachers with a chart of the various forms of the focus words and related words, in order to encourage teachers to expose students to elements of structure.*

Cognate identification

Cognates are a good source of information for English language learners, especially for individuals whose first language is Spanish. Reliance on cognates can be a useful strategy for students to understand both the passages they are reading and the words they are attempting to learn.

- ▶ *Word Generation teachers should teach English language learners ways to rely on cognates to understand the weekly passages and make connections to the focus words. ELA word study activities make extensive use of Spanish/English cognates.*

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Academically Productive Talk

Building academic vocabulary through classroom talk



We know that promoting classroom discussion and talk that have certain features can result in particular kinds of academic benefits,

such as improved word knowledge. Rich teacher-student discussion also supports the development of students' reasoning and supports their abilities to express their reasoning.

Using discussion or 'academically productive talk' (APT) during your Word Generation session provides you with opportunities to model processes for deriving information from a text as well as creating reasonable hypotheses about the meaning of unknown words. Using discussion in the classroom also provides a mechanism for connecting new words to prior knowledge and experience.

Revoicing

- repeating a student's utterance with the purpose of checking back with them for a clearer interpretation of their statement or position.

Student repetition

- having other students repeat or paraphrase another student's position in order to check on their interpretation of the statement.

Asking them to agree and disagree

- having them state and make clear their reasoning. This move allows students to clarify their positions and use language meaningfully.

Partner talk

- engaging students who do not normally participate in classroom discussions (English language learners, more introverted students). Academically productive talk in WG is aimed at bringing all these students onto the same page, and changing the way they deal with learning new vocabulary.

What has to be in place before you get started using 'accountable talk' with Word Generation?



- Establishing the rules for respectful discourse
- Establishing the conditions for equitable participation
- How can you establish those conditions?
- Have clear rules about turn-taking
- Attend to patterns of turn allocation
- Encourage students who tend to avoid talk
- Model turn-taking practices that support different kinds of participation

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