

Reading Skills Predict Learning from Listening: Predictors of Spoken Word-Learning Across Instructional Contexts and Time



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Introduction

- Vocabulary and reading skills are reciprocally related
 - Oral vocabulary knowledge provides important foundation for learning to decode and comprehend text.
 - Reading provides rich and repeated exposure to words, increasing vocabulary breadth and depth.
- The influence of reading may extend beyond printed text. Learning to read appears to change how spoken language is processed (Castles et al., 2011; Kolinsky, 2015; Wegner, 2018).
 - Bryant et al. (2026) found that vocabulary knowledge and word reading ability uniquely predicted children's learning of novel spoken words – taught in the absence of print – after controlling for phonological memory, general language ability, and nonverbal cognition.
 - One interpretation is that orthographic knowledge supports spoken vocabulary learning even in the absence of print.
 - However, word reading is strongly related to phonological skills. It is also possible that the apparent contribution of word reading reflects its correlation with children's ability to analyze and manipulate speech sounds (i.e., phonemic awareness).

Purpose

- To test whether word-reading ability predicts children's learning of new spoken words because literacy supports spoken word learning, or because word reading reflects underlying phonemic awareness.
- To extend the work of Bryant et al (2026) by examining whether these predictors operate similarly across different instructional contexts, exposure levels, measures of word learning, and retention intervals.

Method

Participants

- 293 children aged 7-9 years, enrolled in second grade recruited as part of a study of word learning in children with dyslexia, DLD, or typical development.

Predictor Measures and Sample Descriptives

Construct	Measure	Mean	SD
Vocabulary	EVT-3 Standard Score	99.40	14.98
Word Reading	WRMT-3 Word Identification Standard Score	92.37	18.67
Phonemic Awareness	CTOPP-2 Elision Scaled Score	8.60	2.69
Phonological Memory	CTOPP-2 Memory for Digits Scaled Score	9.23	2.89
Nonverbal Cognition	TONI-4 Index Standard Score	103.64	10.43

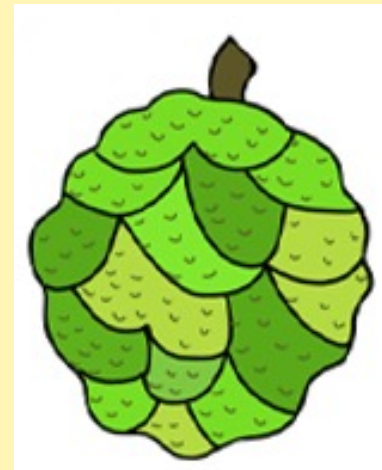
Predictor Intercorrelations

	WRMT-3 Word ID	CTOPP-2 Elision	TONI-4	CTOPP-2 Digit Span
Vocabulary EVT-3	.51	.53	.34	.41
Word Reading WRMT-3 Word ID	-	.59	.33	.39
Phonemic Awareness CTOPP-2 Elision		-	.43	.41
Nonverbal Cognition TONI-4			-	.19

Word Learning Tasks

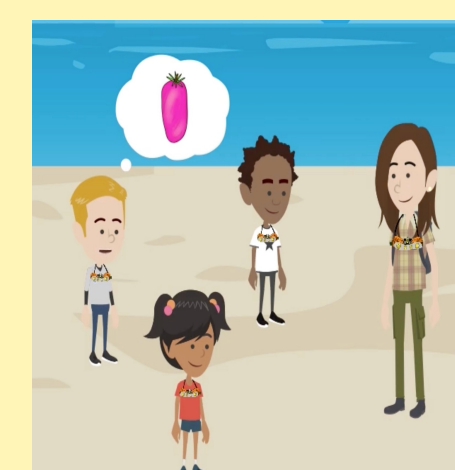
- Stimuli:** 16 CVCVC nonwords paired with novel objects from familiar categories (e.g., fruits, animals, tools, vehicles)
- Instructional contexts**
 - Low context instruction:** 8 nonword-object pairs and definitions/descriptions were taught with rote, oral instruction and spaced recall and recognition practice opportunities with feedback.
 - High context instruction:** 8 nonword-object pairs and definitions/descriptions were taught within an animated cartoon narrative that provided spaced opportunities for recognition and recall practice with feedback.
- Exposure Levels.** Within each task, 4 words were taught in each of 2 exposure levels
 - Moderate exposure:** 18 presentations of the form, 3 recall opportunities, and 3 recognition opportunities
 - High exposure:** 35 form presentations, 5 recall opportunities, and 5 recognition opportunities
- Test Times.** Word learning was assessed at two time points:
 - Immediate posttest,** immediately after instruction
 - Delayed posttest,** approximately 1 week later.

