

“It’s More Fun With My Phone”: A Replication Study of Cell Phone Presence and Task Performance

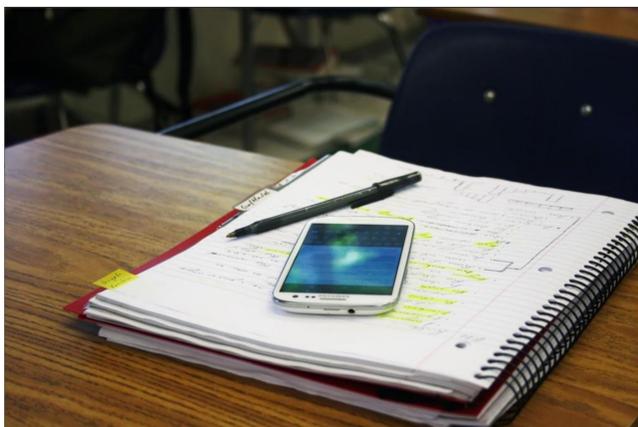
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Introduction

Thornton et al. [1] found that people perform worse on moderately challenging cognitive tasks (e.g. searching for target numbers that satisfy a given rule), when a cell phone is present next to them. They concluded that the mere presence of cell phones can be distracting and harm task performance. The finding is important but has not been replicated, and the authors also did not test any explanatory theory.

We attempted to replicate Thornton et al. and to test Kurzban et al.’s ‘opportunity cost’ model [2]: According to this model, the human mind computes the value of options missed out on by persisting on a task at hand – the higher the opportunity costs, the more effortful the current task will feel, and the worse we perform. Because smartphones give access to a multitude of rewarding activities (from news to video games), the decrease in performance observed by Thornton et al. might occur because the presence of smartphones increase other tasks’ perceived opportunity costs.



Results

Prediction 1 (replication): Smartphone presence causes lower performance in the additive digit cancellation task

- There was **no effect of smartphone presence on digit cancellation scores**, neither in the simple ($p = .30$), nor the additive task ($p = .62$).

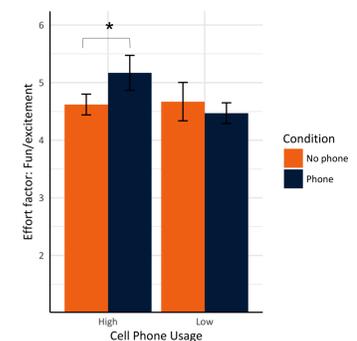
Prediction 2: Smartphone presence makes digit cancellation tasks feel more effortful

- There was **no main effect of smartphone presence on how effortful participants found the digit cancellation tasks** ($ps > .22$).

We observed two unpredicted interactions with individual difference variables:

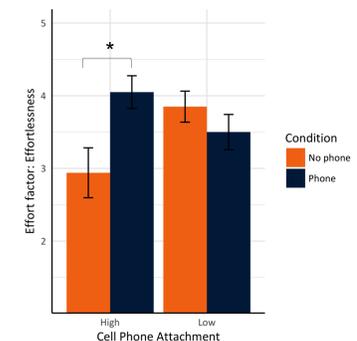
Interaction between smartphone presence and Cell Phone Usage:

Participants using their phones more found the simple cancellation task more fun/exciting, if they had their phone next to them ($p = .03$).



Interaction between smartphone presence and Cell Phone Attachment:

Participants more attached to their phones found the additive cancellation task more effortless, if they had their phone next to them ($p = .04$).



Conclusions

- Thornton et al.’s finding did not replicate: We found no effect of phone presence on performance in the additive cancellation task. Our sample size was similar to Thornton et al., but larger sample size is needed to conclude if the original finding is valid.
- However, heavy phone users found the cancellation tasks more fun/exciting and more effortless, if they had their phones next to them. If reliable, this finding has implications for e.g. students working surrounded by technology.
- Future studies should use larger sample sizes to establish whether Thornton et al.’s finding is real, and test whether the interaction between phone use/attachment and effort replicates.

Methods

PARTICIPANTS

53 participants (50 female) were recruited at the University of London, Royal Holloway. Mean age was 18.8 years (range 17-27).

INITIAL PHOTO TASK (COVER STORY)

- Participants are asked to use their smartphone to photograph an object.
- The RA places the phone face-up near the edge of the participant’s table (**phone-present**) and asks the participant to turn off their phone and put it away (**phone-absent**).

DIGIT CANCELLATION

- Participants cross out target numbers in 20 rows of 50-digit strings.
- ‘Simple’ version: cross out every instance of a number (e.g. 3: 7301638...)
- ‘Additive’ version, cross out every two consecutive numbers that when added equals a number (e.g. 5: 1237844...)

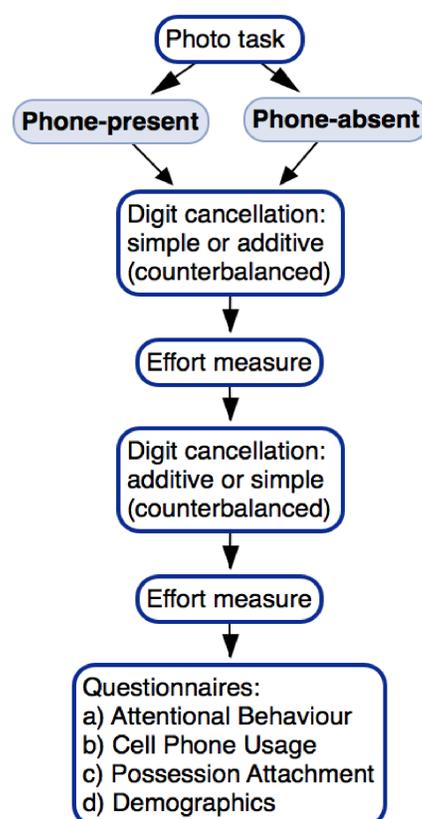
EFFORT MEASURE

- Participants indicate, on a 7-point scale, a) “how boring or exciting..”, b) “how effortless...”, c) “how fun...”, and d) “how difficult...” they find the task.

INDIVIDUAL DIFFERENCES

- Measures of i) attentional difficulties [5], ii) level of phone use, iii) attachment to one’s phone [6]

Figure 1: Experimental procedure.



References

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