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Gaze-Based Individual Differences in Resumption Strategies During Interrupted Learning

Introduction

- In learning contexts, interruptions are pervasive and often difficult to avoid, resulting in recurrent attentional shifts while performing a task
- The influence of individual differences in how we resume from interruptions (Fig. 1) during learning tasks is largely unexplored
- Individual differences have so far only been related to differences in working-memory capacity, cognitive workload and strategy consistency

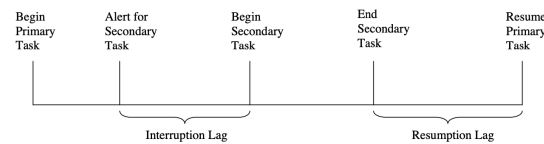


Figure 1. An interrupted learning scenario (left); the resumption process as described by [2] (right).

Research Questions

- RQ1: What other individual factors can influence the process of resumption from interruptions in a reading task?
- RQ2: What types of task-internal characteristics can facilitate the process of resumption from interruptions in a reading task?
- RQ3: How are resumption strategies characterized across different learning tasks?

Relevance and Applications

- Further development of current state-of-the-art adaptive Intelligent Tutoring Systems (ITS) and educational applications
- Further development of instructional design theories and models
- Further understanding of the cognitive process of resumption from interruptions

Current Project (RQ1)

- Individual differences in visuo-spatial memory and prior knowledge and their influence on resumption will be assessed

Approach

- After answering questions about their prior knowledge and completing a Symmetry SPAN Test (Fig. 2), participants will read a Sherlock Holmes' novel and will be interrupted by opinion questions (Fig. 3) while their eye movements will be recorded
- Reading comprehension performance will be assessed through a questionnaire at the end of the task

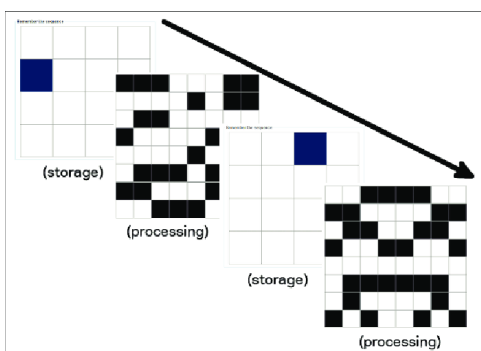


Figure 2. Representation of a Symmetry SPAN Test [3].

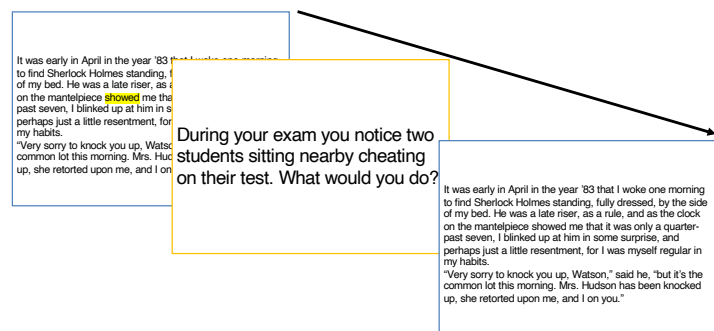


Figure 3. The interrupted reading task with opinion questions.

References

[1] Zermiani, F. & Bulling, A. & Wirzberger, M. (2022). Mind Wandering Trait-level Tendencies During Lecture Viewing: A Pilot Study. In 2022 Symposium on Eye Tracking Research and Applications (ETRA '22), June 8–11, 2022, Seattle, WA, USA. ACM, New York, NY, USA, 7 pages. <https://doi.org/10.1145/3517031.3529241>

[2] Trafton, J. & Altmann, E. & Brock, D. & Mintz, F. (2003). Preparing to Resume an Interrupted Task: Effects of Prospective Goal Encoding and Retrospective Rehearsal. *Int. J. Hum.-Comput. Stud.* 58. 583-603. [10.1016/S1071-5819\(03\)00023-5](https://doi.org/10.1016/S1071-5819(03)00023-5)

[3] Stone, J. & Towse, J. (2015). A Working Memory Test Battery: Java-Based Collection of Seven Working Memory Tasks. *Journal of Open Research Software.* 3. 10.5334/jors.br

