Strategic Vocabulary Selection: Choosing Words From Narrative & Informational Texts

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Aims of Today's Presentation

1. Current vocabulary curricula
2. Factors that make this topic a critical one at the present time
3. Differences in the vocabularies of informational and narrative texts lead to unique selection criteria

1.Current Vocabulary Curricula
a. Standard Documents

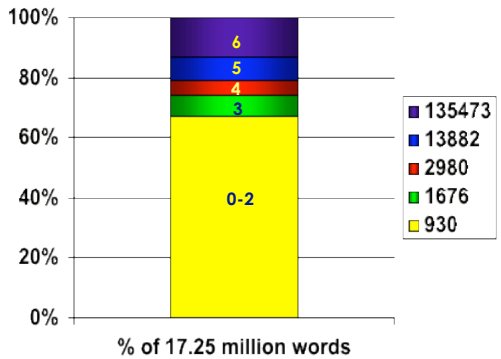
Content Area	Sample Words
Civics	abuse of power, campaign, elected representative, geographical representation, individual liberty, Labor Day, national origin, patriotism, school board, Uncle Sam, welfare
English Language Arts	abbreviation, capitalization, e-mail, genre, illustration, learning log, paragraph, reading strategy, table, verb
Geography	billboards, discovery, fall line, harbor, Japan, land clearing, national capital, Pacific rim, rain forest, technology, vegetation region
Mathematics	addend, capacity, equation, gram, improbability, mass, obtuse angle, quotient, sample, unit conversion
Science	bedrock, Earth's axis, gases, inherited characteristic, magnetic attraction, ocean currents, recycle, technology, water capacity

From Marzano (2004)

1b. Core Reading Programs: Shared Words in Reading/Language Arts Programs

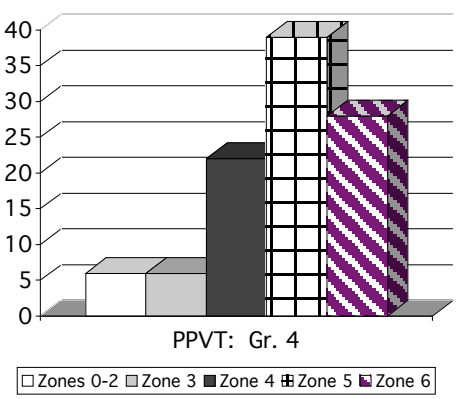
Reading/Language Arts	Percentages of Shared Words
HM2-HM4	0
HM4-HM6	2
HM2-HM4-HM6	0
SF2-SF4	0
SF4-SF6	4
SF2-SF4-SF6	0
Across HM & SF	0

Seven Word Zones



Zeno et al., 1995

1c. Assessment



2a. Factors that make this topic a critical one at the present time

Hart and Risley (1994): The gap in students' vocabularies on school entry is extensive. There are approximately 180,000 words in school texts (Zeno et al. 2000). All words cannot be a focus (through either direct or incidental instruction). Strategic selection of vocabulary is required if the gap for students who depend on schools to become literate is to be narrowed.

2b. The topography of American elementary classrooms has changed (and continues to change):

- With 90 to 210 minutes mandated for reading/language arts instruction in Reading 1st classrooms and NCLB mandates in mathematics, the amount of time available for science and social studies has decreased. With California's mandate (CA State Board of Education, April 17, 2006), much of science and social studies will occur within reading/language arts programs in grades K-3.
- Mandates of time spent in reading has meant less time for other subject areas where vocabulary demands can be great.
  - 80 percent of elementary teachers recently reported spending less than an hour each week teaching science;16 percent reported no science; this compares to an average of 2 hours weekly 7 years ago (Dorph, Goldstein, Lee, Lepori, Schneider, Venkatesan, 2007)
  - A report from *Center on Education Policy* shows that, since *No Child Left Behind* has taken effect, instruction time for language arts and mathematics has increased, while instruction time for other subject matter such as social studies and science has decreased significantly. (McMurrer, 2008).

