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Contextually relevant word study: Adolescent vocabulary development across the curriculum

Learning clusters of words that share a common origin helps students understand content area material.

College students in my Monday morning class were discussing a novel we were reading together. During the discussion, Maura (all students' names are pseudonyms) remarked that she could not make up her mind about the protagonist: Sometimes she respected him for the positions he was taking, but at other times she resented his actions and almost detested him. As she spoke, Maura moved her hands up and down in counteropposition, miming the up-and-down action of a balance scale. "Are you saying, Maura, that you are ambivalent?" I asked. Maura nodded her head, but another student interjected, "What does that mean?"

Working from the student's prompt and following a custom that I had established early in the course, I wrote *ambivalent* on a chart that I kept permanently posted in the room where I was teaching and suggested that students check its meaning and etymology either in a dictionary or online at the Merriam-Webster Web site (www.m-w.com:80/cgi-bin/dictionary). At the start of the next class, Brian volunteered his findings—that *ambivalent* is an adjective that means "undecided, not able to make up one's mind, seeing good points on each side of an issue"; that the word can be traced to the Latin *ambi-*, meaning "both" and *valeo-*, meaning "strong"; that other words with these Latin bases are *ambiguous* (unclear) and *ambidextrous* (able to use both hands), *valiant* (brave) and *valor* (bravery). Using a colored highlighter, Brian marked the two main elements in *ambivalent*; members of the class joined in to explain times when

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they had felt ambivalent. Several weeks later as students were discussing their feelings about another novel, Renee glanced up at the chart and with a quirky smile on her face said, "I think I am ambivalent about that."

Similarly, during another literature-based English session, my students were talking about a character who suffered from amnesia. I wrote the word on my wall chart, indicating the derivation and word relationships: The prefix *a-* is from the Greek and means "not," while the Greek base *mne-* means "memory." Amnesia is a medical condition in which a person cannot remember major events in his or her life or even who he or she is. I highlighted the prefix and base on the word chart. A student offered *amnesty* as a related word, which he recorded on the chart. I offered *mnemonic* and suggested that students check the three words at the Merriam-Webster site for more background information. At the start of the next class, we quickly reviewed words built from *mne-* with students offering their findings.

I teach at a large, urban, publicly supported university in the United States whose mission is to provide higher education to a diverse student population. Many of my students come with fair test scores, are from middle- to lower-middle-class homes, and are the first in their families to attend university. In working with them on vocabulary as I was doing relative to *ambivalent* and *amnesia*, I was relying on fundamental word study instructional strategies: analyzing and sorting words into groups based on shared elements, searching for structurally and etymologically related words, and discovering generalizations about word connections—all at the point of use, when study is most relevant and meaningful. These strategies arise out of the research of Edmund Henderson on how children and youths acquire ability to handle English spellings (Henderson, 1990). According to Henderson, by the time students have reached their adolescent years, most have acquired the ability to handle basic sound-symbol relationships and within-word patterns. By adolescence, students are more liable to encounter problems with morphemic units (affixes and bases) and derivational consistencies or inconsistencies as they try to use and spell polysyllabic words.

Although most of the investigations and discussions of word study strategies have focused on ac-

quisition of spelling abilities at the elementary level (see Bear, Invernizzi, Templeton, & Johnston, 2000; Fresch & Wheaton, 1997; Invernizzi, Abouzeid, & Bloodgood, 1997; Templeton & Bear, 1992), clearly "sort, search, and discover" strategies have a place at the high school, vocational school, college, and university levels as vocabulary-building tools. By analyzing and sorting words, searching for related words, and discovering ways words work, upper level students learn clusters of words that share a common element or origin rather than individual words by memorizing definitions. Such an approach is especially important today when educators are realizing the need for more direct attention to adolescent literacy (International Reading Association, 1999).

In the remainder of this article, I argue the importance of contextually relevant word study across the curriculum at upper levels of schooling and provide some general principles for making word study strategies a natural part of ongoing studies in the subject areas. Most of the word exemplars used are from history texts so that instructors can see how any one of the principles can be applied in one discipline; however, the ideas can and should be used across the curriculum in the humanities, social sciences, and natural sciences.

The importance of word study at upper levels

Research indicates that knowledge of words, ability to access that knowledge efficiently, and ability to integrate new concepts into existing conceptual schemata are key factors in reading and listening comprehension, especially at levels of schooling beyond the middle grades (Anderson & Freebody, 1981; Chall, 1987; Daneman, 1988, 1991; Davis, 1968; Rupley, Logan, & Nichols, 1998-1999). As Daneman (1988, p. 150) explained, "words are the building blocks of connected text." As a result, people with limited vocabularies have trouble understanding what they read and hear because they have "too few building blocks" with which to construct meanings. For them, understanding gaps exist within the written or oral text, making construction of meaning difficult. Readers and listeners who have trouble comprehending may also be slow and inefficient in accessing the word meanings they do control. Likewise, they may have limited schemata, or existing networks of

interrelated concepts and word labels. They may, therefore, have problems connecting unfamiliar concepts and related word labels with what they already know (Howard, 1987; Pearson, Hansen, & Gordon, 1979; Tennyson & Cocchiarella, 1986).

