

### ***Method: Treatment Materials***

Because items were randomly assigned to treatment or a no-treatment control condition for each child, each word was used in treatment for 13 children. One set of words was used for a fourteenth child but this child did not complete the definition post-test. To examine item effects, the percentage of children (out of 13) who defined the target word correctly at post-test when the word received treatment was computed. These values are shown in the second column of Supplemental Table S2. These values were significantly correlated with those reported by Justice and colleagues (2005, Table 4, summed post-test scores) for the subset of 30 words in Justice's elaborated treatment condition, which is similar to the treatment form in the current study,  $r(30) = 0.72$ ,  $p < .001$ ,  $r^2 = 0.52$ . For the current study, the percentage of children (out of 13) who defined untreated control words correctly also was computed to use as a reference point in interpreting learning of the treated items. On average, 0% (range = 0–23%) of children defined untreated control words correctly. Treated words were then classified at post-test by those that were learned beyond the *range* of the control words (i.e., more than 0–23% of children learned the word). These words are considered to be the frequently learned words (17% of treated words) and are shaded in green in Supplemental Table S2. Treated words that were learned beyond the *average* of the control words (i.e., by more than 0% of children) also are noted and are shaded in blue in Supplemental Table S2 (53% of treated words). Finally, treated words that were never learned (30% of treated words) are shaded in orange in Supplemental Table S2.

The remaining columns of Supplemental Table S2 show the characteristics of the materials used to treat each target word. This includes the number of words in each treatment exposure as well as the average frequency of those words from the Storkel and Hoover (2010) online calculator based on word frequency in child corpora of spoken American English. Possible associations between the percentage of children who learned a word and exposure variables (shown in Supplemental Table S2) and word characteristics (phonotactic probability, neighborhood density) were explored through correlation analyses. However, no significant effects were obtained. The only potentially promising observation was that verbs were rarely present in the frequently learned words category: 8% frequently learned (green shading), 52% learned (blue shading), 40% never learned (orange shading). Likewise, the majority of nouns fell in the middle/learned category: 13% frequently learned (green shading), 69% learned (blue shading), 19% never learned (orange shading). Adjectives were relatively equally distributed across learning categories: 32% frequently learned (green shading), 42% learned (blue shading), 26% never learned (orange shading). Overall, these results should be viewed with caution because it is likely that the nature of this study may not lend itself to a thorough understanding of word or exposure effects. That is, some children received treatment in less effective conditions (e.g., intensity 12), limiting the number of words learned.

**Supplemental Table S2.** *Characteristics of words learned during treatment based on correct definition scores at post-treatment testing.*

Target Word	%Children Defined Word Correctly at Post	Classification of Word at Post	Book Title	Part of Speech	Frequency of Word	# of Words in Definition	Average Frequency of Words in Definition	# of Words in Synonym	Frequency of Synonym	# of Words in Context Sentence	Average Frequency of Words in Context Sentence	# of Words in Book Text Sentence	Average Frequency of Words in Book Text Sentence
pouted	46%	Above Control Range (0-23%)	Book! Book! Book!	verb	0	8	1952	1	0	9	313	3	60
haddock	38%	Above Control Range (0-23%)	The Bear Under the Stairs	noun	0	8	134	1	217	11	1501	7	20
horrified	38%	Above Control Range (0-23%)	The Caterpillar That Roared	adjective	0	5	107	1	7	11	1563	3	0
tight	38%	Above Control Range (0-23%)	The Bear Under the Stairs	adjective	58	5	275	1	94	13	232	20	731
crept	31%	Above Control Range (0-23%)	The Bear Under the Stairs	verb	1	6	143	1	4	11	1725	5	1311
flashing	31%	Above Control Range (0-23%)	What Do You Do With a Kangaroo	adjective	12	8	446	1	1	9	990	27	1075
gulp	31%	Above Control Range (0-23%)	Swimmy	noun	0	9	779	1	8	13	1779	10	2954
invisible	31%	Above Control Range (0-23%)	Swimmy	adjective	18	5	295	1	125	15	1307	7	123
overjoyed	31%	Above Control Range (0-23%)	Imogene's Antlers	adjective	0	5	321	1	10	10	1805	16	2088
worn	31%	Above Control Range (0-23%)	What Do You Do With a Kangaroo	adjective	8	7	173	1	9	9	240	22	543

