

Mind Wandering in Video-Based Learning: Self-Regulated Learning and Student Responses in a Naturalistic Setting

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28/08/2026



Introduction

- Sustained attention is impossible (Sharpe and Tyndall, 2025)
- Mind wandering occurs ~30% of the time while learning (Wong et al., 2022)
- Mind wandering negatively impacts learning (Wong et al., 2022)
- Awareness of mind wandering is possible (Schooler et al., 2011)
- Adjusting the learning process after mind wandering is an act of self-regulation (Ebbert et al., 2026)
 - My talk 2 years ago in Heidelberg



Off-Task Thoughts

- Off-task thoughts are thoughts not entirely focused on the learning task
- Three types:
 - Task-unrelated thoughts (TUTs): no relationship to the task, not environmentally triggered
 - Task-related interference (TRI): off-task but related to the learning task
 - External distractions: triggered by the environment

Meta-Awareness

- Capacity to explicitly recognize and reflect on one's mental state (Schooler et al., 2011)
- Meta-awareness is a form of metacognitive monitoring
- Metacognitive monitoring is part of self-regulated learning (Winne and Azevedo, 2022)

Self-Regulated Learning

- Based on COPES facets of tasks (Winne and Hadwin, 1998)
- Four phases:
 - Task definition
 - Goal setting and planning
 - Enacting study tactics and strategies
 - Metacognitively adaptive studying

Research Questions

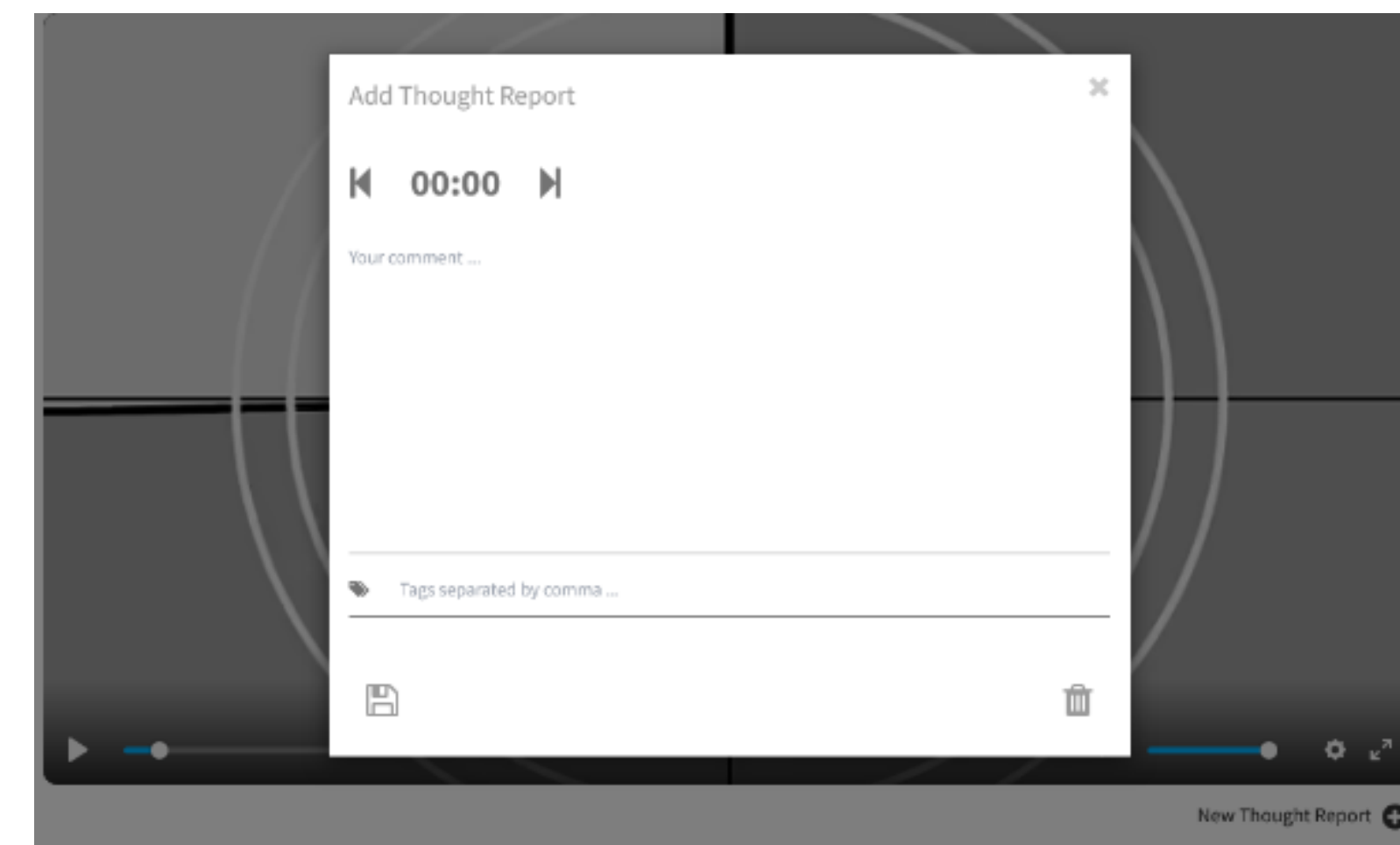
- RQ1: Is there a relationship between self-regulated learning aptitude and the rate of self-caught thought reports during video watching?
- RQ2: To what extent do participants rewind videos following self-reported off-task thoughts?

