Logo der TU Dresden: Schriftzug "Technische Universität Dresden". Links davon befindet sich ein Achteck, das in zwei Bereiche aufgeteilt ist, die zusammen die Buchstaben "T" und "U" ergeben. School of Science / Faculty of Psychology / Chair of Differential and Personality Psychology

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Cover Letter for a Stage 1 Registered Report

Dear Dr. Kousta,

we would like to submit the Stage 1 Registered Report titled “When easy is not preferred: An effort discounting paradigm for estimating subjective values of tasks” for consideration in *Nature Human Behaviour*.

In our study, we investigate the relationship between the cost of effort and the value of rewards, a trade-off that is relevant to everyday life but still poorly understood. We advance an existing paradigm by Westbrook and colleagues (2013) that enables to examine decision-making by determining the subjective values of different levels of a cognitive task. We alter the paradigm in such a way that it allows for two crucial improvements: Firstly, subjective values for tasks with varying demand can be determined without assuming that the objectively easiest level is preferred. This is especially relevant given that individual differences exist in the preference for cognitive effort: the personality trait *Need for Cognition* captures such individual differences as individuals who enjoy cognitive effort likely prefer a higher demand level. Secondly, our modification allows determining subjective values for tasks whose levels have no objective order of difficulty.

These properties of our newly established task modification are used to target two research questions: The first is whether we can replicate the analyses of the original study by Westbrook et al (2013) with our new paradigm and describe individual differences in subjective values more accurately. The second question is whether our approach is suitable for determining subjective values in the new context of an emotion regulation task for which no objectively easiest emotion regulation strategy exists. To investigate both properties rigorously, both research questions are covered in separate Registered Reports that we have submitted at the same time. Here we present the Registered Report for the first research question. We deem it of utmost interest for fields such as psychology, economics, and cognitive science, offering an effective and adaptable way to assess the preference for cognitive effort with different rewards. We not only adapt and replicate the original paradigm with a larger sample, but apply Specification Curve Analysis to verify our results regarding alternative decisions in preprocessing steps.

Following Stage 1 acceptance in principle of both Reports, we will collect the data over a span of six months, and analyse the data and write the Stage 2 Report within four to six weeks, resulting in a total project duration of about seven to eight months. Depending on how the Covid-19 pandemic impacts the feasibility of data collection in the lab, this estimation can vary.

We hereby confirm that all necessary support and approvals are in place for the study to commence immediately. We agree to share the raw data, study materials, and analysis code openly on the Open Science Framework. We agree to register the approved protocol as a publicly available preprint on the Open Science Framework following Stage 1 acceptance in principle. We agree to Nature Human Behaviour publishing a short summary under a section Withdrawn Registrations, should we choose to withdraw our paper.

Thank you very much for considering our manuscript.

Yours sincerely,

Josephine Zerna

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