Focus The Mind: Feedback Effects on Mind Wandering. (#70182)

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1) Have any data been collected for this study already?
No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?
H1: Performance feedback lowers participants tendency to engage in Mind Wandering as measured by Task Unrelated Thoughts ("TUTs").
H2: Displaying a progress bar reduce TUTs.
H3: Camera monitoring increase commitment, measures as reduced TUTs.
In addition, we expect to replicate these hypothesis from previous research:
H4: Approximate entropy (randomness) will be reduced with increased mind wandering.
H5: Behavioural variability will be increased during mind wandering.
H6: Positive interaction effect between behavioural variability and approximate entropy.

3) Describe the key dependent variable(s) specifying how they will be measured.
1. Thought Probes. We pause the experiment with a thought probe asking "were was you're thoughts directed just before this question". Participant answer on a 4-point Likert scale ranging from 1, completely focused on the task, to, 4 completely un-focused.
2. Approximate Entropy (AE). A measure of randomness, or irregularity, within a sequence of m length. AE(m) uses the previously generated sequence of m length and indicate the probability of the next "tap". Following, higher value of AE indicate more irregularity meaning that the sequence is random. Lower value of AE indicates less randomness, thus, more Mind Wandering.
3. Behavioural variability (BV). A measure of preciseness. How precisely or synchronously the participant is "tapping" the button at the sound of the beep. Because of the human tendency to anticipate, and because the beep occurs every 750ms this BV could be both positive and negative. Meaning sometimes the participant "taps" the button before the metronome sound and sometimes after. In sum, BV is an indication that the participant is focused, if this number is close to zero it means that they are tapping the button more of less synchronously with the beep. The more BV deviates from zero the less focused the participant is likely to be.

4) How many and which conditions will participants be assigned to?
We plan to publish 3 experiments, one with each of the main hypothesis. Each experiment will be compared with the control condition. Control condition. Only the experimental task, Finger Tapping Random Sequence Generation Task (FT-RSGT)
Experiment 1. FT-RSGT with Performance Feedback
Experiment 2. FT-RSGT with Progress bar
Experiment 3. FT-RSGT with Camera monitoring
We plan to recruit 100 participants per condition, in total 400 participants.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
Hierarchical Ordered Probit Regression. Avoiding the averaging of thought probes, we implemented a hierarchical ordered probit regression model and treat the thought-probe response as a dependent variable. The hierarchical ordered probit model assessed whether the independent variables/predictors (block, entropy, behavioural variability and feedback) could explain its variance across participants. Models with increasing complexity are tested, either containing these predictors as main effects or as interactions, thus determining the "winning model". From the winning model, all the regression coefficients (betas) are estimated for the included predictors. These coefficients help interpret how the dependent variable (subjective MW) is influenced by task performance (entropy), an objective behavioural measure of MW (behavioural variability), block, feedback, and their interaction. Crucially, it is expected to find positive beta-estimates for block – replicating time on task effect – and a negative interaction between block, indicating that increase in MW by the end of the task (block effect) is reduced if participants get feedback.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
We plan to exclude participants if: 1. they pause tapping buttons for three or more times 2. if they are tapping the buttons inconsistently with our instructions, 3. if they switch windows more than 10 times 4. if one "blur" lasted for more than 10 minutes. Blur being time spent away from the experimental task, measured as the time from switching away from experiment window until switching back to experiment window. 10 min duration and 10 times was set as an upper limit because some duration away is accepted during the instructional phase, for example to turn off e-mail notifications.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.
We plan to recruit 100 participants per condition, in total 400 participants.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)