

Addressing Developmental Patterns in Vocabulary: Implications for Choosing Words for Instruction

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Summary

I (and everyone else here yesterday and today!) have been talking about the importance of vocabulary. As I noted, while the ability to read words in a text is prerequisite to comprehending the text, many children can read but fail to understand due to vocabulary limitations.

Before describing our approach to identifying words for instruction for use in the primary grades, I reviewed a number of studies which support the conclusion that words are acquired in a predictable order. Of particular importance is the finding that the order of word knowledge in different populations (normative-English speaking, advantaged, and ESL) is remarkably similar. The *correlation* of words in different populations are correlated around $r = .90$ or better.

Given that words are in fact acquired in the same order--whether one reaches a vocabulary of a given size--say 6000 root words--at age 6, 8, or 10--the actual words learned will be similar. Thus to accelerate the rate of word acquisition should probably be to fill in the words learned by those with larger vocabularies. We have targeted words typically known by some but not all children at a specified grade level. We propose to find words known at 30 to 70% by median children at the target grade. For the primary grades, we believe such a list can be constructed based on target words at the end of grade two. Once we have such a list in hand, we can begin to design an effective vocabulary curriculum. In my view, such a curriculum would primarily use repeated reading of narrative and expository adult-read texts, combined with explanations of selected word meanings and reviews of words taught. Without knowledge of target words, it will be extremely difficult to run a program that is worth using classroom time.

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Figure 1. Defining versus Reading Words, Grades Three to Six

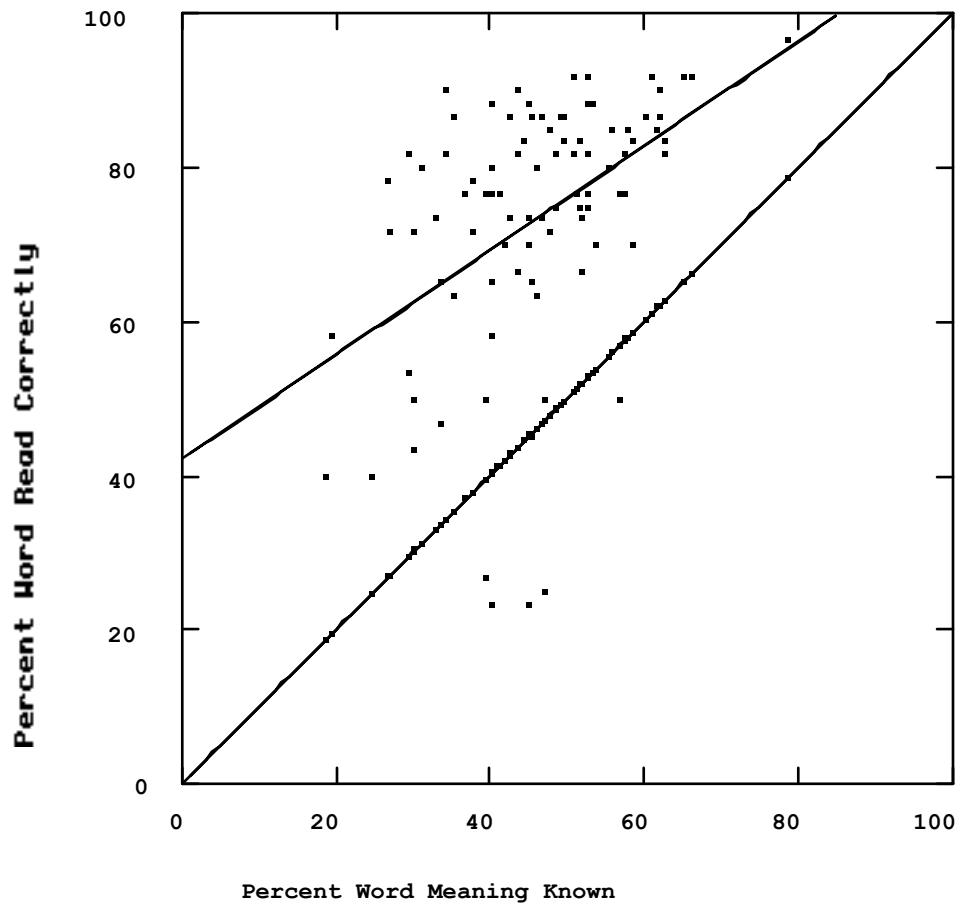


Figure 2.