2c. Reliance on a Core Reading Program: If vocabulary selection is derived mainly from a Core Reading Program, vocabulary instruction can be idiosyncratic.

Analyses indicate:

- 7% overlap in the Zone 3+ vocabulary in two basal reading units (Grade 2)
- 25% overlap in the Zone 3+ vocabulary in two science units (Grade 2)

3. Differences in the vocabularies of informational and narrative texts lead to unique selection criteria

4 Kinds of Academic Vocabulary

(Hiebert & Lubliner, in press)

Literary vocabulary (e.g., *flustered, rambunctious, yelped)*

Content-specific vocabulary (e.g., *geometry, triangle* in mathematics; *geography*, *navigation* in social studies)

General academic vocabulary (e.g., *specific, tend, supply*)

School-task vocabulary (e.g., *learning logs, summarize)*

The challenges of content-specific vocabulary

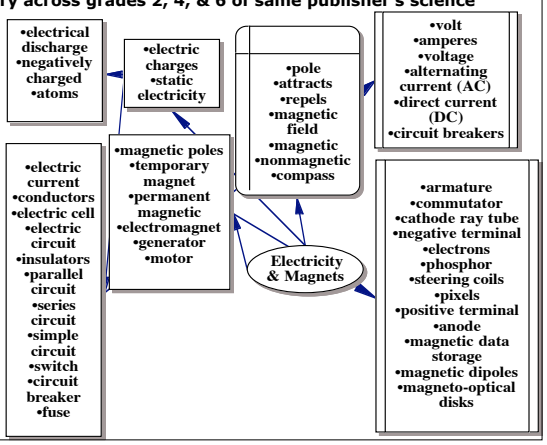
Conceptual difficulty: Knowledge of a concept by students at different grade levels

4-point scale (Nagy, Anderson, & Herman, 1987) with category 4 predicting performance

1-3: Known concepts with one-word synonym (e.g., *altercation*=fight) or that can be expressed in a familiar phrase (e.g., *apologize*=to say you're sorry) or unknown concept that can be learned from available experiences & information (e.g., *naïve*)

4: Unknown concept that requires learning of new factual information or a related system of concepts (e.g., *divide* as "boundary between drainage basins" requires information about river systems)

The Assets of Content-Specific Vocabulary: Vocabulary across grades 2, 4, & 6 of same publisher's science program



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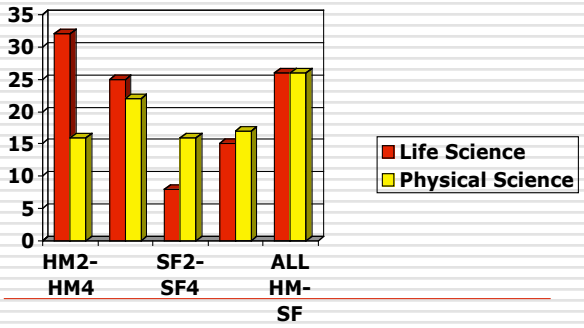
Shared Words in Science Programs



General Academic Vocabulary

Academic Word List (AWL) (Coxhead, 2000): Drawn from university-level textbooks

Core Academic Word List (CAWL) (Hiebert, 2007): A list for upper-grade elementary students

D	Example
1.0	a
.9	achieve
.8	adoption
.7	atlas
.6	ace
.5	amplified
.4	alloy
.3	abolition
.2	Afghanistan
.1	Austria-Hungary
.03	adverb

The CAWL: Consists of 400 Morphological Families in 4 sub-lists

Sublist of CAWL	Dispersion Index (X)	Frequency of Morphological Family (X)	#Members Morphological Family (X)
1	.95	209	5.7
2	.92	128	5.4
3	.88	123	5.3
4	.83	114	5.1

