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Blocking Interventions and Cognitive Control: Towards Addressing Digital Distractions

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TREO

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Blocking Interventions and Cognitive Control

Towards Addressing Digital Distractions

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The pervasiveness of digital technologies has exposed individuals to digital distractions (interferences irrelevant to the task at hand like online advertisements, ads), which can negatively impact their wellbeing and performance (Rosen and Samuel 2015). Despite the detrimental effects, systematic research on the effectiveness of distraction mitigation strategies remains scarce (Orhan et al. 2021). A cogent strategy is through blocking interventions that restrict access to distracting content (Duckworth et al. 2016). Self-deployed interventions provide agency and control to users over blocking (Biedermann et al. 2021), while other-deployed interventions, administered externally, offer consistency at the cost of user control. The effectiveness of these strategies was evaluated through a pilot experiment with reading comprehension tasks.

The pilot assessed how digital distractions and the self and other deployed interventions affect performance and cognitive control variables such as concentration, attention, and self-control. Key findings revealed that attention positively correlated with better performance across both intervention types. However, higher self-control was associated with reduced performance for both types, suggesting difficulties in managing focus despite high self-control reports. For the other-deployed group, higher concentration improved performance, while the self-deployed group performed better with lower cognitive load and concentration. The self-deployed group also showed greater multitasking and lower stress levels, leading to improved performance and more efficient task completion compared to the other-deployed group, which had mixed performance outcomes.

Our future work aims to address the limitations of the pilot. First, we intend to measure attention through eye tracking over self-reported measures that could suffer from response bias. Second, EEG based measurements would be used to capture potential mind wandering. Future research would also focus on developing and assessing an AI-based agent to counter digital distraction.

References

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