Method

- Setting: 8 courses at the University of South Australia (now Adelaide University) across disciplines
- 53 participants
- Task: Watch their course videos and report their mind wandering when aware

Measures

- Self-regulated learning aptitude measured using SRL-O (Broadbent et al., 2022)
 - Metacognition
 - Online Effort Regulation
 - Online Task Strategies
 - Planning and Time Management
 - Study Environment
- Self-caught thought reports

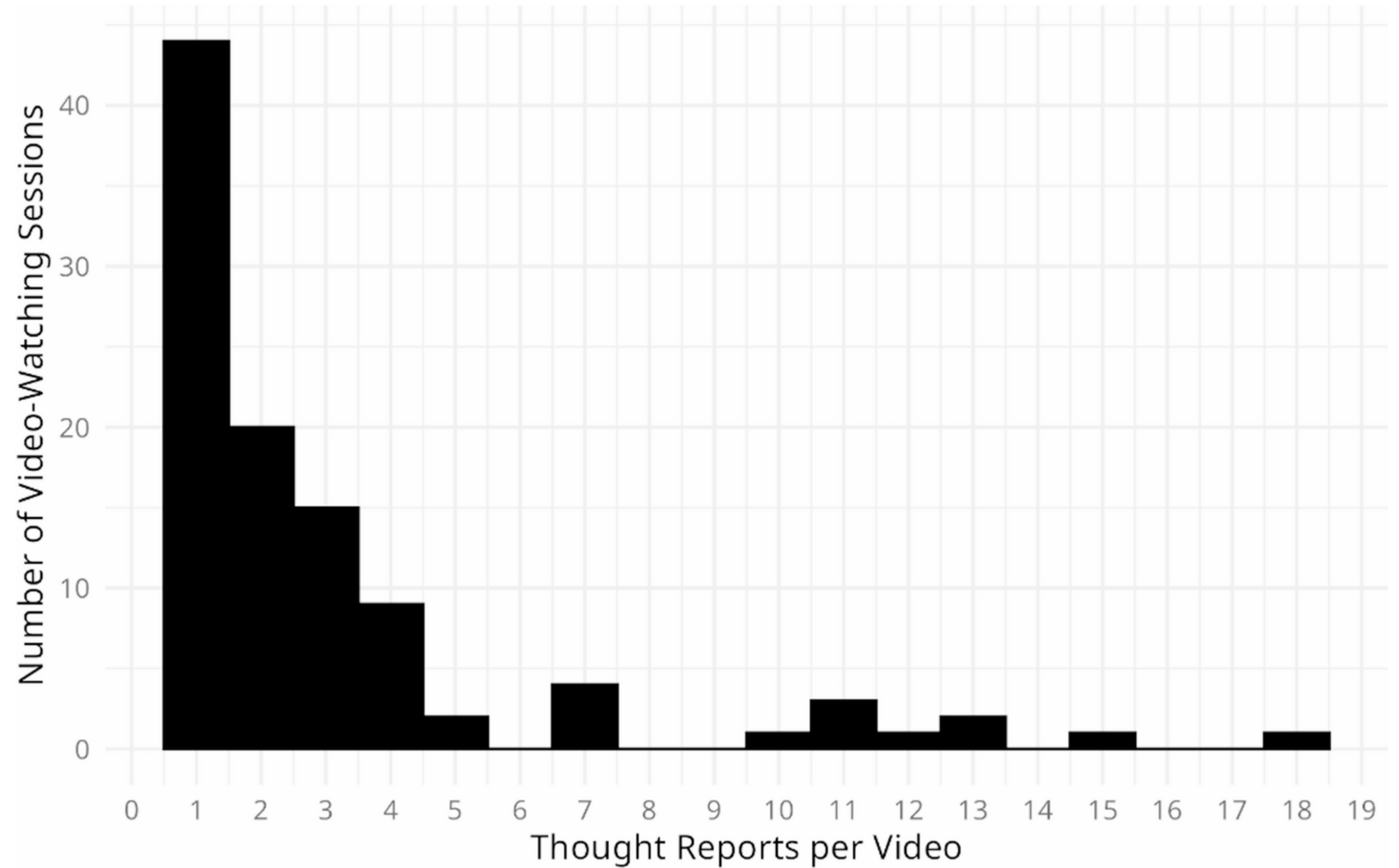


