(This revised version was submitted prior to any data collection.)

Study Registration For the KPU Study Registry

The registration information for the study is given below. Each section can be expanded as needed.

1. The title or name of the experiment (for listing the experiment in the registry).

Remote Meditation Support – A Multimodal Distant Intention Experiment

2. The name, affiliation, and email address for the lead experimenter(s) for the study.

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3. A short description or abstract of the purpose and design of the experiment.

The purposes of this project are 1) to assess whether in a distant intention experiment effect sizes can be augmented by the use of experienced meditators as agents 2) to assess the distant intention effect in a multimodal approach by physiological and behavioral variables 3) to assess whether there is correlation between the performance in an initial simple psi test and the performance in the distant intention experiment.

4. A statement or list of the specific hypothesis or hypotheses being tested, and whether each hypothesis is confirmatory or exploratory. (confirm/explore guidance)

Confirmatory hypothesis:

a) It is hypothesized that in a modified Attention Focusing Facilitation Experiment with 30 sessions a significant distant intention effect will be found in the tonic component of the EDA (i.e. SCL) (physiological variable).

b) It is hypothesized that in a modified Attention Focusing Facilitation Experiment with 30 sessions a significant distant intention effect will be found in the number of button presses (behavioral variable).

c) It is hypothesized that a significant correlation is found between the hit rate in a simple psi –pre-test (Ball Drawing Test, see below) and the performance in the distant intention experiment.

Exploratory hypothesis:

a) It is hypothesized that in a modified Attention Focusing Facilitation Experiment with 30 sessions a significant distant intention effect will be found in the phasic component of the EDA (i.e. NS.SCR).

b) Individual exceptional experiences, meditation experience, and sociodemographic variables will be correlated to the hit rate in the Ball Drawing Test.

5. The planned number of participants and the number of trials per participant.

We will conduct thirty sessions which each comprise eight epochs of three minutes duration. Participants can participate up to five times in the experiment either in the role of the helper or helpee. Thus, we will have a maximum of 60 participants and a minimum of 12. If a participant shows a non-reactive EDA signal defined as less than 10 non-specific SCRs larger than 0.025µS during the whole session, s/he will not be invited again to serve as the helpee.

6. A statement that the registration is submitted prior to testing the first participant, or indicating the number of participants tested when the registration (or revision to the registration) was submitted.

We state that the registration will be submitted prior to testing the first participant.

The following additional information is needed for studies that include confirmatory analyses:

7. Specification of all analysis decisions that could affect the confirmatory results, including: the specific statistical test for each confirmatory hypothesis, whether the test is one-sided or two-sided, the criterion for acceptable evidence, any transformations or adjustments to the data, any criteria for excluding or deleting data, and any corrections for multiple analyses. Checklists and examples for registering classical analyses, Bayesian analyses, and classification analyses are provided in the statistics registration document. **(This information can be included in section 4 above for simple experiments.)**

For the evaluation of the attention focusing experiment a matched sample t-test will be computed to compare helping with non-helping epochs if the data set proofs to be normally distributed (Kolmogoroff-Smirnoff test); otherwise a Wilcoxon signed rank test will be computed with significance level set to $p \leq .05$, two-tailed. Statistical comparisons between experimental and control epochs will be done for each session by data aggregation over the 4 helping and the 4 non-helping epochs. The difference between the two conditions will be analyzed with a matched samples t-test for the phasic component of the EDA and the number of button presses, respectively, with significance level set to $p \leq .05$, two-tailed.

If a participant shows less than 10 non-specific SCRs larger than 0.025µS within one session, this data set will be kept in the main analysis. But an additional sensitivity analysis will be performed in which these trials are discarded.

For the correlational analyses a standardized session success score will be computed which will then be correlated with the hit rate of the Ball Drawing Test. The session success score q will be computed from the aggregated values of the 4 helping (E) and the 4 non-helping (C) epochs of each session as follows:

$$q = ln\frac{E + 0.5}{C + 0,5}\sqrt{\frac{(E + 0.5)(C + 0.5)}{E + C + 1}}$$

We will compute Pearson's correlation coefficient r. Signficance testing will be two-tailed with α=0.05.