Percentages of Word Samples Accounted for by CAWL

Type of Text	Grade 2	Grade 4	Grade 6
Narrative	1.8	1.7	1.9
Science	2.3	7.1	10.1
Social Studies	4.2	7.9	10.6

from Hiebert (2007)

Literary vocabulary

- Has a high proportion of rare vocabulary
- A majority of this rare vocabulary consists of adjectives, verbs, and nouns that are synonyms for known concepts

Strategic Selection of literary vocabulary

1. Extensive Analysis

Sample:

- All of the unique words in a prototypical, mid-second-grade basal unit of three narrative texts (total words: 2,285; unique words: 661)
- Intended for a 3-week instructional period: 64 words are tagged as critical vocabulary

Criteria:

- Frequency (Allen, McNeal, & Kvak, 1992)
- Frequency of Morphological Family Reichle & Perfetti, 2003)
- Knowingness (a word's meaning is not already known) (Stallman, Comeyras, Kerr, Reimer, Jimenez, Hartman, & Pearson, 1990)
- Semantic Networks (Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983)

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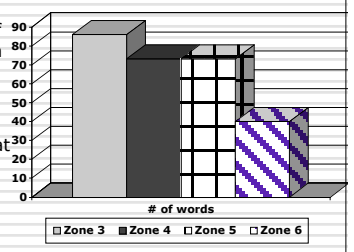
Step 1: Frequency

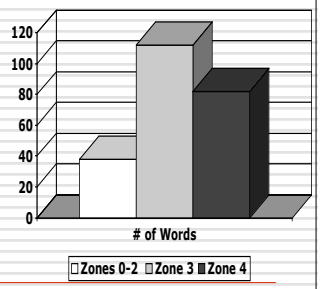
Frequency is regarded as an indicator of the likelihood of *prior* and *future* exposure in text

Frequency was established according to word zones that Hiebert (2005) based on Zeno, Ivens, Millard, & Duvvuri, 1995)



Step 2: Morphological Families

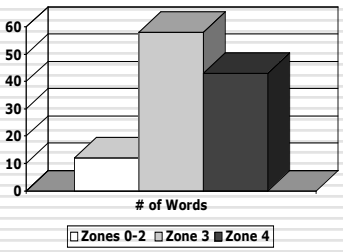
- Words from Nagy & Anderson's (1984) categories 0-3 were considered members of a related morphological family: "'one exposure learning' would be possible"
- Zeno et al.'s database was used to obtain total score for frequency of members in target word's morphological family
  - Example: **sewn: .23**
    4 (sew) + sewing (14) + sewn (2) = 20
    TOTAL: 20.23
- All words that were still in zones 5 & 6 were eliminated. That is: a word and its morphological relatives had to have 10 appearances or more per million words to remain in the curriculum.



Step 3: Knowingness I

Dale & O'Rourke's (1981) *Living Word Vocabulary*

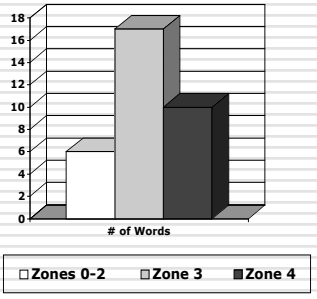
Grade 4: <84%



Step 3: Knowingness II

Subsequent to the LWV analysis, additional filters were applied for knowingness and words were eliminated if they were:

- Words with imagery ratings of 5.75 or higher (7-point scale) (van der Veur, 1975)
- Words within the speaking vocabularies of second graders (Johnson & Moe with Baumann, 1983).
- Proper names, numbers, and contractions



Step 4: Semantic Networks

Objective: Identify (and differentiate between) two types of words (Graves, 2000):

- **Words that are synonyms for already known words/concepts**
- **Words that represent unknown concepts**

Marzano & Marzano's analyses of 7,230 words into 61 superclusters

Examples:

