EYE-TRACKING ANALYSIS OF INSTRUCTOR PRESENCE EFFECTS ON EDUCATIONAL VIDEO LEARNING: EXTENDED ABSTRACT

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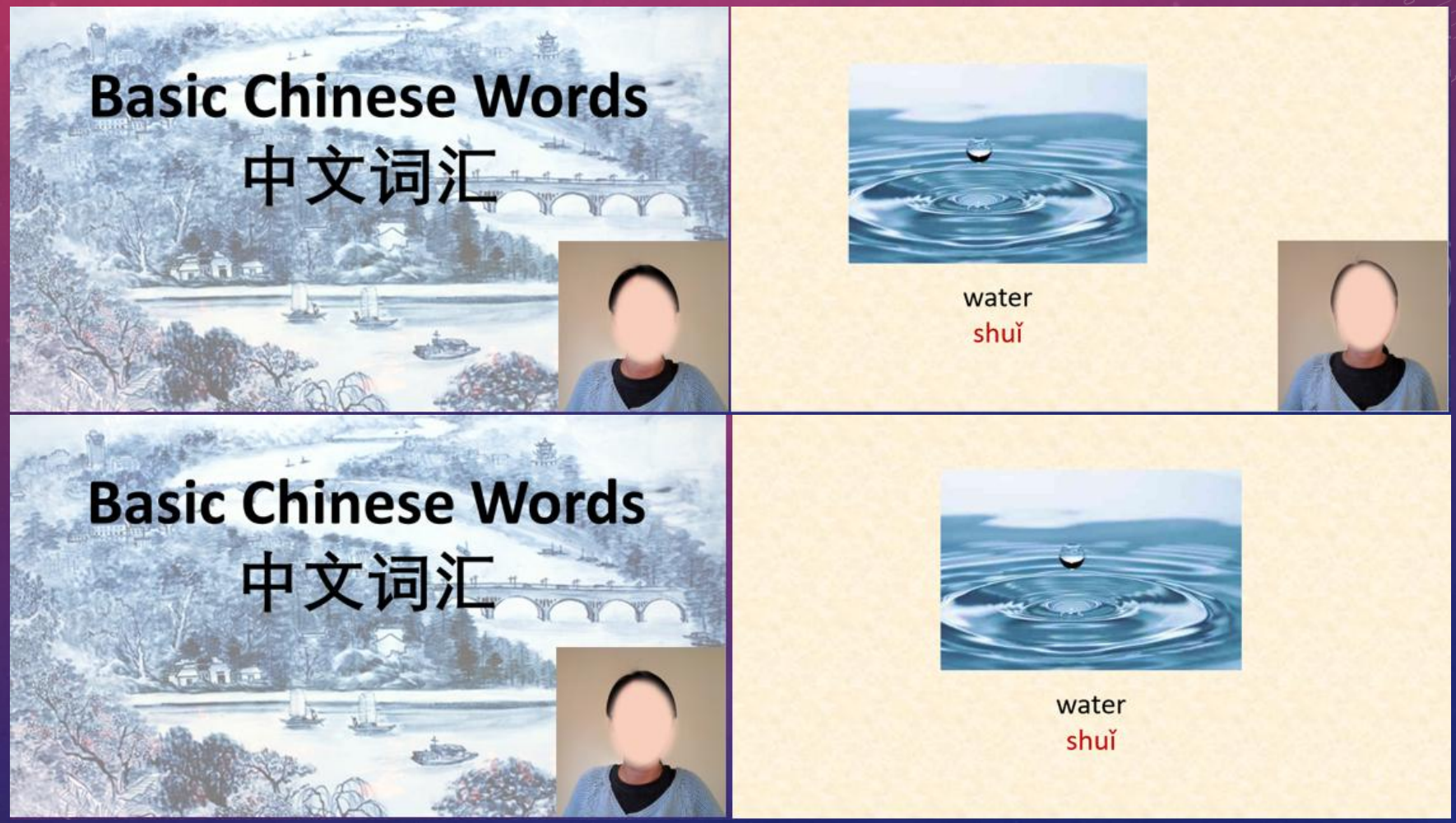
INSTRUCTOR PRESENCE IN EDUCATIONAL VIDEOS



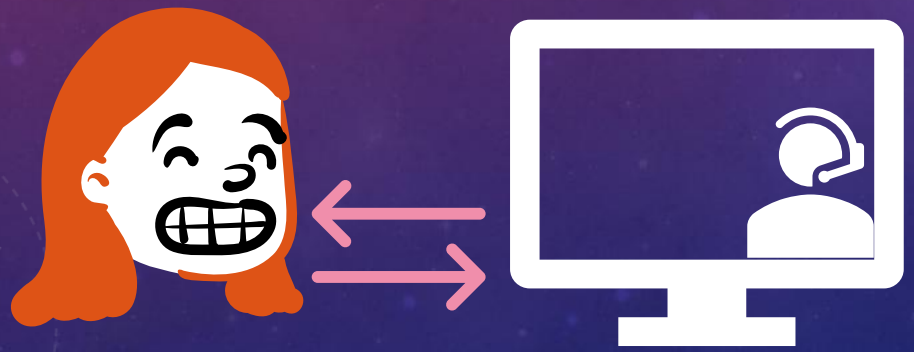
THEORETICAL PERSPECTIVES

- **The Cognitive-Affective-Social Theory of Learning in digital Environments (CASTLE):**

  Instructors foster feelings of social presence, which motivate learners and subsequently improve the cognitive mechanisms essential for effective learning (Schneider et al., 2022).