Words from Different Difficulty Levels by Children of Different Sizes of Vocabulary

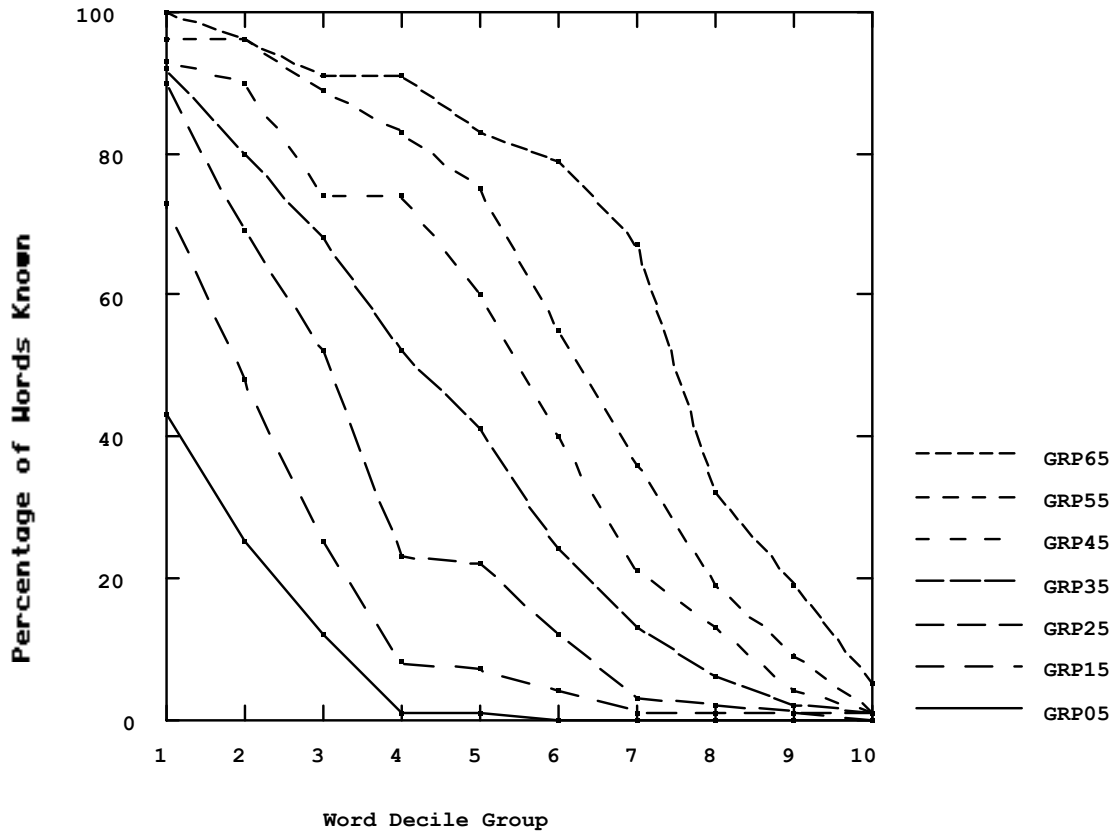


Table 1
 Mean Percentages of Correctly Explaining and Correctly Reading Words and Difference Between Them, by Grade. (Standard deviations in parentheses)

Grade	N	Word-meaning knowl.	Read Vocab.	Read-Explain Difference
two	24	37% (11%)	44 (25)	8 (25)
three	28	39 (10)	63 (18)	24 (16)
four	20	44 (9)	70 (16)	26 (18)
five	24	49 (8)	79 (13)	30 (14)
six	20	53 (12)	84 (8)	30 (11)