According to Corson (1985), some members of some social groups have a vocabulary that is limited to such an extent that it negatively affects their success in content area courses, especially at the high school and university levels. This limited vocabulary is an outcome of the very nature of the English language and its differing use in various home and school situations. As Corson explained, a majority of English words are built from Graeco-Latin (G-L) elements—affixes and bases derived from the Greek and Latin languages. Additionally, within specialized fields of study such as the sciences and humanities, occurrence of G-L words gets “very close to the 100% mark” (Corson, 1983). These words, however, are less commonly used in the “ordinary language and active vocabularies of many people” (Corson, 1985, p. 26), especially those who have not completed high school or college and may be working in trades that do not require specialized vocabulary knowledge.

As a result, children growing up in families where Graeco-Latin derived words are rarely used come to content area studies with a disadvantage. They must jump a “lexical bar” (Corson, 1985) posed by the English language itself—G-L derived words frequently used in specialized content area studies yet infrequently used in everyday conversations within their families. When adolescents from households where few Graeco-Latin derived words are used are asked to read sophisticated content area textbooks and talk and write in response, they may experience educational failure. In contrast, adolescents from households where Graeco-Latin derived words are more commonly spoken are at an advantage; they do not have to jump the lexical bar because they already know many G-L words through years of contact within the home (Corson, 1985).

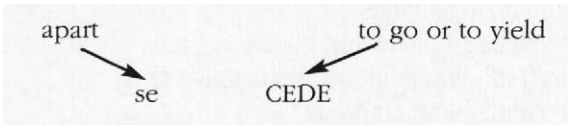
Of course, other factors can account for educational failure, and, of course, G-L derived words are not the only vocabulary hurdle for adolescents from homes where few G-L words are used in everyday conversation. Some Anglo-Saxon words are used infrequently in certain home situations but are commonly found in content area texts and

can, therefore, present a hurdle. Take, for example, the Anglo-Saxon word *akin*, which social scientists enjoy using but is not often heard in everyday speech; social scientists write of one happening being akin to another and in so doing set up a logical relationship. Readers for whom *akin* poses an understanding gap may fail to grasp the relationship set up in a social studies textbook that uses the word.

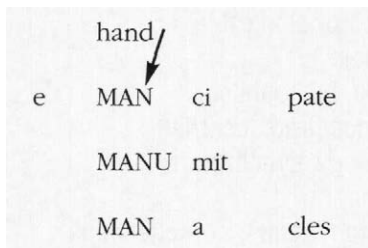
Nonetheless, those of us who are responsible for the education of adolescents from homes where G-L derived words are not commonly spoken must take into account the vocabulary development needs of our students. We cannot assume that our students have the requisite vocabulary that ensures success in content area learning or the ability to access words efficiently in listening and reading. In the manner suggested by the opening vignettes, we must integrate word studies into our lectures, discussions, and laboratories if we want to help our students surmount the lexical bar. Here are a series of principles to guide our instruction.

Principle 1: Highlight Greek and Latin roots, or bases, as students meet them across the curriculum. Many polysyllabic English words that students encounter in the humanities, social sciences, and natural sciences are built with elements derived from Greek or Latin words. Take, for example, the two-syllable English verb *secede*, which means “to withdraw in a formal way from membership in an association or union, especially a political union or group.” *Secede* derives from the Latin verb *secedere*, “to separate.” *Secedere* in turn has two component elements: the prefix *se-* meaning “apart” and the basic Latin root *ced-* meaning “to go or to yield.” In a unit on the U.S. Civil War, students read and hear the verb *secede*, because historians often use it in reference to the action of the southern states, as in the sentence, “The first state to secede from the Union was South Carolina.” As students encounter the word *secede* in this context, an instructor can suggest that they record the word in their unit word bank that they are developing as a chart on the bulletin board—on what today at lower levels of schooling is called the Word Wall but with adolescents is better called Linguistic Link Lists to emphasize the idea that words are recorded to highlight language interrelationships or

linkings. Students add *secede* to their Linguistic Link Lists so as to highlight its component elements, particularly the root; they record CEDE in uppercase letters in red marker, noting the meaning of *ced-* as well as the meaning of the component prefix *se-*, as shown here:



As part of the same U.S. history unit, students meet the words *manumit* and *emancipate*. Both polysyllabic words carry within them *man(u)-* from the Latin *manus* meaning “hand.” Both *manumit* and *emancipate* are verbs meaning “to free, liberate, release, unchain.” As Moore and Moore (1997) told us, the words can be used interchangeably; both relate to “the removal of the MANacles that have kept the oppressed in chains” (1997). Recording the three words on the Linguistic Link Lists and highlighting the root common to them can help students remember the meanings—“unchaining the hands in order to free.”



