



Timing is Everything: An Investigation of Auditory and Visual Temporal Processing in Children With Reading Disorders

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INTRODUCTION

Previous research in the area of reading disorders have developed theories regarding underlying deficits in reading acquisition, including:

- * Phonological Core Deficit
- * Double Deficit Hypothesis

However, more recent research has shifted its focus to underlying sensory deficits in RD, including auditory and visual temporal processing. It is assumed that deficits in the auditory and visual systems responsible for the detection of rapidly transitioning stimuli may be related to subtypes of reading disorders.

Purpose: This study will investigate the relationship between auditory and visual temporal processing in children with different subtypes of reading disorder.

PARTICIPANTS

- 36 children between 10-13 years of age will be recruited to participate in the study
- 4 groups of children will be identified based on pre-experimental testing assessing language and reading abilities:

1. Dysphonetic (Phonological Decoding Deficit)
2. Dyseidetic (Visual/Lexical Decoding Deficit)
3. Dysphoneidetic (Mixed Deficit)
4. Control (Normal Readers)

EXPERIMENTAL QUESTIONS

1. Is there a difference in performance between normal readers and individuals with RD in auditory and visual detection and discrimination tasks as measured by temporal thresholds?
2. Is there a difference between normal readers and individuals with RD in auditory and visual temporal processing skills involving temporal order accuracy using duration modulated stimuli?

MATERIALS AND PROCEDURES

Pre-experimental Tasks:

- * Woodcock Reading Mastery Test – III
- * Peabody Picture Vocabulary Test
- * Raven's Progressive Matrices
- * Word/Exception Word/Nonword Test (Coltheart and Leahy, 1996)

Experimental Tasks:

Auditory:

- * Gap Detection
- * Duration Difference Limen task
- * Commercial Duration Pattern Test (Musiek et al., 1980)

Visual:

- * Critical Flicker Fusion task
- * Duration Difference Limen task
- * Custom Visual Duration Pattern Test

ANALYSES

- *One-way ANOVA will be measured for each experimental task in each modality
- *Post Hoc – single-*df* orthogonal comparison to determine source of main effect