MORE THAN AN OBJECT SMARTPHONES AS FACILITATORS OR INHIBITORS OF COGNITIVE PERFORMANCE?



Jens Binder, Nottingham Trent University Astrid Carolus, University of Würzburg



Smartphones and task performance

(1) Dual tasks and attention

- Attentional load and capacity issues
- Distraction while driving (e.g., Strayer, Drews, & Johnston, 2003)
- Task performance while simultaneously interacting with the smartphone

(2) Task performance and interruption

- Cognitive distraction <u>and</u> emotional stressor when receiving (real or imagined) signal from smartphone (Clayton, Leshner, & Almond, 2015)
- Task performance and unexpected, sudden interruption

(1) & (2) refer to explicit interference

Interference without interaction?



Smartphone as more than an object: presence and distraction

- Smartphones can be described as more than an object.
 - E.g., media equation, extension of self, addictive trigger
 - See Carolus, Binder, et al. (2019): SPs as digital companions.
- Experimental work: SP presence/absence and performance in a standard task of attentional focus

RSVP or Attentional Blink Task

- Continuous attention to screen required
- Little role of peripheral vision
- Reliable association with attentional load



The attentional blink





Raymond, Shapiro, & Arnell, 1992; Shapiro, Arnell, & Raymond, 1997

Pre-history



Overall Performance

- No control object
- Gender differences
- Sample heterogeneity



Phone vs. wallet

Design and Procedure

- 2x2 design: object x visibility
- Ptn asked for either **phone** or **wallet**
- Object **visible**: placed next to computer screen, within peripheral visual field
- Object **gone**: experimenter takes this outside the room while the task runs

Sample

80 ptn

- 50-50 gender split, evenly distributed
- Mean age 31 yrs.







Results (2)

gender x presence PHONE ONLY





Discussion

- No effects for a wallet...
- But complex effects for a smartphone.
- What is driving the gender difference?
 - For males: issues of ownership and material control?
 - For females: issues of anticipated phone activity and social signals?
- Role of fomo?
 - Is controlled for.
 - Correlated weakly with performance
 - No gender differences in fomo levels



Conclusion

- Smartphones can be both facilitators and inhibitors of cognitive performance
- Reminiscent of social facilitation and inhibition
- Smartphones as non-ordinary objects
- They're certainly different from a wallet!

Any questions

