IS1404 E-READ: Evolution of Reading in the Age of Digitization

Position paper

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WG(s): WG2 Developmental aspects of reading

1. **Potential research contribution** in light of, or linked to
A. WG interest and Scientific programme:
B. Action objectives (pages 7-10 in the MoU):

Based especially on the following objectives
- to provide evidence-based recommendations to educational practitioners and policy makers;
- to prompt interdisciplinary paradigms for measuring the impact of digitization on text reading;
- to facilitate joint scientific publications and new, radically interdisciplinary, collaborative research projects
- to establish long-term theoretically and methodologically innovative research collaboration;

I am especially interested in contributing to research focusing on the interactions between factors in 3 wide areas
a) Different types of text (narrative-expository
   Different levels of text difficulty
   Different media for reading (print or digitized)
b) Reading fluency
   Different levels of depth in comprehension (surface, semantic, inferential)
c) Working memory
   Metacognitive skills
   Motivation/goal-setting
   Executive functions (attention, response inhibition, cognitive flexibility and control, working memory

In simple words, we could examine how variables from area (a) relate and interact with variables of (b) and (c) under the condition of reading print or digital text. For example,
-How much time children spend when reading print or digital text, depending on the type of the text, the difficulty of the text, and the individual reading fluency of the children?
-How does reading fluency and comprehension change, when reading print or digital text, depending on the type of the text, the difficulty of the text, and the individual reading fluency of the children?

-How do executive functions change when reading print or digital text, depending on the type of the text, the difficulty of the text, and the individual reading fluency of the children?

- How do metacognitive skills and motivation change when reading print or digital text, depending on the type of the text, the difficulty of the text, the individual reading level of the children?

My interest and potential contribution involves mostly children with specific learning disabilities or ADHD

To investigate the changes (the advantages and disadvantages of using digital means in reading) a correlational design could be used in which two groups of students (Including LD) would be formed. Group size could equal n=128, i.e., 64 students per group, for identifying medium level effects (effect size = .5 S.D.) at the 5% level given a t or F test. Students would have to be randomly assigned to the two conditions, print versus digitized. Achievement at one time or over time would be evaluated.

To identify differences and interactions involving variables from area(c), a combination of tests, observational, rating scale, and think-aloud protocols could be implemented . We should also evaluate how students with LD use the devices (e.g., tablet, pc, e-book, etc.). Self-regulatory behaviors like scrolling efficiently, knowing important commands, having the skill to browse and searn on the web, (e.g., from the self-regulatory framework of Graham and Harris, 1996) could be taken in. These self-regulatory behaviors may be functioning as moderators or mediators of reading comprehension. An extension of the cross-sectional design would be to follow the children over time and evaluate plateau effects, and potential Mathew effects in reading.

Another proposal (that does not fall into the deep reading concept, but involves reading skills) refers to implementing assessments in electronic form. Specifically, the goal is the evaluation of the metric equivalence of both paper-and-pencil and computerized versions of a reading measure. The area of Computerized Adaptive Testing (CAT) is growing and is very important because one can test more efficiently (with less time) various skills and competencies. Oftentimes CAT involves the building of the algorith on a specialized platform and the testing of criteria, usually using Item Response Theory (IRT). If, however, the two mediums proved to be equivalent with regard to the measurement of skill/ability, CAT would be the subsequent step.

2. Interest in

A. organizing and/or participating in a **short-term scientific mission (STSM).**

Optional: pursuing what research questions/projects; where to/with whom; linked to what objective(s) of the Action:

I would be interested in participating in a short-term scientific mission looking into:

-   Qualitative approaches to reading comprehension and educational applications
    University of Barcelona and Valencia (think aloud protocols)

- Measuring cognitive processes in reading comprehension
  Leiden University
- Impact of digital technologies on publishing , tools
  Ljubliana
- affective and social aspects when reading narrative texts
  Stockholm University

B. organizing and/or participating in a **Training School** (please indicate what kind of training [theoretical; methodological; technical]).

Optional: linked to what objective(s) of the Action:

Although I am interested in participating in a Training School, I cannot say what exactly since I do not know enough about everybody's work (I did not attend the kick-off meeting). I could use some more time.