Analysis

- RQ1: Generalised linear models with negative binomial distribution
- RQ2: Log analysis of video player logs (rewinding to before the last reported thought report)

Results

- Most participants ($n = 53$) only submitted few thought reports



Results

Task-related interference was the most frequent thought type.

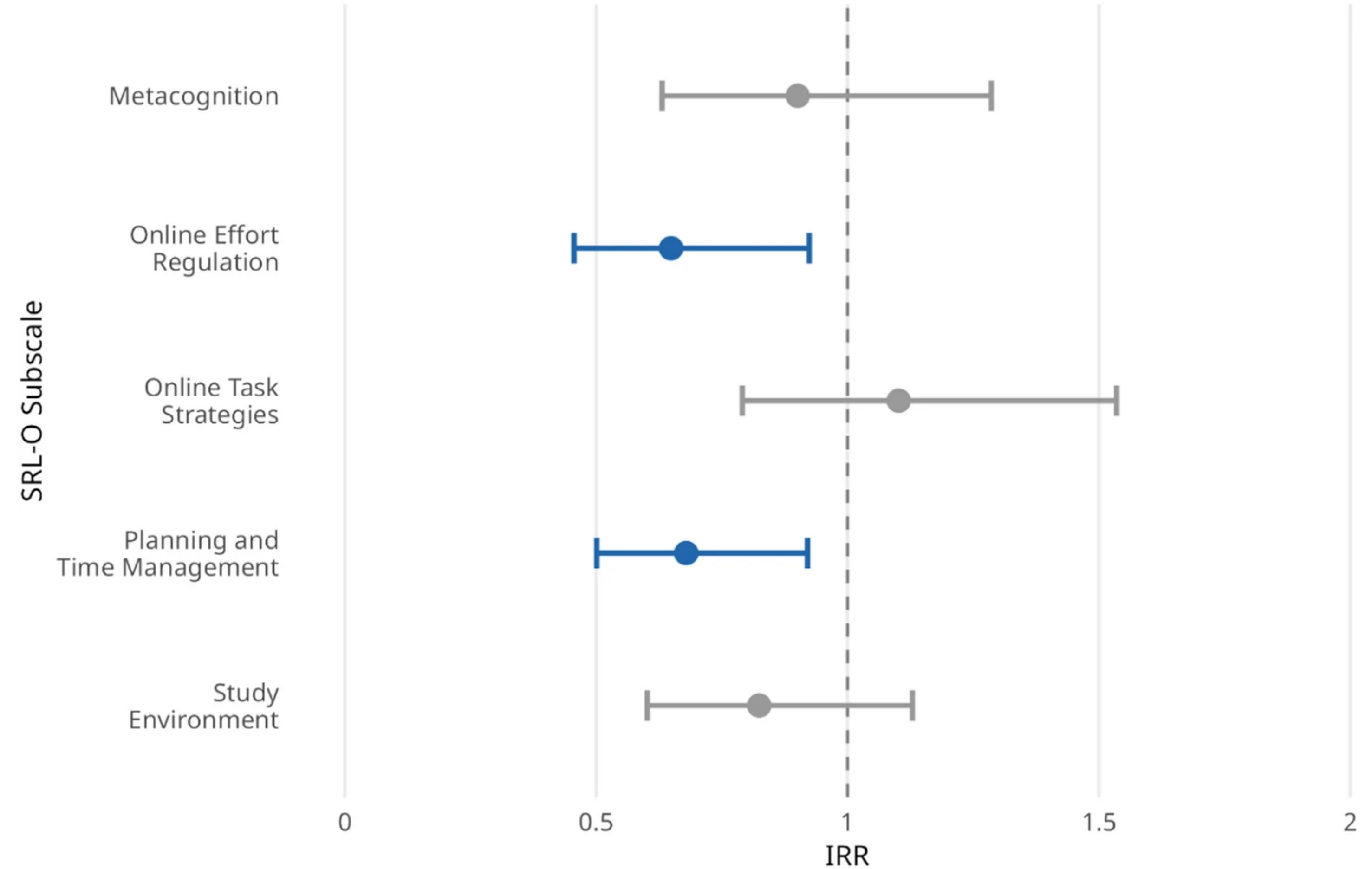
Thought Type	Count
Task-unrelated thoughts	87
Task-related interference	146
External distractions	84
Total	317