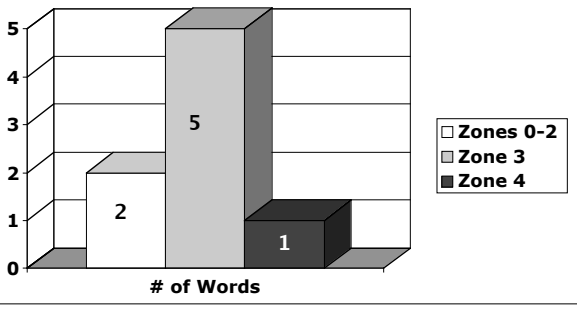
- Occupations: scientist, winner, master
- Types of motion: prevent, pursuit, explosion

Thesaurus: Used to establish number of synonyms for meanings of a word

Example: vault:

- Meaning 1: crypt, burial chamber, tomb, catacomb, mausoleum (5 synonyms)
- Meaning 2: jump, leap, spring, hurdle, bound (5 synonyms)

Semantic Application I: Words that are part of rich semantic clusters (100 or more members)



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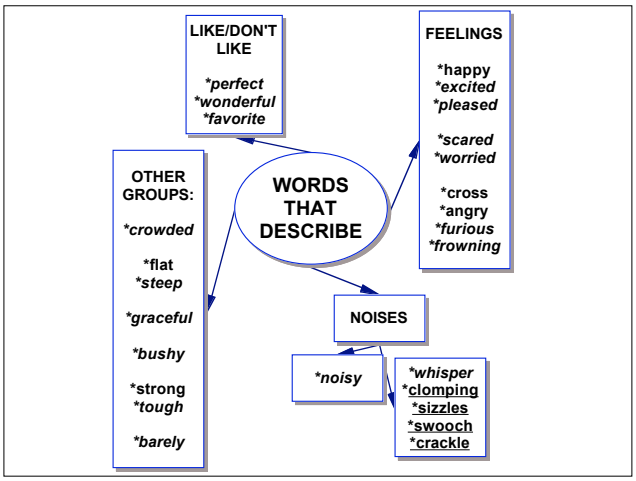

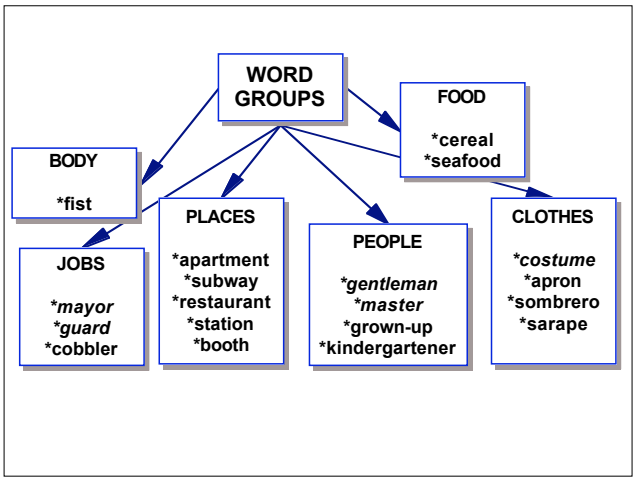

Semantic Application 2: Remaining words

These words are reviewed to ensure that a word:

- Represents an important concept in the target text and subsequent reading
- Is not the typical word students would use in writing or speech for the concept (e.g., explode rather than blow up)
- Has at least several morphological relatives that appear with some frequency

		LWV (Johnson & Moe)	Frequency of Morphological Family (# members)	Super-cluster	Synonyms
Zone 0-2	creation	*6 (93) *(33)	15 + 142 = 156 (8)	N	formation invention nature
	details	*8 (79) *(33)	53 + 73 = 126 (3)	N	particulars fine points facts
Zone 3	explode	*4 (70) *12 (Gr.3)	5 + 31 = 36 (5)	N	blow up; blast; go off
	layer	*6 (67) *33	35 + 47 = 82 (3)	N	coating or cover; stratum or tiers
	medicinal	*8 (72) *33	.69 + 60 = 60.69 (2)	N	healing therapeutic
	polish	*4 (73) *33	17 + 15 =32 (6)	N	shine sparkle
	retraced	*4 (77) *33	.5 + 42 = 42.5 (8)	N	go back over; repeat
Zone 4	victory	*6 (68) *33	5 + 21 = 26 (2)	N	conquest; triumph; win, success