Table 2.
 Revised Estimates of Vocabulary^a

	LWV Level						total
	2	4	6	8	10	12	
Number of words at LWV level	2578	2503	3499	3981	2414	2591	17570
Grade							
One	1502	600	560	112	81	13	2905 ^b
Two	1918	1186	1269	905	350	176	5855
Three	2071	1317	1495	831	621	309	6597
Four	2139	1402	1925	1338	749	357	7910
Five	2490	1834	2305	1713	961	496	9960 ^c
Six	2544	2031	2190	1792	820	484	9861

note a. These vocabulary estimates are based on the known number of root words at each level of the *Living Word Vocabulary*, the observed percentage number of words at the level in each form, and adjustments of a reduction of 15% based on overall observed redundant word meaning entries, and an increase of 10 to 25% based on data from Anglin (1993) which yields an estimate of words not in the *Living Word...* but which are known by some children at that grade level. Results are based on averages from data in studies 1 and 3 of Biemiller & Slonim, 2001.

note b. This estimate is probably low. Below grade two many words can apparently not be explained.

note c. This is probably an overestimate. The overall data suggests an increase from about 6000 words at grade two to 10,000 at the end of grade six.

Table 5.

Normative Population: Percentage of Vocabulary Achievement Group by Grade
(Combined Forms)

Grade	0- N	Estimated Vocabulary Group ^a							
		1751- 1750	3501- 3500	5250- 5250	7001- 7000	8751- 8750	10501- 10500	12251- 12250	14000
kind.	43 (100%)	35%	42	21	2	0	0	0	0
gr. 1	37 (100%)	22%	30	43	5	0	0	0	0
gr. 2	49 (100%)	2%	8	18	33	27	10	2	0
gr. 3	29 (100%)	0%	7	21	28	34	10	0	0
gr. 4	41 (100%)	0%	2	15	27	29	22	10	0
gr. 5 ^b	24 (100%)	0%	0	0	10	45	20	25	5
gr. 6	20 (100%)	0%	0	0	5	30	25	30	10

Table 6.

Normative Population: Performance of Vocabulary Achievement Groups on Words of Varying Difficulty
(Data combined from Forms A and B.) (Numbers in *italics* were at 25% or lower average word knowledge.
Numbers **bolded** were known at 70% or higher word knowledge.

Avg. % Word Decile	Words gr. 1,2,4,5	Estimated Vocabulary Group ^a							
		0- 1750	1751- 3500	3501- 5250	5250- 7000	7001- 8750	8751- 10500	10501- 12250	12251- 14000
10	02%	<i>00%</i>	<i>00</i>	<i>01</i>	<i>01</i>	<i>01</i>	<i>02</i>	<i>05</i>	45
9	05	<i>00</i>	<i>01</i>	<i>01</i>	<i>02</i>	<i>04</i>	<i>09</i>	<i>19</i>	50
8	11	<i>00</i>	<i>01</i>	<i>03</i>	<i>07</i>	<i>14</i>	<i>19</i>	32	58
7	20	<i>00</i>	<i>01</i>	<i>03</i>	<i>13</i>	<i>21</i>	36	67	63
6	32	<i>00</i>	<i>05</i>	<i>13</i>	<i>24</i>	40	55	79	88
5	47	<i>01</i>	<i>07</i>	22	41	60	76	83	79
4	56	<i>01</i>	<i>08</i>	24	52	74	84	91	88
3	62	<i>13</i>	25	52	68	74	89	91	100
2	71	25	48	70	80	90	96	96	100
1	87	43	74	91	92	93	97	100	100

Table 7.