Additionally *manumit* is derived from the Latin verb *mittere*, meaning “to send from.” Numbers of English words are derived from *mit-*. Similarly, *emancipate* carries the Latin word *mancipium* that means “ownership,” in this case ownership of the hand that does the work; *manceps* in Latin means “purchaser.” In the context of a U.S. history unit, the instructor can (and should) find a “teachable moment” to highlight the meaning of such basic roots, encouraging students to look for hints to the meaning of a Greek or Latin root in the meaning of an English word as it is used today or vice versa. Developing such relationships helps readers to remember the terminology because they have been focusing on connections among words. Here are a few common history terms and the meaning of a key element within each to show how easy it is to make etymological connections:

Term	Root	Meaning
<i>Holocaust</i>	<i>caust-</i>	to burn
<i>renaissance</i>	<i>nais-</i>	birth
<i>revolution</i>	<i>volu-</i>	to turn
<i>genocide</i>	<i>gen-</i>	race
<i>genocide</i>	<i>cide-</i>	to kill

Attention to roots need not be limited to technical terminology. Using similar instructional strategies, a teacher can focus attention on words used in a variety of general contexts but that may be new to adolescents or adults in a class who have not heard G-L derived words in everyday conversation. Take, for example, the noun *malice*, meaning “desire to hurt someone or to see him or her suffer,” which can be used in a variety of everyday contexts but that students are likely to encounter in a history or sociology unit. *Malice* is derived from the Latin *malus* meaning “bad.” Recognizing *mal-* within *malice* and learning its meaning as part of that word helps students more fully comprehend *malice* and helps them when they encounter other words built from this base such as *malignant*, *malign*, *malevolent*, *malfeasance*, *malfunction*.

In Figure 1 is a list of Greek and Latin roots that are commonly found base elements within English words. Posting such a list in upper level classrooms, referring to it during unit study, and adding other roots and sample words can help adolescents and adults recognize these elements as they read and hear words that contain them; highlighting the elements can help students figure out the meanings of related but unfamiliar words.

Principle 2: Associate new terms derived from a root with more generally known ones that contain the same root and use visual means to highlight the shared element.

Many English words are derived from the same Greek or Latin root. For example, many common words contain the element *ced-*, the element *man(u)-*, or the element *mit-* as mentioned earlier in this article. Incorporating *ced-* are the verbs *recede*, *precede*, *proceed*, *succeed*, *intercede*, *exceed*; derived from *manu-* are *manufacture*, *manipulate*, *manifest*; and built with *mit-* are the verbs *admit*, *commit*, *emit*, *omit*, *remit*, *permit*. Additionally, of course, are nouns and adjectives that incorporate these bases.

Listing words derived from a common base in columnar fashion with the shared element in up-

FIGURE 1
Common roots, or bases, derived from Latin or Greek

Latin bases	Meaning	Sample words
<i>anim-</i>	mind, feeling, life	animate, animal, animus
<i>annu-</i>	year	annual, millennium
<i>bene-, bon-</i>	good	beneficial, benefactor, bonus
<i>cred-</i>	to believe	discredit, incredulous, incredible, creed
<i>dic-, dict-</i>	to say	dictator, edict, contradict
<i>duct-</i>	to lead	abduction, aqueduct, deduction, induction
<i>fac-, fact-</i>	to do, to make	factor, factory, manufacture
<i>jur-, just-</i>	to take an oath, right, law	jurist, justice, perjure
<i>matr-, matern-</i>	mother	matriarch, maternal
<i>patri-, patern-, patri-, patron-</i>	father, fatherland, protector	patriarch, patriotic, patron, patronize
<i>port-</i>	to carry	portable, import, export, deport, transportation
<i>press-</i>	to press	repression, impressionable, depression
<i>spir-</i>	breathe	inspire, conspiracy, expiration, transpire
<i>vinc-, vict-</i>	to conquer	invincible, victory, victim
<i>volut-, volv-</i>	to roll	revolution, evolution, involvement
Greek bases	Meaning	Sample words
<i>aesthe-</i>	feel, perceive	aesthetic, aestheticism
<i>anthrop-</i>	human being	anthropology, anthropological
<i>archa-, archae-</i>	ancient, primitive	archaeology, archaic
<i>bibli-</i>	book	bibliography, Bible, bibliophile
<i>centr-</i>	center	centralization, concentrate, centrist
<i>chron-</i>	time	chronicle, chronology, synchronize
<i>dyn-</i>	force, power	dynamite, dynamic
<i>gen-</i>	to originate, kind, race	generate, generation, genus, homogeneous
<i>heter-</i>	different, other	heterogeneous, heterosexual
<i>lect-</i>	speak, choose	election, electorate, selection, delectable
<i>log-, logue-</i>	speech, word	prologue, epilogue, logic, analogy
<i>morph-</i>	form, shape	morpology, metamorphosis, endomorphic
<i>phon-</i>	sound, voice	telephone, megaphone, phonology, cacophony
<i>pol-, polis-</i>	city, state	metropolis, politics, cosmopolitan
<i>the-</i>	god	theocracy, theology, monotheism

