Individual Differences in Working Memory Capacity and Reading Comprehension of Electronic Texts
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Research Goals
1. Examine the relationship between working memory capacity (WMC) and reading comprehension using electronic text
2. Use eye tracking to determine how fixation patterns relate to the comprehension of text, graphs, charts, and images

Background
Low WMC is often related to poor reading comprehension (Daneman & Carpenter, 1980) and the tendency towards mind wandering (McVay & Kane, 2009)

Methods
1. Informed consent
2. Operations span task to measure WMC
3. Reading from one of two cognitive psychology textbook chapters (2 conditions) while gaze is tracked with a Tobii TX300 eye tracker
4. Comprehension questions & demographics

Results
- High WMC subject
- More fixations within AOI’s
- Longer duration of fixations within AOI’s
- More visits to AOI’s
- Longer reading duration
- Low WMC subject
- Fewer fixations within AOI’s
- Shorter duration of fixations within AOI’s
- Fewer visits to AOI’s
- Shorter reading duration

Eye Tracking Data
As data collection continues, eye tracking will indicate possible relationships between physiological eye movement patterns, WMC, and learning outcomes.

- Number of fixations
- Number of re-fixations
- Duration of fixations
- Time between fixations
- Gaze path locations
- Exact reading times
- Reading decrements/mind wandering

Discussion
Research such as this has multiple benefits
- Awareness of the struggle many face to fit into current reading models and expectations
- Information for those who assist brain damage victims
- Insight into the technological revolution’s impact on learning

Future Research
- Larger N
- Examinations of re-fixations, fixation decrements, and the impact of known page ranges
- Longer reading time and more comprehension questions

Selected References

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