Low Context Instruction



This is a [word].
It is a type of [category].
The [word] [feature A].
It [feature B].
The [word] [feature C].
The [word] [feature D].
Can you find the [word]?
[Finding feedback] [word]
What's this called? You say it.
[Naming feedback] [word]

High Context Instruction



Dr. Lopez: Do you know what to look for when we get up there?

Jack: I think so... The /nivas/ is pink on the outside, which should be easy to spot.

Word Learning Assessments and Sample Descriptives

Task	Naming	Listening	Describing	Finding
Construct	Phonological Recall	Phonological Recognition	Semantic Recall	Semantic Recognition
Example item	"What's this called?" 	"Listen for the correct word." 	"Tell me everything you know about a /metd3/. 	"Find the /metd3/.
Scoring	% Phonemes correct	# Items correct	# Features correct	# Items correct
Mean (SD)	29.0 (17.76)	2.42 (0.8)	4.84 (2.98)	2.41 (0.96)
Min-Max	0-100	0-4	0-16	0-4

Note. Means are participant-level averages collapsed across instructional context, exposure level, and test time. The effects of instructional context, exposure level, and test time varied between word learning assessments.

Mean Predictor-Outcome Correlations by Word Learning Assessment

	Naming Mean r min - max	Listening Mean r min - max	Describing Mean r min - max	Finding Mean r min - max
Vocabulary	.40 .31 - .50	.35 .29 - .41	.55 .50 - .59	.39 .33 - .42
Word Reading	.38 .33 - .41	.32 .20 - .42	.43 .36 - .47	.35 .28 - .43
Phonemic Awareness	.32 .22 - .43	.31 .25 - .36	.41 .33 - .49	.34 .25 - .47
Nonverbal Cognition	.24 .16 - .32	.27 .12 - .39	.37 .33 - .41	.25 .18 - .34
Phonological Memory	.20 .12 - .27	.22 .19 - .26	.25 .19 - .30	.21 .15 - .29

Analytic Approach

- Linear regression models
 - 32 word-learning outcomes: 4 tasks × 2 contexts × 2 exposure levels × 2 test times.
 - 5 predictors: vocabulary, word reading, phonemic awareness, phonological memory, and nonverbal cognition.
- Dominance analysis (considers all predictor subsets) was used to evaluate each predictor's relative contribution to explained variance in each model.

Results

- Vocabulary knowledge was the strongest and most consistent predictor of spoken word learning, ranking first or second in 30 of 32 models.
- Word reading was the most consistent secondary predictor, ranking first or second in 21 models
 - Word reading outperformed phonemic awareness in most of the high context (13/16) and most of the low exposure (13/16) models
- Phonemic awareness showed a more selective contribution, ranking first or second in 10 models.
 - The models that PA contributed to mostly involved high exposure instruction (9/10 models) and most also involved low context instruction (7/10 models).
- Nonverbal cognition made smaller, less consistent contributions and phonological memory never ranked among the top two predictors.
- Vocabulary, word reading, and phonemic awareness were the top three predictors across all word learning measures and test times.

Predictor	Mean General Dominance	Mean % Model R ²	Mean Rank	Models Ranked 1st	Models Ranked 1st or 2nd
Vocabulary	0.10	38.85	1.38	22.00	30.00
Word Reading	0.06	23.52	2.28	5.00	21.00
Phonemic Awareness	0.04	18.46	2.78	3.00	10.00
Nonverbal Cognition	0.03	12.29	3.88	2.00	3.00
Phonological Memory	0.02	6.88	4.69	0.00	0.00

Note. Mean dominance weight reflects each predictor's average general dominance statistic, in R² units, across the 32 outcome-specific models. Mean % of model R² reflects the average percentage of explained variance attributable to each predictor.

Discussion

- Results extend prior evidence that **word reading abilities predict word learning, even in the absence of print.**
 - This relation is not reducible to phonological memory or phonemic awareness.
- Consistent with prior work (Abel & Schuele, 2014; van Viersen et al., 2024), phonemic awareness was a stronger predictor than phonological memory, highlighting the greater importance of the ability to analyze and segment unfamiliar phonological forms than verbal memory span.
- Stronger readers may use orthographic knowledge as a mental anchor, helping to remember sound patterns of novel words even when no print is shown.
 - Word reading was particularly informative in low-exposure conditions. Orthographic knowledge may help stabilize new spoken forms when auditory input is limited.
 - Word reading was particularly informative in high-context instruction. Orthographic knowledge may support maintenance of phonological forms while children are processing the richer narrative context.
- Stronger readers showed advantage in learning new spoken words, even when exposures were controlled and meanings were taught explicitly through oral instruction.

Reading skill shapes not only how many words children encounter, but how efficiently they learn new words when they hear them.

More info:



<https://www.scrolllab.org/presentations>

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