Words Known at Grade Two, Being Learned at Grade Two, and Not Usually Learned at Grade Two.^a

<u>Known Well in Grade 2</u>	<u>Being Learned in Grade 2</u>		<u>Unlikely to learn in Grade</u>	
decile 1	decile 3	decile 5	decile 6	decile 9
fish	subtract	blab	mammoth	bit
flood	done	stock	thigh	franchise
throat	buckle	peeve	because	sequence
match	boulder	shimmer	tree (shoe)	inquisitive
café	secure	straight	astronomy	vain
<i>spread</i>	right	root	<i>distant</i>	popular
<i>shot</i>	react	know	<i>man</i>	(vote)
<i>voice</i>	<i>fresh</i>	beat	<i>period</i>	<i>jurisdiction</i>
<i>near</i>	<i>peep</i>	<i>haul</i>	<i>garble</i>	<i>perpendicular</i>
<i>stab</i>	<i>dodo</i>	<i>gull</i>	<i>duplex</i>	<i>empty</i>
	<i>wad</i>	<i>parcel</i>	<i>curious</i>	<i>republic</i>
decile 2	decile 4	<i>possum</i>	decile 7	<i>discord</i>
stuff	cobra	<i>transit</i>	victim	<i>cow</i>
subtract	tally	<i>knoll</i>	polo	(<i>female</i>)
flown	thud	<i>envelop</i>	guard (v.)	decile 10
fuss	drama	<i>lash</i>	former	etch
sliver	<i>through</i>		alias	question
anchor	<i>matting</i>		robust	(problem)
<i>space</i>	<i>litter</i>		<i>text</i>	valor
<i>shadow</i>	<i>Vaseline</i>		<i>nation</i>	parch
<i>loop</i>			<i>ominous</i>	destitute
<i>listen</i>			<i>narrow</i>	cognac
<i>drop</i>			<i>writhe</i>	<i>locomotion</i>
<i>swing</i>			decile 8	<i>lance</i>
(<i>baseball</i>)			dibs	<i>abrasive</i>
<i>kept</i>			induct	<i>reformation</i>
<i>math</i>			vice	<i>oligarchy</i>
<i>justice</i>			rotary	
			swoon	
			junction	
			<i>lust</i>	
			<i>character</i>	
			<i>cartilage</i>	
			<i>matron</i>	
			<i>delinquent</i>	
			<i>whittle</i>	

Note a. Words taken from Appendices B and C of Biemiller & Slonim (2001).

Table 8.

Sample Test Sentences for Words Known at Grade Two, Being Learned at Grade Two, and Not Usually Learned at Grade Two.

Level & Word	Meaning Tested	LWV Level	Test Sentence
Known by Grade Two Children (70% or better)			
<u>fish</u>	a water animal	2	Johnny caught a <u>fish</u>
<u>throat</u>	passage from stomach to mouth	2	He felt a lump in his <u>throat</u> .
<u>match</u>	thing to light fire	2	Where is the box of <u>matches</u> ?
<u>cafe</u>	eating place	2	She met him at the <u>cafe</u> .
<u>drop</u>	fall	2	The ball <u>dropped</u> from his hand.
<u>math</u>	school subject	6	John got his <u>math</u> work done quickly.
Words being learned at grade two (deciles 4 and 5)			
<u>tally</u>	count	8	The teacher kept a <u>tally</u> of days missed
<u>react</u>	act back	10	When the cat saw the mouse, she didn't <u>react</u> .
<u>drama</u>	plays	6	She enjoys watching <u>drama</u> productions.
<u>blab</u>	tell secret	10	He made a promise not to <u>blab</u> .
<u>parcel</u>	package	6	The <u>parcel</u> was delivered to the office.
<u>transit</u>	public transportation	8	The children took <u>transit</u> to school.
Words unlikely to be known in grade 2 (30%) (Examples from deciles 6 - 12)			
<u>tree</u>	rack for shoes, hats	12	The guests hung their hats on the coat <u>tree</u> .
<u>guard</u>	a defense	6	Keep your <u>guard</u> up.
<u>lust</u>	strong desire	10	Their <u>lust</u> for battle was strong.
<u>character</u>	nature of	8	Difficult times in life may show the true <u>character</u> of a person.
<u>cartilage</u>	tough tissue	8	She suffered from torn <u>cartilage</u>
<u>abrasive</u>	scratch material	12	That material is <u>abrasive</u> .