



# Working memory resource depletion effect in a reading aloud task performed by students with dyslexia

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# Context: the working memory resource depletion effect

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- Working memory resources can be depleted during a learning task (Chen, Castro-Alonso, Paas, & Sweller, 2018; Leahy, & Sweller, 2019).
- In previous experiments, we failed to replicate
  - transcription task (Vié et al., 2021)
  - dictation task (Brellier & Tricot, 2021).
- Students with dyslexia face with cognitive overload (Tricot, Vandenbroucke, & Sweller, 2020; Vandenbroucke, Puma, Tricot, & Sweller, 2017)

# The study

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- Aim: testing a working memory resource depletion hypothesis in a reading aloud task performed by students with dyslexia
  - As processing written words is very demanding for students with dyslexia
  - Their working memory capacity should decrease during reading aloud (compared to normal readers)

# Method

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- 38 students
  - Experimental group = students with dyslexia
    - 18 participants
  - Control group = normal readers
    - 20 participants
  - 11 to 13 years old
- Material
  - French version of the Reading span task before and after the depleting task
  - The depleting task: reading aloud task of a narrative text, during 10 minutes
  - The text comprehension was assessed by 6 questions

# Procedure

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Dyslexia group

Reading span  
task before

The depleting  
task  
(text) +  
6 questions

Reading span  
task after

Normal readers  
group

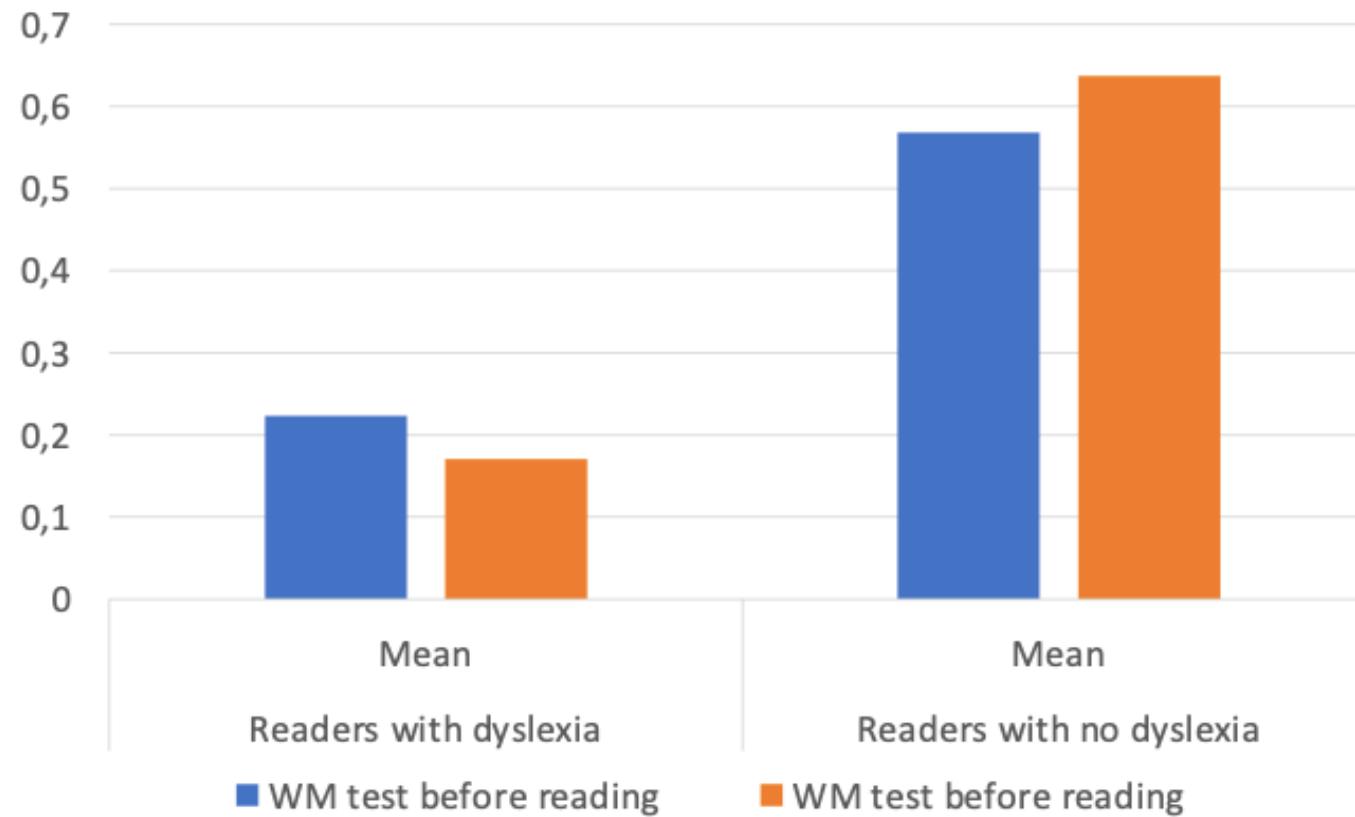
Reading span  
task before

The depleting  
task  
(text) +  
6 questions

Reading span  
task after

# Results

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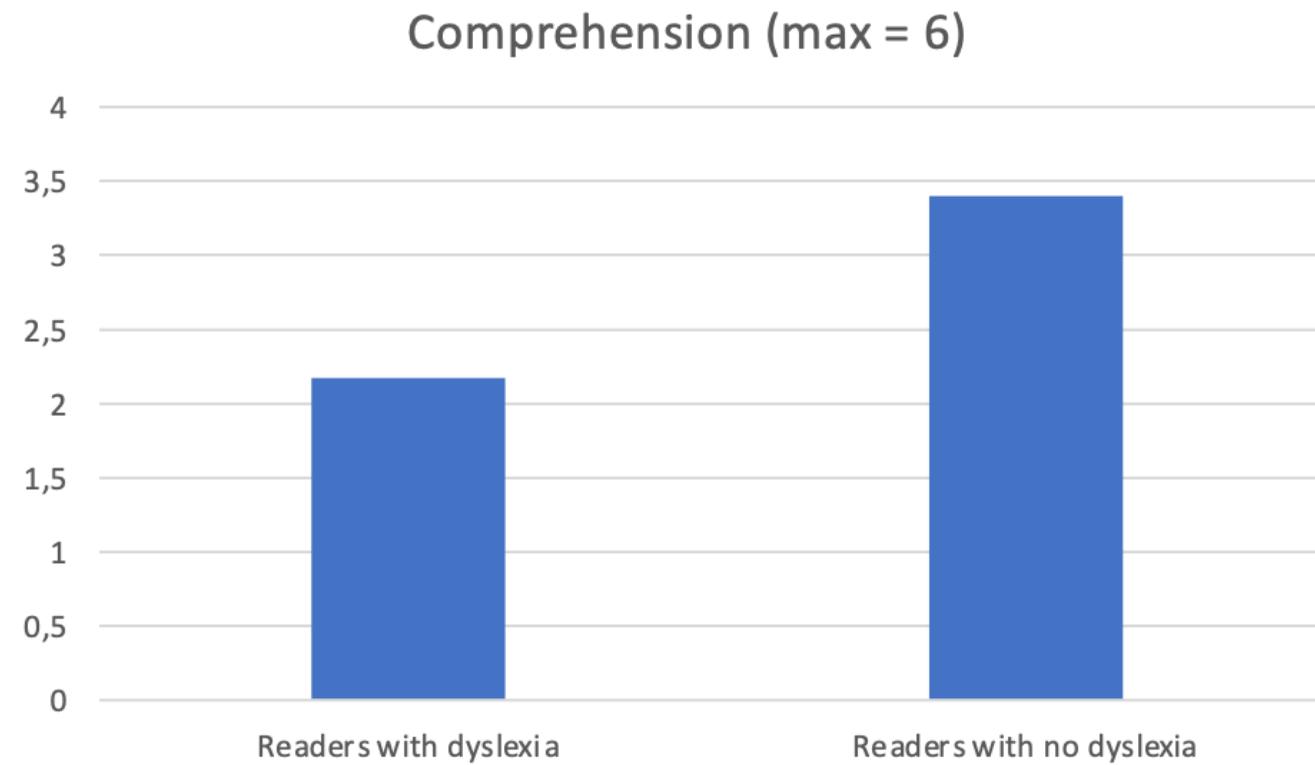
# Discussion

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- It seems that we obtained a resource depletion effect!
- But not enough participants
- The recruitment of the participant and the conditions of the experiment are important limits of this experiment.
- Using another depleting task such as a listening task for students with dyslexia in order to evaluate a depletion of working memory resources.

# Results

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# Discussion

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- Using another depleting task such as a listening task for students with dyslexia in order to evaluate a depletion of working memory resources



# Thank you!

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# References

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