

ABSTRACTS

Are text comprehension difficulties for students with dyslexia linked to resource depletion?

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Listening instead of reading texts is often recommended for students with dyslexia. However, this recommendation is not evidence based. The aim of our research is to evaluate if spoken presentation or any other presentation can improve narrative texts comprehension for students with dyslexia. According to Cognitive Load Theory, learning can be impaired when students use their cognitive resources on dealing with task complexity to the detriment of the learning itself. Consequently, for students with dyslexia, decreasing cognitive load involved by the reading task should be helpful, because reading is not automatized in dyslexia. Decreasing the reading task demand should improve comprehension.

In a set of previous studies (Vandenbroucke, 2013; Vandenbroucke, Giraudo & Tricot, 2015), we compared listening vs. reading texts for grade 5 students with dyslexia. Results show that oral modality doesn't improve comprehension (maybe because of a transient information effect, Leahy & Sweller, 2011). However, students with dyslexia reading time was longer than control groups' and seems to compensate comprehension much more than document presentation. We then presented texts in three conditions: listening, listening with 8'' pause after each sentence, listening with self-decided pauses. Results show that with pauses, comprehension performances are better. Our interpretation, according the TBRS model (Barrouillet, Bernardin & Camos, 2004), is that pauses increase working memory capacities because a longer time is devoted to process the same information. In the TBRS model, time is a working memory resource; this could be a very useful idea in Cognitive Load Theory (Puma et al. 2016).

In the present experiment, we aim to replicate the pause effect and test a resource depletion hypothesis: cognitive load during learning decrease working memory capacity; pauses compensate this resource depletion effect. As processing written words is very demanding for students with dyslexia, their working memory capacity should decrease during reading (compared to normal readers), and this decreasing should be compensated by pauses.

The experiment involves two groups of grade 5 students, one group with dyslexia, the other group with normal reading skills. Each participant run a short working memory test (reverse digit span test) before the experiment, a just after it. In the first experimental condition, participants are asked to read a narrative text with 8'' pause after each sentence. In the second experimental condition, participants are asked to read a narrative text with no pause. Our hypothesis is that working memory performances will be lower after than before reading, specially for students with dyslexia, specially in the no pause condition.

Results and discussion will be presented during the conference.