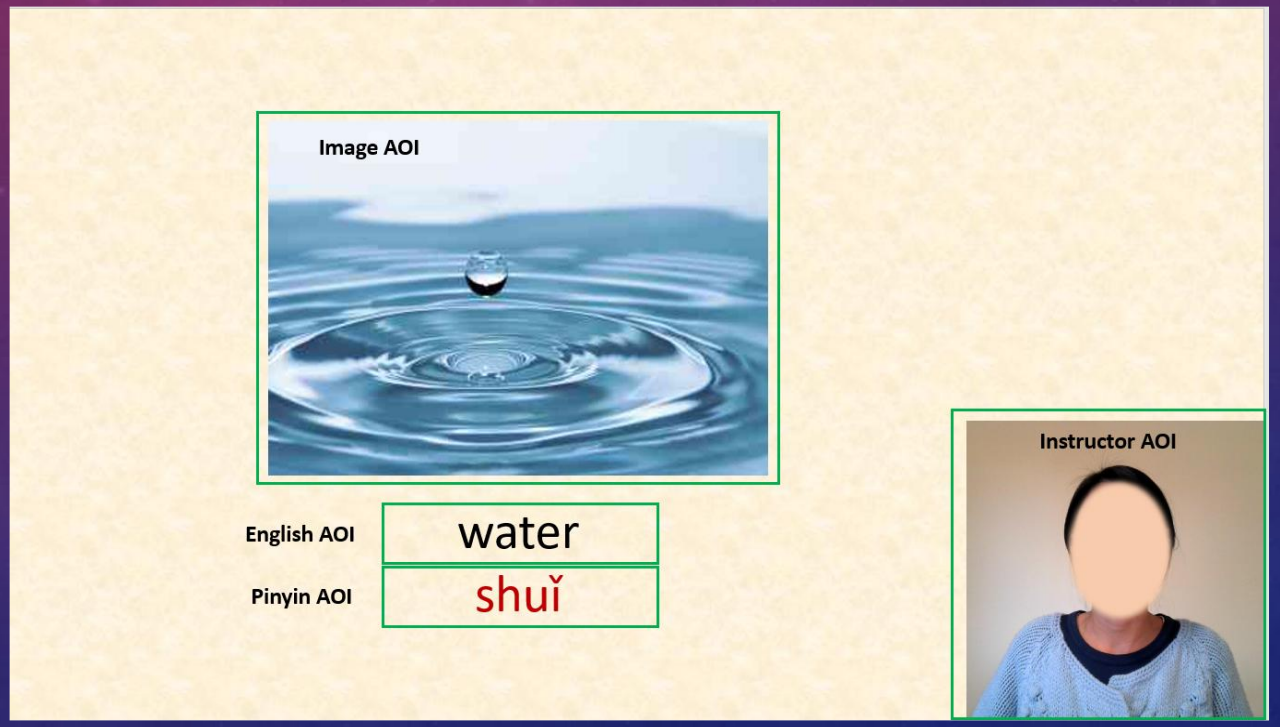
- **Cognitive Load Theory (CLT):**

  Instructors increase cognitive load, which potentially hindering effective learning (Sweller et al., 2019).