8. The power analysis or other justification for the number of participants and trials.

For our planned sample size of N=30 trials and a power of 0.80, an effect size of d=0.47 is assumed.

9. The methods for randomization in the experiment.

A predefined set of eight balanced sequences will be generated. Out of these we will select for each trial one sequence by a random selection procedure using run-time as the seed embedded in the *E-Prime* software. .

10. A detailed description of the experimental procedure.

Participants will come in pairs to the lab. One person is termed the helper the other one the helpee. During the experimental session the helpee tries continuously to regulate his or her attention in a silent meditation. The session is divided into eight epochs lasting 3 mins and 5 seconds. The first 5 seconds of each epoch are designated for the participant for orientation and attention towards the new experimental condition. These first 5 seconds will be discarded from the analysis. In some of these epochs the remote helper is trying to give support, in others not (control epoch). The dependent variables

of the experiment will be the number of distractions reported by the helpee as well as the EDA of the helpee. Epochs of remote support will be compared with control epochs without support.

Inclusion criteria for the role of the helper will be at least three years of meditation experience as well as a continuous practice during the last eight weeks. Inclusion criteria for the role of the helpee are basic experiences with meditation defined as at least eight weeks of continuous practice in the last two years and occasional practice in the last three months. All eligible participants will undergo a pre-testing for the ability to show significant results in psi experiments. This will be the Ball Drawing Test. Participants have to draw 120 balls from an opaque bag. Balls will be put back after each trial. The bag contains 50 balls and each ball contains a number ranging from 1 to 5. Participants have to announce the number of the next ball in advance. The Ball test is performed under the supervision of an experimenter, who observes the whole procedure and notes the calls as well as the number of the drawn balls on a score sheet.Based on the hit rate in this pre-test we will build pairs of participants which score in the same range and schedule them for the Remote Helping Meditation part of the study. 'Same range' is here defined as follows

- If both participants have a hit rate of 31 or more (p=0,072), or

- If they have a hit rate below 31, and if the hit rates of the two participants differ by 0 (same hit rate), 1, or 2 hits, respectively.

We will record two dependent variables, one physiological and one behavioral. The behavioral variable will be the number of button presses of the helpee during the session. The helpee is asked to press the button whenever s/he notices that her mind has wandered away from the focus of attention. The physiological measure will be the eletrodermal activity of the helpee. This variable will be continuously recorded during the experimental session.

EDA data will be treated as follows:

1. Data will be inspected for technical artifacts. A technical artifact is defined as a signal that is due to its characteristic impossible to be obtained from normal EDA recording, and thus reflects a misfunction of the technical equipment. In order to define a signal as artefactual in the above sense two members of the research team have to agree on this status independently. Artifact screening will be conducted blindly, i.e. without knowing the type of epoch. In case that there is a technical artifact, the whole 3 min epoch will be discarded as well as the respective counterbalanced opposite epoch.

2. For the variable of skin conductance level (SCL) the mean over all measurement points during an epoch will be computed.

3. For the variable of number of non-specific skin conductance responses (NS.SCR) all skin conduction responses with an amplitude > 0.025 µS will be identified and counted. Therefore data will be treated with 10 second time constant, this corresponds to a high-pass filtter of 0.016Hz and downsampled to

32Hz. EDA will be identified and parameterized by a self-coded algorithm using MatLab. This algorithm will identify a maximum (peak) in the data and then will check for the closest preceding minimum. Minimum and maximum will be identified by the first derivative of the curve crossing zero and the second derivative being positive or negative respectively.Amplitude (SCR amp.) will be parameterized as minimum to maximum difference. This variable will only be applied for the respective participant if a minimum value of 10 NS.SCR can be identified for the whole session consisting of 8 epochs of 3 min length.

Additionally we will also record respiration activity, heart rate and finger pulse waveform. Respiration is recorded as a potential control variable for artifacts in the EDA. But all three variables will be analysed for exploratory purposes in order to see whether there are patterns related to the independent variable. There are no hypotheses formulated regarding these three additional variables; consequently no conclusion regarding any effects found in these variables will be made.