

THE LINKS BETWEEN DYSLEXIA AND INHIBITION DEFICITS

DO DYSLEXIC CHILDREN WITH AN INHIBITION DEFICIT HAVE A SPECIFIC READING PROFILE?

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INTRODUCTION

The present study focuses on the nature of the reading disability in children with both dyslexia and inhibition deficit. Van der Schoot et al. (2004) showed that these children tended more to guess the words they read. In their study, participants were asked to determine whether the final word of a written sentence was semantically congruent or incongruent with the sentence, but had to inhibit their judgment in case of a pseudoword which closely resembled a word. Dyslexic subjects with inhibition deficit accepted more pseudowords as words than dyslexics without inhibition deficit. In reading tasks, Van der Schoot et al. (2000) showed that these dyslexic children with inhibition deficit manifested a global reading style characterized by many false word identification errors (i.e. misreading one word as another). According to Van der Schoot et al. (2004), these "guessers" would find difficulties in suppressing false candidate words that are activated in the lexicon.

THIS STUDY

The aim of this study is to confirm the "guessing" reading style showed by Van der Schoot et al. (2000; 2004) in a "pseudoword in context" reading task.

HYPOTHESES

Dyslexic children with inhibition deficit are expected to guess more the words both from the sentence context and from the global pseudoword form than dyslexic without inhibition deficit.

- These guessing errors are expected to be more frequent when pseudowords are presented in a sentence than isolated.
- Especially when pseudowords are situated at the end of the sentences → the context effect is supposed to be more important for this pseudoword position.

METHOD

1. Participants:

- Experimental groups:

2 groups of dyslexic children (10-12 years)

- 7 without inhibition deficit
- 11 with an inhibition deficit
- Non verbal IQ > 80

→ **Dyslexia**: -1.65 SD from the mean both in a word and pseudoword reading task (ODEDYS-2, Jacquier-Roux et al., 2005) and in a text reading task (Alouette-R, Lefavrais, 2005).

→ **Inhibition deficit**: - 2 SD from the mean in both the *Stroop Color Word* (Albaret & Migliore, 1999) and the *Stroop Fruits* (Archibald & Kerns, 1999).

- Control group:

14 normal readers (8-10 years)

→ All children are matched in reading level (8-10 years).

- All children: - Same method of reading instruction (phonics)
 - Monolingual French speakers
 - No history of oral language disabilities

2. Experimental tasks:

Task 1: Pseudoword in context reading task:

- Sentence reading task → reading aloud.
- Each sentence contains a pseudoword which closely resembles a semantically congruent word with the sentence context.

- Example: J'achète mon pain chez le boulancer.

- Pseudowords are constructed by changing only a single letter in a high-frequency 3-syllable word (F > p 75 in the MANULEX database, Lété et al., 2004).
- This letter is situated in the beginning, the middle or the end of the word.
- Pseudowords are situated in the beginning, the middle or the end of the sentences.
- Pseudowords respect French phonotactic rules.

Task 2: Single pseudoword reading task:

- The same pseudowords but isolated (ex: boulancer).

3. Analyses:

- **Guessing errors**: Children read a word instead of the target pseudoword (ex: *boulancer* → *boulangier*).
- **Context effect**: Children do more guessing errors for pseudowords situated in sentences than isolated.

RESULTS

a) Guessing errors:

• **Main effect of group** : $F(2,28) = 10.76, p < .001$

→ Post hoc analyses : dyslexics = dyslexics with inhibition deficit < controls.

• **Main effect of pseudoword position in the sentence** : $F(2,56) = 21.28, p < .0001$.

• But no interaction group x pseudoword position.

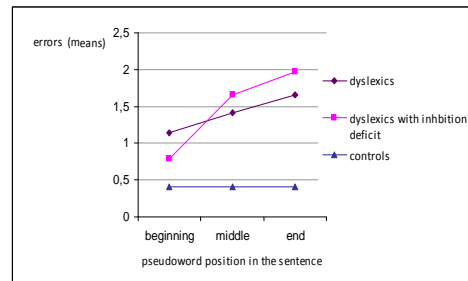


Fig. 1. Guessing errors on pseudowords in the "pseudoword in context" reading task for dyslexic children with and without inhibition deficit and control children when pseudowords are situated in the beginning, the middle or the end of the sentences.

b) Context effect : pseudowords in context (in sentences) vs. isolated

• **Main effect of context** : $F(1,30) = 145.38, p < .0001$

• **Main effect of group** : $F(2,30) = 11.96, p < .001$

→ Post hoc analyses : dyslexics = dyslexics with inhibition deficit < controls.

• **Interaction group x context** : $F(2,30) = 3.52, p < .05$

→ Context effect is more important for the 2 groups of dyslexics than for the controls.

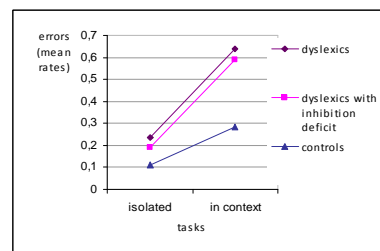


Fig. 2. Context effect (in sentences vs. isolated) on guessing errors (mean rates) on the pseudowords for dyslexic children with and without inhibition deficit and for the control children.

DISCUSSION

Our predictions are not confirmed : **the results show that both dyslexics with and without inhibition deficit have a larger tendency to guess the words than control children, paired for reading level.**

→ Dyslexic children do more guessing errors than control children.

→ The context effect is also more important for them than for the controls.

We suggest that most of children with reading difficulties use the sentence context to compensate for poor reading skills which leads them to do more guessing errors (Kim & Goetz, 1994).

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