Would you like to read what the students were thinking about? ->



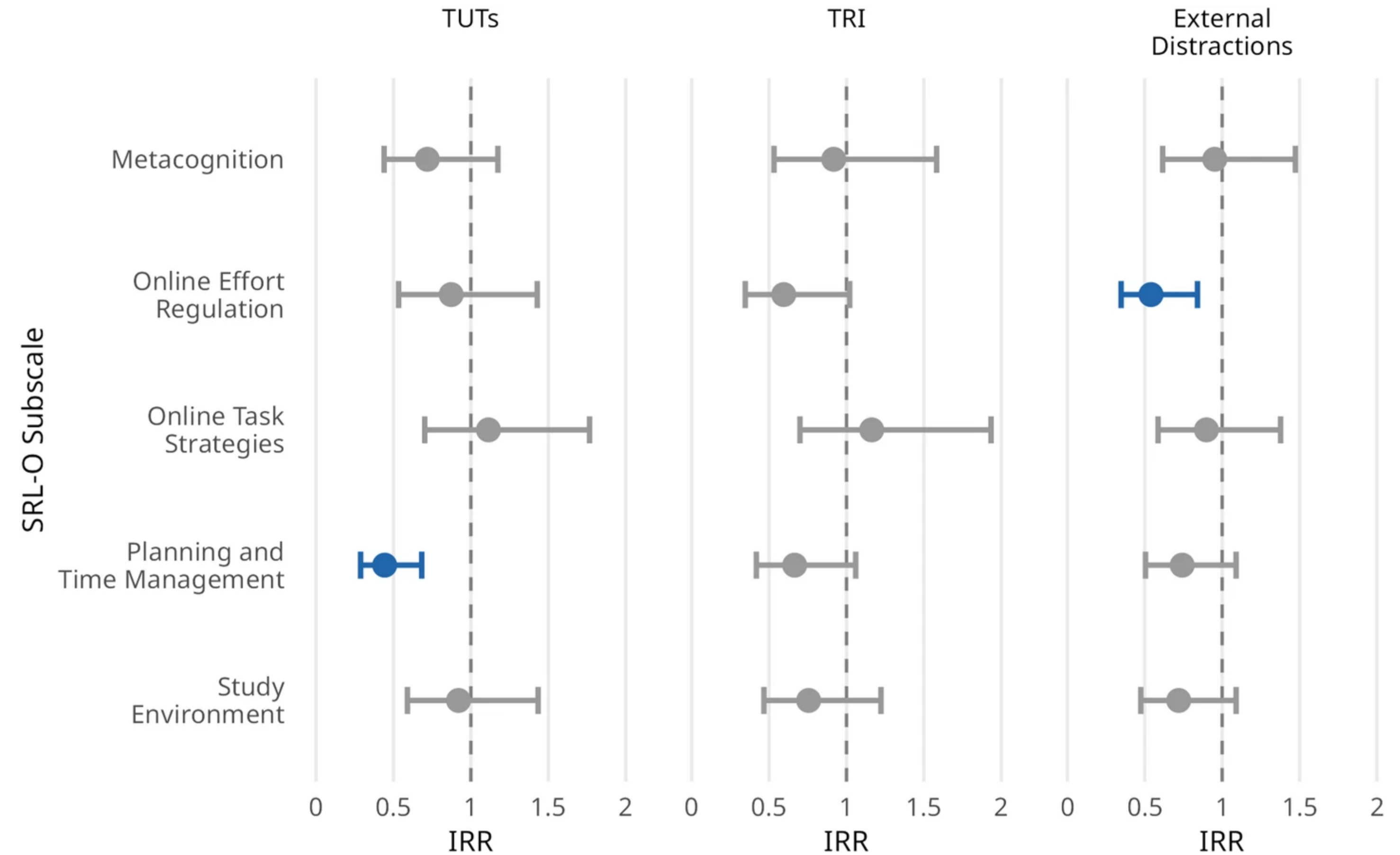
Results (RQ1)