percase letters can help students to see the meaningful elements within words. As part of a history investigation when students first hear the word *secede*, they can brainstorm other *ced-* words, create verb towers with the help of a dictionary that provides etymologies, include the meanings of prefixes, and post their tower charts on their Linguistic Link Lists. Figures 2 and 3 are examples.

Principle 3: Use content area studies as a context for introducing and reviewing meanings of prefixes, and include meanings of prefixes on word towers. Although at first glance prefixes (elements found at the beginnings of words) may seem like insignificant parts of words, they are actually major meaning-bearing components. The verb towers in Figures 2 and 3 demonstrate the importance of prefixes in the

English language and suggest why upper-grade teachers across the curriculum should look for teachable moments to help students understand the meanings of common prefixes as a way to facilitate content area reading and learning.

Study of spatial and temporal-indicating prefixes as part of content area investigations can provide students with a means to distinguish among

closely related terms. The terms *interstate commerce* and *intrastate commerce* are examples in point. Knowing that the prefix *inter-* means "between" and the prefix *intra-* means "within," students will have little difficulty distinguishing between the two forms of commerce. Having some understanding of the prefix *inter-* gleaned from the term *interstate*, students have less trouble

FIGURE 2
A CED- verb tower

		CEDE ← (to go, yield)
(apart) →	se	CEDE (to go, yield)
(under) →	suc	CEED (to go, yield)
(between) →	inter	CEDE (to go, yield)
(before) →	pre	CEDE (to go, yield)
(back) →	re	CEDE (to go, yield)
(out) →	ex-	CEED (to go, yield)
(forward) →	pro	CEED (to go, yield)
(intensify) →	con	CEDE (to go, yield)

FIGURE 3
A MIT- verb tower

		MIT ← (to send, let go)
(across) →	trans	MIT (to send, let go)
(under) →	sub	MIT (to send, let go)
(through) →	per	MIT (to send, let go)
(back) →	re	MIT (to send, let go)
(away) →	o	MIT (to send, let go)
(to) →	ad	MIT (to send, let go)
(together) →	com	MIT (to send, let go)

understanding such words as *international*, *intermarriage*, *intervene*, and *intervention* when they hear or read them later on.

Similarly, the words *migrant*, *immigrant*, *emigrant*, and *émigré* can be differentiated based on the prefixes they carry. All four words are derived from the Latin verb *migrare*, meaning “to move from one place to another.” A migrant is one who moves, or migrates, from area to area, generally for the purpose of employment. Today, we talk of “migrant workers.” In contrast, an immigrant is one who comes to and settles in a country and thus is not native to or born in that country. The word *immigrant* bears the spatial-indicating prefix *im-*, in this case meaning “in.” We talk about immigrants to the United States who came in large numbers during the 19th century and who still are coming today. The word *emigrant* has the same root derivation, but because it bears the prefix *e(x)-*, meaning “away,” the word communicates something slightly different in regards to migration. An emigrant leaves one country to settle elsewhere. Hence we talk of a person’s being an Irish emigrant or a Chinese emigrant; by these designations we mean that the person left Ireland or China to move to another country. In talking about those who left France during the French revolution to escape the guillotine, writers use the French word *émigré*; today some writers use *émigré* to refer to any emigrant who leaves a country for political reasons.

The shared base found within the four words and the prefix that gives each its distinctive meaning are highlighted in the noun tower in Figure 4. As students create such a tower and use dictionaries to discover the meaning of the spatial-indicating prefixes *in-/im-* and *ex-/e-/ef-* to include on it, they

can search a dictionary for other words that carry the prefixes: *inject*, *invade*, *impose*, *illuminate*, *expel*, *evade*, *effect*. Other spatial and temporal-indicating prefixes to highlight at some point are *ab-* (away from), *ad-* (to), *con-* (together), *trans-* (across), *circum-* (around), *sub-* (under), *super-* (above), *ante-* (before), *peri-* (around), *pro-* (before), *pre-* (before), *post-* (after), and *retro-* (behind).