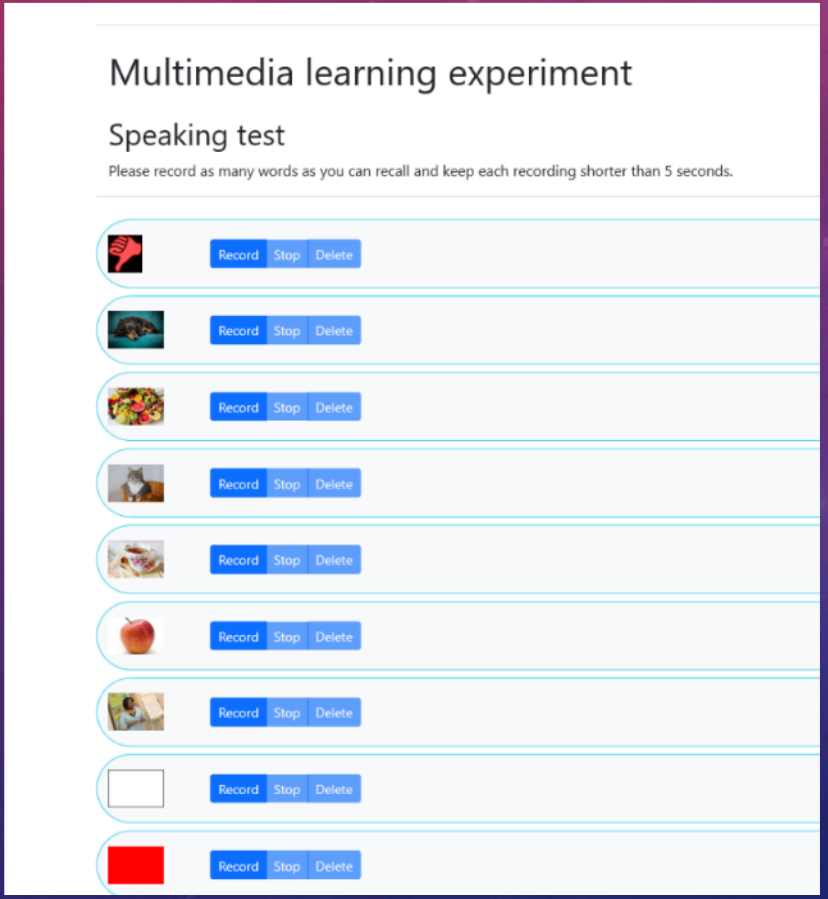
MEASUREMENTS: EYE-TRACKING

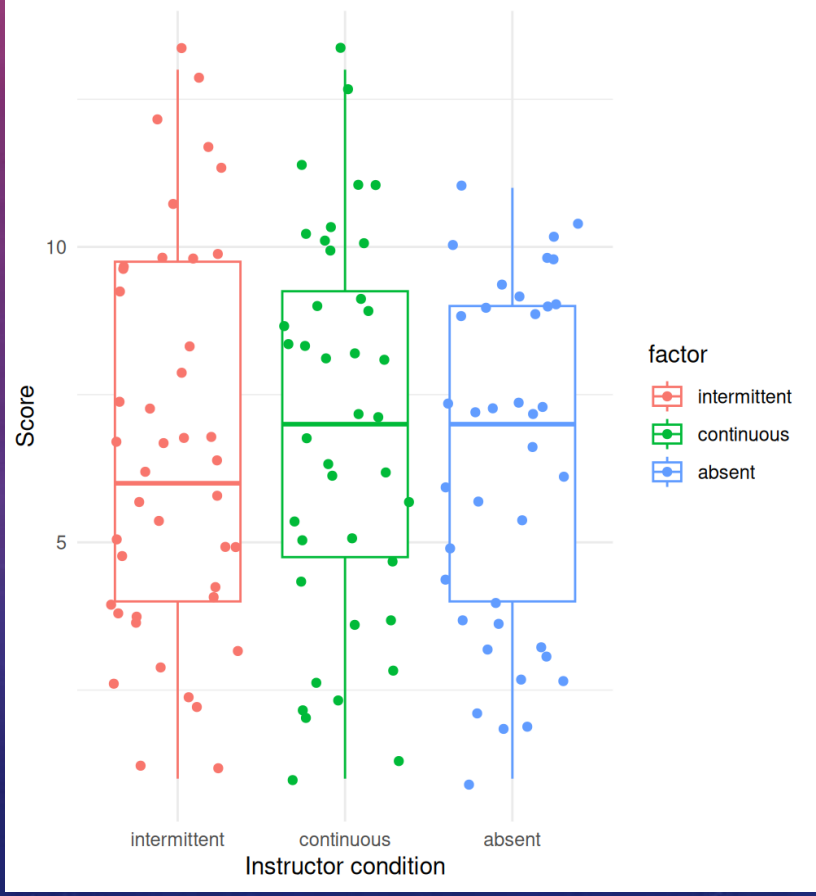
- 4 areas of interest (AOIs)
- Visual attention: total dwell time, time to first fixation
- Cognitive load: first saccade amplitude, maximum pupil size



RESULTS: LEARNING OUTCOMES

- No effect of instructor presentation mode on learning across conditions.





RESULTS: VISUAL ATTENTION

- The distribution of attention within each condition i.e. how participants attended to different AOIs.

Condition	Results (Total dwell time)
Continuous presence	Pinyin > English > Image ≈ Instructor
Intermittent presence	Pinyin > English > Image
Instructor absence	Pinyin > English > Image

Condition	Results (Time to first fixation)
Continuous presence	Instructor > English > Pinyin > Image
Intermittent presence	English > Image > Pinyin
Instructor absence	English > Image ≈ Pinyin

RESULTS: COGNITIVE LOAD

Metric	Result
First saccade amplitude	Continuous presence > Intermittent presence ≈ Instructor absence i.e. Cognitive load is significantly lower in the instructor continuous present condition.
Maximum pupil size	No significant difference across conditions.

CONCLUSION

- Challenge assumptions regarding both beneficial and detrimental effects of instructor visibility in educational videos.
- Learners effectively regulate visual attention to optimize information processing.
- Instructor absent approach may represent an efficient design strategy:
  - It maintains pedagogical effectiveness
  - It reduces production complexity and resources

Thank you for your attention!

- Any questions?

Acknowledgement

This research was funded by the state budget under the Pearls of Science program of the Polish Ministry of Science and Higher Education (Project No. PN/01/0232/2022), with a funding amount and total project value of 142164 PLN.

Ministerstwo Nauki
i Szkolnictwa Wyższego