

# How Children Learn to Spell Complex Words: Understanding Differences in Spelling Development

## INTRODUCTION

- Abilities to **read** and **write** are foundational skills upon which a child's academic success or persistent difficulties rest (Anderson et al., 1985; National Research Council, 1998).
- Need for **sufficient literacy skills** extends beyond one's school years and has been linked to a person's quality of life, including access to career opportunities and the ability to participate in the Information Age (Anderson et al., 1985; National Research Council, 1998).
- Only about **one-third** of fourth graders in the United States are reading at **proficient levels** (National Center for Education Statistics, 2023).
- Learning to **spell** in English is even more complex than learning to **read** (Venezky, 1999)
- Thus, understanding the **variability** that underpins the English language is crucial for identifying which types of words present children with the greatest difficulty and how instruction can more effectively **support** their development

## PURPOSE

- Few studies have examined how specific word features (e.g., frequency, morphological shifts) and child characteristics (e.g., set for variability) impact children's ability to spell them.
- The present study examines how **individual differences** among third through fifth-grade students and the characteristics of **specific multisyllabic words** (i.e., words with more than one syllable such as delightful) **influence** spelling, reading, and vocabulary performance.

## RESEARCH QUESTIONS

- Does spelling accuracy vary depending on child-level skills (e.g., set for variability), word features (e.g., length), and child-by-word-level knowledge (e.g., familiarity)?
- Exploratory*: How do initial child-level skills and word features interact to predict spelling performance?

## METHODS

### Participants:

**N = 83** third-fifth grade students

### Analytic Approach:

- Explanatory Item Response Models

### Child-Level Measures:

- Spelling** (WRAT-5; Wilkinson & Roberston, 2017)
- Rapid Automatized Naming** (CTOPP-2 Rapid Letter Naming; Wagner et al., 2013)
- Vocabulary** (EOWPVT-4; Martin & Brownell, 2011)
- Set for Variability** (SFV 1998, 2012; Steacy et al. 2019)
- Morphological Knowledge** (Nagy et al., 2003)
- Familiarity**
- Target Word Reading**

### Word-level Measures:

- Length** (Balota et al., 2007)
- Frequency** (Zeno et al., 1995)
- Root Word Frequency** (Zeno et al., 1995)
- Morphological Transparency** (Carlisle, 2000; Kearns, 2015; Steacy et al., 2022)
- Spelling-to-Pronunciation Transparency Rating** (Edwards et al., 2023)
- Concreteness** (Brysbaert et al., 2014)

### Dependent Measure

- Target Spelling**: 45 items administered
- Target Semantic Knowledge**: 45 items administered



Example of **Set for Variability** assessment administration

## FIDELITY

- During the fall semester, the team was trained on how to administer a variety of researcher-created and standardized assessments before collecting the data for the project.
- This ensures a high-level of **accuracy**, and **consistent** administration of the assessments.
- Differences in results are due to **individuals**, not administration

## LEXICAL QUALITY

Lexical quality across participants

### Legalize

Legulies, lealgolise, leglise

### Motionless

Moshenless, moaitless, moshanlisse

### Successful

Sussesful, susecful, sixsfull

### Adoption

Adopotion, adoution, adoshun

### Irritation

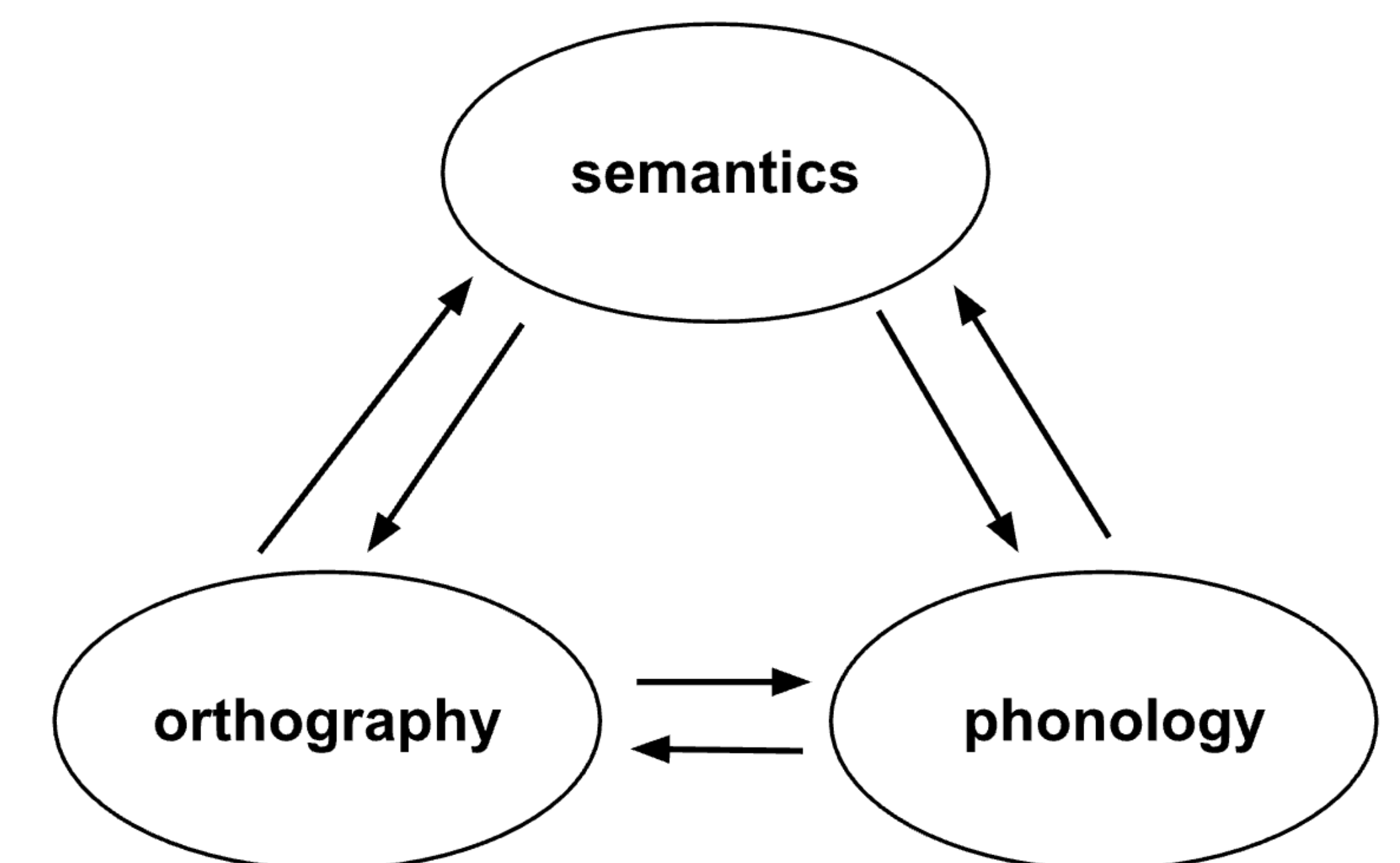
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## FURTHER DIRECTIONS

- Analyze** and **interpret** findings of the underlying processes involved in spelling to inform assessment and instructional practices
- Conduct **training study** to evaluate the effects of two research-informed spelling approaches on children's spelling, reading, and item-specific vocabulary knowledge
- Evaluate the **most effective** spelling approach identified in a between-subjects group comparison with a reading-only instructional approach
- These iterative experimental designs allow us to examine how each **instructional method** affects different types of words and to assess the generalizability of learning beyond the directly trained items



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