Principle 4: Give attention to prefixes that carry a negative message. So far we have been considering prefixes that indicate spatial relationships such as between, within, away, and into. The English language also relies on prefixes to add a negative message to a base: *a-*, *un-*, *non-*, *in-/im-/ig-*, *de-*, *dis-/dys-*, *counter-/contra-*, *anti-*. In English *successful* becomes *unsuccessful* with the addition of the native English *un-*; *noble* becomes *ignoble* with the addition of the Latin-derived prefix *ig-*; *counter*, a Latin-derived prefix meaning “against,” brings a negative meaning to *act* in the word *counteract*; *centralize* becomes *decentralize* with the help of the Latin-derived prefix *de-*; *functional* becomes *dysfunctional* with the aid of *dys-*, a Greek-derived prefix; *American* becomes *anti-American* with the addition of the Greek *anti-*; and *moral* becomes *amoral* with the addition of the Greek-derived prefix *a-*, meaning “not” or “without.”

A rapid scan of most sophisticated history texts provides evidence of the importance of these prefixes in polysyllabic words used to explain historical matters. For example, a fast reading of a few pages of a chapter within an upper level text on the High Middle Ages and the ascendancy of the Catholic church during that period brought to light these words: *amoral*, *amorphous*, *unrepentant*, *unprecedented*, *unconventional*; *nondefinitive*, *nonenduring*, *nontraditional*; *incessant*, *intolerance*, *innate*, *depopulated*, *deprived*, *decentralized*, *defiant*, *desecrated*; *disassociated*, *disenfranchised*, *disputed*, *differed*; *counterweight*, *contraceptives*, *anti-Jewish*. Before upper level students read the chapter, the instructor may wish to print cards containing the words, distribute the word cards to the students, ask them to sort the words into categories based on structural elements contained within the words, and predict the meaning of the words based on sentences in which they appear in the text. Students can generalize about the mean-

FIGURE 4

A tower of nouns that share a common base

	MIGR	ant
(in) → im	MIGR	ant
(away, out) → e	MIGR	ant
(away, out) → é	MIGR	é

FIGURE 5
A table of negative-indicating prefixes

Prefix	Meaning	Examples of words
<i>a-, an-</i>	without, not	amoral, amorphous, atypical; anarchy
<i>de-</i>	reverse action, away	deprive, defiant, decentralize
<i>dis-, dif-, di-</i>	not, apart	disassociate, divergent, disorganized, different
<i>in-, il-, ir-, im-</i>	not	innate, intolerant, illegal, irrational, immune, impossible
<i>non-</i>	not	nontraditional, nonenduring, nondefinitive
<i>un-</i>	not	unconventional, unprecedented, unrepentant
<i>contra-, counter-</i>	against	counterweight, contraceptives, contradict
<i>anti-</i>	against	anti-American, antithesis, antigovernment

ings added to the bases by the prefixes and create large charts similar to the one in Figure 5 that shows the meaning of the prefixes and sample words. As students continue to read their textbooks, they keep alert for other words to chart.

Principle 5: Give attention to word elements that tell how great or how many. Some word elements provide information about size and number. Ability to work with these elements is obviously important in the study of mathematics as we can see when we consider such words as *polygon*, *octagon*, *triangle*, *centimeter*, *millimeter*. But it is important in the study of other disciplines as well. Early in the second chapter of one history text that treats the rise of western civilization, for instance, is a reference to *Magna Graecia*—the name given by the Romans to the entire region of colonies held by ancient Greece. *Magna Graecia* means “Great Greece,” for the word *magna* in Latin means “great.” Encountering the phrase, students need to check a dictionary to locate English-language words that incorporate the element *magna* (*magnificent*, *magnify*, *magnitude*) as well as Latin phrases used today (*magna cum laude*) and hypothesize the meaning of *magna*. Having learned the meaning in the second chapter of this history text, readers are ready for such terms as *magnanimous* and *magnanimity* when they encounter them in reference to King Louis IX of France and are more prepared to understand the phrase *Magna Carta* when they encounter it in reference to King John of England.

