1A. The scientific validity of the research question(s).

The proposed research aims to replicate and extend a seminal study on habit formation. The Authors ask valid questions, and present a comprehensive plan for the recruitment, data acquisition and analysis, respectively. Even though it does not play part in the evaluation, I would like to state that the research topic is important in various fields of psychology, medical and neurosciences and has the potential to have a wider impact. The proposed study fells within the ethical norms.

1B. The logic, rationale, and plausibility of the proposed hypotheses

The hypotheses related to the replication are plausible and the possible interpretations are logical. However, for RQ3 and RQ4, the interpretations were not clear to me. Specifically, for RQ3, the Authors state that higher automaticity with no omission as opposed to omission would mean that "performing the behaviour is important." This sounds self-evident, since there is no reason to assume habit development without performing the related behaviour. I would suggest rephrasing the interpretation in a way that it specifies the number of repetitions, or the recency of the repetitions.

Additionally, for RQ4, would a non-significant result prove that "complexity is irrelevant for automatization"?

1C. The soundness and feasibility of the methodology and analysis pipeline (including statistical power analysis or alternative sampling plans where applicable)

The proposed design is feasible. The replication plan was discussed with the original study's lead Author, including the usage of notifications and the update of the statistical analyses.

The plan includes a convincing justification of the sample size that also takes into account potential incompatibility across study sites (see also 1D).

1D. Whether the clarity and degree of methodological detail is sufficient to closely replicate the proposed study procedures and analysis pipeline and to prevent undisclosed flexibility in the procedures and analyses.

Yes, it is sufficiently detailed. The protocol has been deposited on the OSF.

1E. Whether the authors have considered sufficient outcome-neutral conditions (e.g. absence of floor or ceiling effects; positive controls; other quality checks) for ensuring that the obtained results are able to test the stated hypotheses or answer the stated research question(s).

The plan includes quality checks and further analyses to rule out that site-specific effects or the difference between student samples vs population samples might contaminate the results.

Sincerely,

Adam Takacs Dresden, 05.07.2022