Other Words in the Unit

- We also vet the words in the rare and very rare groups through a similar process, identifying a handful of words to teach (e.g., *disguise)*
- Additional words from rare/very rare categories have been included in the semantic maps (e.g., *apron, booth, station)*

PRINCIPLED VOCABULARY CURRICULUM

- 8 "high-leverage" words (with 37 additional morphological relatives) have are instructed thoroughly
- 23 words within the target levels plus 23 from rare levels presented as part of ongoing semantic clusters (where clusters have numerous additional members)
- Total: 8 + 37 + 23 + 23 (plus additional words in semantic clusters)

BASAL VOCABULARY CURRICULUM

- 64 words presented in the same "define/mention it" manner

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2. Teacher-friendly analysis

- From the original database of 6,000 words (Grs. 2, 4, 6 of core reading program), 454 zone 3+ words (distributed evenly across the three grade levels) were examined
- 2 words appeared at more than one grade level: *raided* and *Alaska(n)*
- 40 verbs were taken from each of the approximately 151 words for a grade level

Category Name
NAMES FOR PEOPLE & ANIMALS
PHYSICAL ATTRIBUTES
FEELINGS & VALUES
BODY & HEALTH
MACHINES & TOOLS
EARTH & SUN
PLACES & DWELLINGS
PHYSICAL ACTIONS & MOTION
COGNITIVE/ PERCEPTUAL ACTIONS
COMMUN-ICATION
ARTS AND ENTERTAIN-MENT
SPECIALIZED CONTENT AREAS

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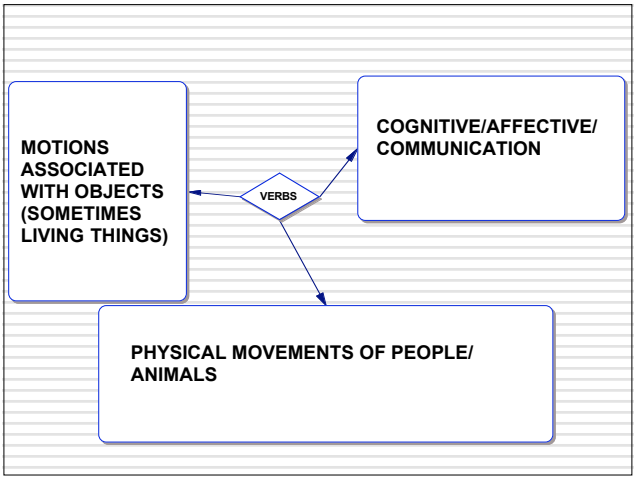

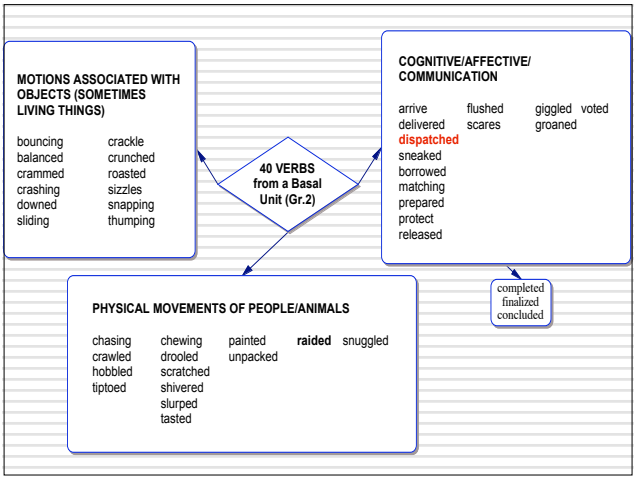

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