Similarly, students of history should be given the opportunity to play with number-designating

elements such as *uni-* and *mono-*, *bi-* and *tri-*, and *cent-*, which are commonly found within content area readings. Given word cards inscribed with *unilateral*, *unity*, *unify*, *union*, *unique*, *E pluribus unum*; *monotheism*, *monolithic*, *monogamous*; *bi-lateral*, *biannual*, *bicentennial*; and *century* and *centennial*, students can sort the words according to the number-designating elements they carry. Students can brainstorm other words that carry the same elements, generalize about meanings, create Linguistic Link charts that highlight those meanings, and continue to add other words to their charts as they find them in their readings. See Figure 6 for a sample chart of the kind that students can develop and post.

Principle 6: Help students to see the relationship among clusters of words formed from the same base but that carry different suffixes that affect the way the words work in a sentence. In the English language we build variations of a word through the addition of suffixes. The results are clusters of highly similar words that differ primarily in the way they function in a sentence. Hearing and learning one of a cluster, students can quickly acquire understanding of others if their attention is drawn to the common root. For example, the verb *exclude* means “to shut or keep out”; it is derived from the Latin verb *claudere* meaning “to shut or close” (which in English words appears as *clus-*, *clos-*, or *clus-*) and contains the prefix *ex-*, meaning “away.” With the addition of the suffix *-ion*, which means “the act of,” *exclude* becomes the noun-functioning word *exclusion*; with the addition of the adjective forming suffix *-ive*, it becomes *exclusive*, and with the ad-

FIGURE 6
A table of elements that tell how great and how many

Prefixes	Meanings	Examples of words
<i>uni-</i> or <i>un-</i> ; <i>mono-</i> ; <i>prim-</i>	one, first, single	unity, unanimous; monologue, monolithic, monotheism; primary, primate
<i>bi-</i> and <i>bin-</i> before vowels; <i>di-</i> , <i>du-</i>	two, twice	biannual, binary, bicentennial, dilemma, duplicate, duplicity
<i>tri-</i>	three	triangular, triplets, trio
<i>quadr (u)-</i> ; or <i>quart-</i>	four, fourth	quadrangle, quadrant, quadruplicate, quarter
<i>quint-</i>	five	quintet, quintessence, quintessential, quintuplet
<i>sext-</i> ; <i>sex-</i> ; <i>hex-</i>	six	sextet, sexagenarian, sexennial, hexagon
<i>sept-</i>	seven	September, septet
<i>oct-</i> ; <i>octav-</i>	eight, eighth	octet, October, octave, octagonal
<i>novem-</i> ; <i>non-</i>	nine, ninth	November
<i>deci-</i> ; <i>decim-</i>	ten, tenth	December, decimal, decade
<i>cent-</i>	hundred	centennial, century, cent (Reminder: C is the Roman numeral for 100.)
<i>mill-</i>	thousand	millimeter, millennial (Reminder: M is the Roman numeral for 1000.)
<i>multi-</i>	many	multimedia, multicultural, multilingual, multitude
<i>poly-</i>	many, much, excessive	polygon, polyglot, polygamy
<i>pan-</i>	all	pandemic, Pan-American, panacea
<i>omni-</i>	all	omnipotent, omniscient, omnipresent
<i>semi-</i>	partly	semitransparent, semiliterate
<i>micro-</i> ; <i>mini-</i>	small, very small	microbe, microcosm, microscope; miniature, minor, minimal
<i>magni-</i> ; <i>maxi-</i> ; <i>macro-</i>	large, great in size	magnify, magnificent, Magna Carta; maximize; macrocosm, macromanage

dition of two suffixes, it becomes *exclusionary*. All of these words have something to do with shutting or keeping out. Students can brainstorm members of the “*exclude* cluster,” check their dictionaries for others, and create a word tower that shows the common base. In addition, they can brainstorm and check a dictionary for other words derived from *cludere*: *conclude*, *conclusion*, *conclusive*, *include*, *inclusion*, *inclusive*, *inclusionary*; *seclude*, *seclusion*, *secluded*; *recluse*; *preclude*, *disclose*, *disclosure*, *nondisclosure*; *cloister*, *closet*; *claustrophobic*, *clause*. The result can be a wheel of related words with the shared base at the hub, as shown in Figure 7.

In the same way, within a passage students can identify words that rely on a common suffix and

generalize about their meaning, use, and formation. In a short passage, for instance, one text uses five *-ion* words: *assumption*, *expectation*, *contradiction*, *situation*, *interaction*. Students can locate the *-ion* words within a passage, figure out how all function in the passage (as nouns), identify the shorter verb from which each is derived (*assume*, *expect*, *contradict*, *situate*, and *interact*), brainstorm other related words (*contradictory*, *situational*, *interactive*), and check a dictionary for more words (*assumable*, *assumably*, *assumer*; *expectant*, *expectable*, *contradictable*, *noncontradictable*, *contradictor*, *site*, *interactivity*). In doing this, students discover that *-ion* words generally are formed by adding the suffix to a verb, that the words function as nouns, that the suffix means “the act of,” and that most *-ion*

