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# Adaptive Learning Technology based on Working Memory Capacity

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## Theoretical background

- Increasing use of pedagogical videos [1]
  - Transient information = huge solicitation of working memory [2]
  - Inter-individual differences in working memory capacity (WMC) [3] [4]
- Individual differences in video processing and learning depending on WMC



## Aims of the project

Develop and test solutions to **reduce** working memory load during video learning

### Proposed solutions:

- Imposed pauses
- Highlights (e.g., arrows, keywords)



### Sought results:

Solutions more beneficial to low-WMC learners than high-WMC learners

Design a video environment that can **automatically**:

**Detect** each learner's WMC

**Adapt** to each learner's WMC

## Challenge: How to estimate WMC?

- Standard approach: Complex-span task → Cognitively costly
- Proposed approach: Estimation in real-time during the first moments of video watching → Need to define indicators of WMC based on strategies and performance

## Bibliography

- [1] Cojean, S., & Martin, N. (2021). Reducing the split-attention effect of subtitles during video learning : Might the use of occasional keywords be an effective solution?: *L'Année psychologique*, Vol. 121(4), 417-442.
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