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damp	23%	Above Mean Control (0%)	Harry and the Terrible Whatzit	adjective	8	4	41	1	1	9	494	12	486
glared	23%	Above Mean Control (0%)	Imogene's Antlers	verb	0	8	2049	1	1	12	669	6	195
hooves	23%	Above Mean Control (0%)	Otis	noun	0	11	202	1	189	12	1646	20	807
swaying	23%	Above Mean Control (0%)	Swimmy	verb	0	8	547	1	7	10	175	13	178
clamor	15%	Above Mean Control (0%)	Possum and the Peeper	noun	0	9	1666	1	107	11	579	10	985
furnace	15%	Above Mean Control (0%)	Harry and the Terrible Whatzit	noun	13	8	1304	1	42	11	270	6	72
gathered	15%	Above Mean Control (0%)	Book! Book! Book!	verb	2	7	1983	1	3	12	3105	21	376
midday	15%	Above Mean Control (0%)	Swimmy	noun	0	6	375	1	204	11	1295	19	593
racket	15%	Above Mean Control (0%)	Possum and the Peeper	noun	0	6	52	1	8	12	274	16	1063
ripe	15%	Above Mean Control (0%)	Otis	adjective	9	8	537	1	529	9	1638	24	257
sidelines	15%	Above Mean Control (0%)	Otis	noun	0	10	49	2	107	14	196	14	113
spotless	15%	Above Mean Control (0%)	Otis	adjective	0	5	471	1	624	11	507	9	315
squawked	15%	Above Mean Control (0%)	Book! Book! Book!	verb	0	5	370	1	10	13	1624	13	358
swat	15%	Above Mean Control (0%)	Harry and the Terrible Whatzit	verb	6	10	396	1	91	12	1845	9	205
swift	15%	Above Mean Control (0%)	Swimmy	adjective	0	5	192	1	316	12	358	16	827
tailor	15%	Above Mean Control (0%)	What Do You Do With a Kangaroo	noun	0	7	244	1	2	10	795	16	1030
awful	8%	Above Mean Control (0%)	The Bear Under the Stairs	adjective	26	5	772	1	354	15	438	6	855
gloomy	8%	Above Mean Control (0%)	Harry and the Terrible Whatzit	adjective	0	4	2047	1	254	10	125	6	553
grumbling	8%	Above Mean Control (0%)	Possum and the Peeper	verb	0	5	20	1	0	11	2859	14	452
heaved	8%	Above Mean Control (0%)	Book! Book! Book!	verb	0	6	1529	1	12	10	621	5	1
marsh	8%	Above Mean Control (0%)	Possum and the Peeper	noun	1	9	90	1	1	12	1530	15	1863
marvel	8%	Above Mean Control (0%)	Swimmy	noun	0	9	259	1	86	14	385	19	236
nervous	8%	Above Mean Control (0%)	Shy Charles	adjective	8	5	80	1	1	13	716	7	2085
noticed	8%	Above Mean Control (0%)	The Bear Under the Stairs	verb	2	7	1848	1	5241	9	241	11	143
ripples	8%	Above Mean Control (0%)	The Caterpillar That Roared	noun	0	5	1167	1	8	9	877	10	996
ruffle	8%	Above Mean Control (0%)	Book! Book! Book!	verb	0	10	1594	1	8	10	1349	11	68
scarlet	8%	Above Mean Control (0%)	Shy Charles	noun	9	5	343	1	365	11	289	7	25
snuggled	8%	Above Mean Control (0%)	The Caterpillar That Roared	verb	0	9	543	1	1	11	1226	15	729
stale	8%	Above Mean Control (0%)	What Do You Do With a Kangaroo	adjective	9	6	4207	1	513	13	525	16	952
swung	8%	Above Mean Control (0%)	Harry and the Terrible Whatzit	verb	2	8	551	1	2	10	223	5	390
wandered	8%	Above Mean Control (0%)	Imogene's Antlers	verb	1	7	848	2	58	12	353	4	79
whinnied	8%	Above Mean Control (0%)	Book! Book! Book!	verb	0	9	1613	1	0	10	774	5	33

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advice	0%	Never Learned (0%)	Imogene's Antlers	noun	0	9	1296	1	624	12	1575	6	1621
decided	0%	Never Learned (0%)	The Bear Under the Stairs	verb	13	5	4799	1	4	9	626	14	262
discovered	0%	Never Learned (0%)	Harry and the Terrible Whatzit	verb	0	7	771	1	2	11	266	15	1155
embarrassed	0%	Never Learned (0%)	Shy Charles	adjective	1	6	29	1	6	13	778	6	4100
frayed	0%	Never Learned (0%)	What Do You Do With a Kangaroo	adjective	0	7	980	1	22	11	547	21	33
gaze	0%	Never Learned (0%)	The Caterpillar That Roared	verb	0	8	2240	1	1	14	598	22	1841
hauled	0%	Never Learned (0%)	Otis	verb	58	5	101	1	8	12	2077	24	167
murmured	0%	Never Learned (0%)	Shy Charles	verb	0	8	89	1	1	11	363	10	1287
peering	0%	Never Learned (0%)	Possum and the Peeper	verb	0	8	1313	1	16	11	1550	15	194
prodded	0%	Never Learned (0%)	Imogene's Antlers	verb	0	6	334	1	82	11	216	9	28
rare	0%	Never Learned (0%)	Imogene's Antlers	adjective	1	5	2758	2	4987	11	1744	20	736
silky	0%	Never Learned (0%)	Otis	adjective	9	8	1340	1	23	11	1272	9	77
smooth	0%	Never Learned (0%)	What Do You Do With a Kangaroo	adjective	23	4	159	1	411	10	530	22	1427
squinting	0%	Never Learned (0%)	Possum and the Peeper	verb	0	7	427	1	9	11	464	12	86
success	0%	Never Learned (0%)	Shy Charles	noun	0	9	1000	1	0	12	186	5	6324
surface	0%	Never Learned (0%)	The Caterpillar That Roared	noun	0	5	659	1	440	12	548	10	70
trembled	0%	Never Learned (0%)	Shy Charles	verb	0	9	143	1	1	10	509	6	4
twitch	0%	Never Learned (0%)	The Caterpillar That Roared	verb	0	5	91	1	16	11	1217	23	598