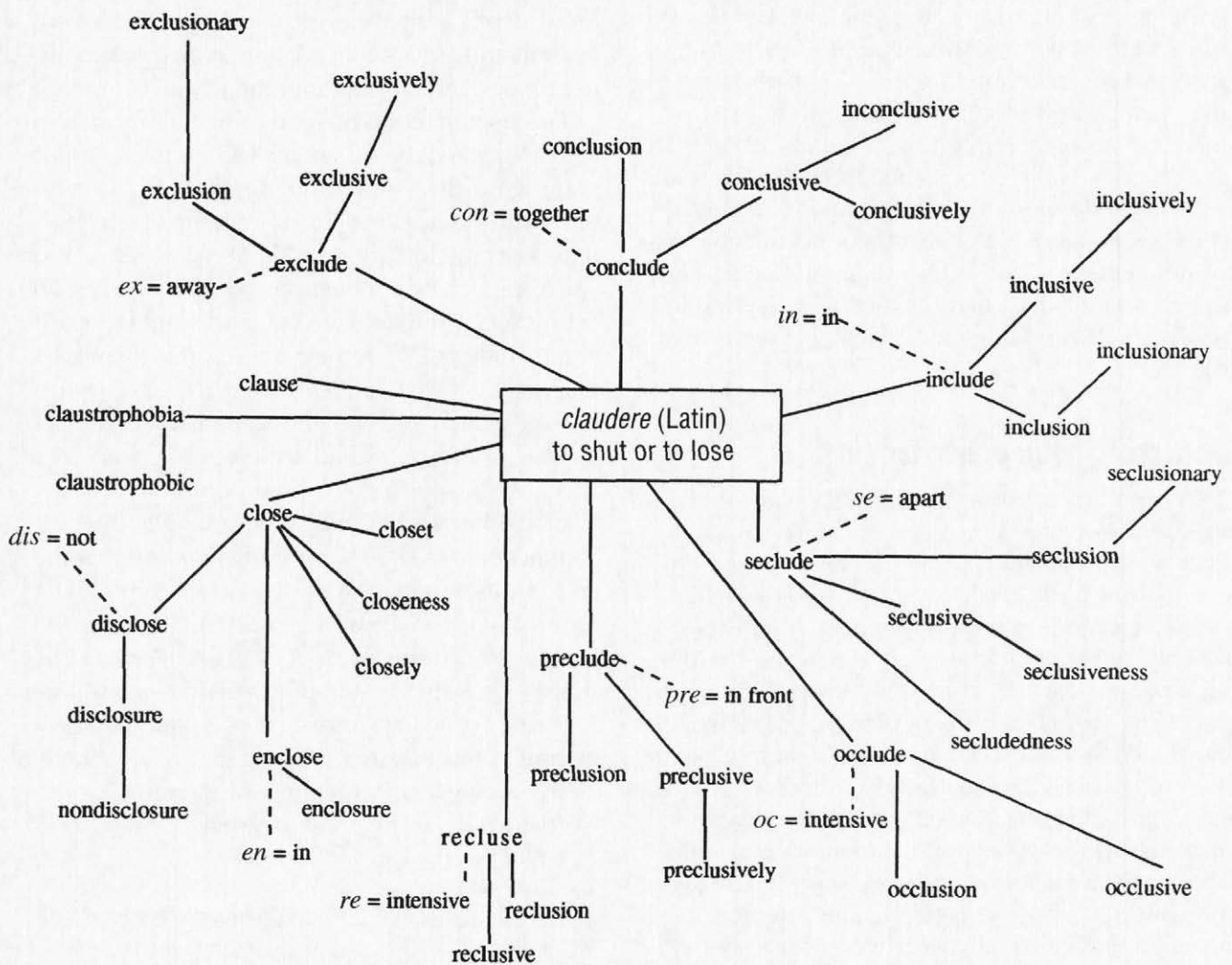
words have an adjective form. They also begin to grasp the complexities of polysyllabic words—"big" words that can overwhelm people who come from homes where G-L words are infrequently used in conversation.

Principle 7: Help students to make meaning with suffixlike endings such as -cracy and -archy, which are commonly found on words important in content area reading and writing.