Relationship between SRL-O subscales and number of thought reports



Results (RQ1)

Relationship between SRL-O subscales and number of thought reports by thought type



Results (RQ2)

Rewinding occurred in 15 cases (out of 317) by 10 participants (out of 53).

Summary

- Few thought reports
- Composition by thought type is different to previous experimental work
- Higher Online Effort Regulation and Planning and Time Management relate to fewer thought reports
- Rewinding following mind wandering rarely occurs

Discussion

- Regulation of learning in reaction to mind wandering might be automated/habituated
- Thus, explicit meta-awareness is not reached, and the opposite direction of results can be explained
- Why did rewinding rarely occur? -> Remember the phases of the learning process?
 - (1) Task definition; **(2) Goal setting and planning;** (3) Enacting study tactics and strategies; (4) Metacognitively adaptive studying

Limitations

- Small sample
- Naturalistic setting introduced confounds
- Meta-awareness measured via self-caught reports only

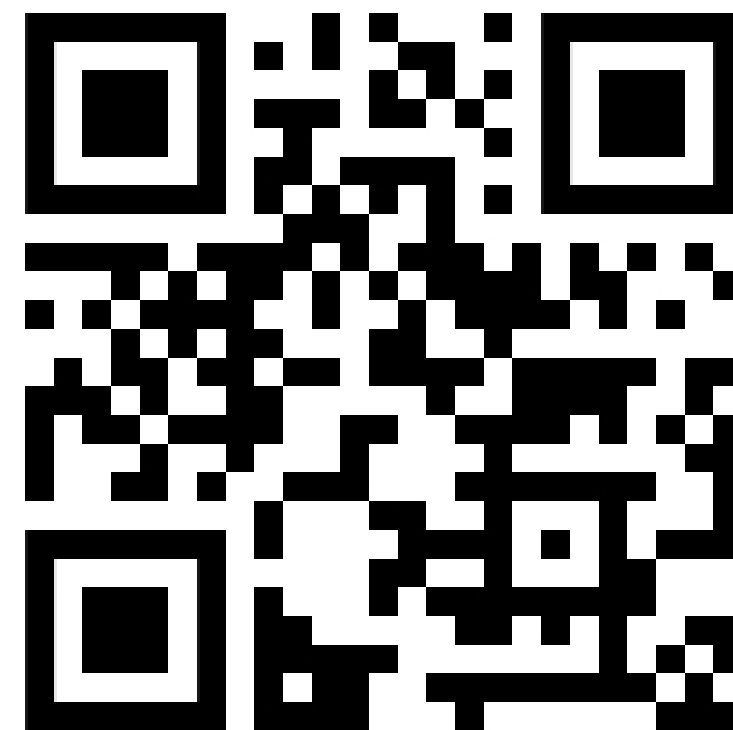
Conclusion

- Data does not allow for generalisation
- Contrast to established mind wandering literature
- Do we need to teach reactions following mind wandering or do they develop as part of self-regulated learning skills?

Thank you!

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