Anarchy, hierarchy, matriarch, aristocracy, democrat, autonomy, archaeology, monograph—these few words in which are found the elements -archy, -arch, -cracy, -crat, -nomy, -ology, and

-graph highlight the importance of endings on English words and indicate how being able to recognize those endings can facilitate comprehension across the curriculum. When students first hear or read the word *anarchy*, they can check its origin as well as its meaning in an online or print dictionary. There they discover that *anarchy* is derived from the Greek *an-* "without" and *arkhos* "ruler," that there is a Greek word *anarkhos*, meaning "without a ruler," and that *anarchy* means "absence of government, political disorder and confusion." In the same section of the dictionary, they may find related words (*anarchism, anarchic, anarchist*) and

FIGURE 7
A wheel of words that trace their origin to a common base



Note: Some prefixes (such as *re-* and *oc-* in this case) intensify the meaning of the root.

FIGURE 8
Word elements: -archy, -arch, -cracy, -crat, -nomy, -ology, -graph

Ending	Meaning	Examples
-archy	rule by	anarchy, monarchy, oligarchy, hierarchy
-arch	one who rules	monarch, matriarch, patriarch, anarchist
-cracy	rule by	democracy, bureaucracy, aristocracy, theocracy, plutocracy
-crat	one who advocates rule by	democract, bureaucrat, aristocrat, theocrat, plutocrat
-nomy	science or system of governing	autonomy, economy
-ology	study of or science of	biology, geology, theology, terminology, psychology
-graph	instrument for writing, writing	graph, graphic, telegraph, photograph, autograph, holograph, cardiograph

decide how each is used; they may find a reference to *-arch* and distinguish it from the word *arch*. In a functional context such as this, students can brainstorm other words built from *arkhos*: *hierarchy*, *matriarchy*, *patriarchy*, *oligarchy*, as well as *matriarch*, *patriarch*, and *oligarch*. As a result, by considering not only the meaning of *anarchy* but its etymology as well, history students conquer a number of related words. This makes future reading a bit easier. Figure 8 is a chart of word elements similar in function to *-archy*. Encourage students to create and add to such charts as they meet a word like *anarchy* in their reading and check its origins in a dictionary.

Word study helps understanding

In content area studies, young people can gain considerably when they relate unfamiliar terms to other words that share common elements and etymology; this is especially so when students make such connections at the point of use during ongoing units in history and English literature—not during separate, discrete word study lessons. By perceiving words in terms of component elements that share a common origin, students learn clusters of words rather than memorizing individual terms and their definitions. Some content area specialists may be fearful of “wasting” instructional time allocated to their discipline on word study investigations. Just the opposite is likely; time spent in meaningful, contextually relevant word study facilitates students’ understanding of the subject discipline. This is a plus particularly when content

specialists are working with students who are from homes where everyday conversation does not draw significantly from the Graeco-Latin derived lexicon and students need assistance in surmounting the lexical bar built into the English language.

To this end, content area specialists must keep alert for “teachable moments” when they can integrate word study into ongoing content area lectures and discussions. To do this successfully, they must become knowledgeable about word relationships, especially connections based on Greek and Latin roots, prefixes, suffixes, and suffixlike elements. Obviously, in their classrooms instructors must make available dictionaries that give derivations of words and provide students with the addresses of dictionaries that they can access online. In addition, specialists should peruse and make available books that explain and highlight word connections. In the reference list provided at the end of this article are titles by Ayers (1986), Kennedy (1996), Bear et al. (2000), Moore and Moore (1997), Nurnberg (1987), and Funk (1948, 1950) as well as a listing for the *Merriam-Webster New Book of Word Histories* (1991) that may be helpful. Titles of other references can be obtained online at www.amazon.com; information about words can be accessed at a variety of Web sites (see Sidebar for list).

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Web sites on words

<http://ablemedia.com/ctcweb/showcase/roots.html>

(See Roots of English: An Etymological Dictionary.)

<http://titania.cobuild.collins.co.uk/wordwatch.html>

(Lists word pairs such as *grudge* and *begrudge*, *hung* and *hanged*, with explanations of the distinctions.)

<http://pw1.netcom.com/~rlederer/index.htm>

(A list of linked sites such as etymology, word watching, vocabulary development, and grammar and usage; this is an online form of Richard Lederer's newspaper column.)

www.m-w.com/cgi-bin/mwwod.pl

(A word of the day with definition, example sentence, information about the word, and related words.)

www.m-w.com:80/cgi-bin/dictionary

(Dictionary entries that include definitions, pronunciation, and etymology.)

www.m-w.com/lighter/flap/flaphome.htm

(A source on American youth slang.)

www.onelook.com

(A general dictionary clearinghouse site from which you can go to a variety of more specific dictionary sites: dictionaries of sports words, technology words, science words, and so forth.)

www.randomhouse.com/jesse

(See Jesse's Word of the Day.)

www.wilton.net/etyma1.htm

(Explanations of how popular expressions came into the vernacular.)

www.word-detective.com

(Derivations of hundreds of words; this is an online form of Evan Morris's syndicated column.)

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