

KPU Registry ID Number: 1003 Date Initially Submitted: 25th April 2013

Study Registration For the Koestler Parapsychology Unit 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).

Precognitive Dreaming: Sleep Lab Study

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 primary goal of the study is to test the hypothesis that dreams can predict future events. Participants (selected for prior precognitive dream experience and ability to recall dreams) will each spend two nights at a sleep laboratory. The first night of the study is primarily to acquaint the participant with the experience of having electrodes attached to register EEG, and to sleep in the laboratory. Participants will complete a short questionnaire about their dream recall, and precognitive dream experiences and beliefs, and a short randomly-selected audio clip will be played to them during their last REM period of the night. On the second night, participants will be awoken after each REM period and asked to give a dream report. The following morning, a target film clip will be randomly selected and shown to the participant in an immersive environment. On the same day, independent judges will be asked to judge the target pool against the transcript of the dream reports. The primary psi outcome measure will be based on the judgements of the pre-designated Primary Judge; the Secondary Judge's judgements will be used as a measure of inter-judge reliability.

4. A statement or list of the specific hypothesis or hypotheses being tested, and whether each hypothesis is confirmatory or exploratory.

H1: Precognitive dreaming: The target video clips will receive significantly higher rankings than the decoy video clips. Confirmatory. Analysis by sum-of-ranks based on ratings of the pre-designated Primary Judge. Alpha level is  $p \leq .05$  one-tailed.

H2A and H2B: Precog dream experience/belief and sensory incorporation: Prior precognitive dream experience(A) and belief (B) will correlate with measure of the incorporation of sound-track into the participant's dreams in final REM period of night 1. Exploratory. Analysis by Spearman correlation. Alpha level is  $p \leq .05$  two-tailed.

H3A and H3B: Precog dream experience/belief and precognitive dreaming: Prior

precognitive dream experience(A) and belief(B) will correlate with Primary Judge's target ranking. Exploratory. Analysis by Spearman correlation. Alpha level is  $p \leq .05$  two-tailed.

H4: Sensory incorporation and precognitive dreaming: Measure of the incorporation of sound-track into the participant's dreams in final REM period of night 1 will correlate with Primary Judge's target ranking. Exploratory. Analysis by Spearman correlation. Alpha level is  $p \leq .05$  two-tailed.

There will also be exploratory EEG analyses for night 2 of the study.

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

There will be 20 participants, 1 trial per participant (night 1 sensory incorporation, night 2 precognitive dreaming)

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 confirm that this registration is submitted prior to the testing of the first participant.

In addition to the minimum content above, further information is highly recommended—particularly for well-planned confirmatory experiments. The additional information includes some or all of the following:

7. The specific statistical test method that is planned for each hypothesis, including which statistical test will be used, whether the unit of analysis is the participant or the individual random event, what p value (or confidence interval level) is significant, whether the statistical test (or confidence interval) is one or two-tailed, and any adjustment for multiple analyses. For example, “to analyze overall  $\psi$ , a z-score binomial test with continuity correction will evaluate whether the overall rate of direct hits for all trials in the experiment is greater than 25%, with significance set at  $p \leq .05$  one-tailed,” or “the difference between the two conditions will be analyzed with a two-sample t-test with the number of hits for each participant as the unit of analysis and significance set at  $p \leq .05$  two-tailed.” (This information can be included in section 4 above.)

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

Twenty is the most we can afford giving the funding available for this study and the costs of technician and sleep laboratory usage. The two Maimonides dream precognition studies, using special subject Malcolm Bessent, had 8 trials each, effect size .728 and .651 (Sherwood & Roe, 2003). While we are not using a special subject, we are using participants selected for prior precognitive dream experience.

9. The methods for randomization in the experiment.

The target pool (1-10) will be chosen using an online random number generating website (random.org) which uses atmospheric noise as a source of randomness.

The target (1-4) will be chosen using the same source.

The order in which the independent judges will view the four target possibilities will be chosen using the same source.

10. A detailed description of the experimental procedure.

Sleep Lab Study - April 2013 - Standard Operating Procedure for experimenters LV & CW, and EEG technician MK - updated 24th April

LV should record each trial in a study journal (paper or electronic, e.g. spreadsheet), including the date of each trial, participant ID code, and (when appropriate) selected target pool and target. This journal should include notes and explanations of any deviation from planned procedure, and should be completed in ink.

Throughout the study, whenever a random number is to be used, the randomizer is instructed to generate only one random number and use the first number that is generated.

Night 1:

9pm-9.30pm Arrival 1. LV greet participant & introduce MK/tech, take participant to bedroom.

LV assign participant ID code, & go through info and consent form, answer questions, obtain signature.

(participant is not told of the possible content of the soundtrack that will be played, and is not told about the soundtrack)

2. LV administer pre-session questionnaire on precognitive dreams (detach it from the other participant questionnaires and forms) and tell the participant she will come in to wake participant in the morning and ask for dream report

3. MK/tech apply electrodes and ask participant what their normal wake-up time is 11pm(ish) Bedtime

(during the night, MK/tech will take EEG recordings; LV can enter questionnaire scores on spreadsheet etc)

4. Last REM period of the night (i.e. last REM period prior to awakening around 7.30am) - MK/tech use random.org site to randomly choose 1 of the 4 audio soundtracks. LV is kept blind to the identity of the chosen soundtrack. MK/tech play in the audio soundtrack for 1 min. MK/tech to confirm whether EEG suggests participant continued to sleep while soundtrack was played. LV to take note of this (yes/no/unsure).

5. Participant wakes naturally or is awoken, LV takes dream report and associations using digital recorder. (Suggest when taking dream report that LV draws up chair to be nearer height of participant in bed). LV asks participant whether they were aware that an audio soundtrack was played to them towards the end of the night, and records answer (yes/no/unsure).

6. Electrodes etc removed. Participant given tea/coffee/toast if desired.

7. LV plays the participant the four possible sound tracks and asks the participant to rate each one for degree to which they feel their dream may have incorporated the soundtrack (using form provided; LV to use random numbers to vary the order in which each participant is played the 4 tracks).

8. Once participant's rating is recorded, MK/tech to reveal actual soundtrack identity, which is recorded on same form as participant's ratings.

Participant then free to go.

9. LV makes transcript of the dream report and associations, emails this to CW. Suggest use participant ID code +night1 for filename. Later (once known), LV emails CW identity of chosen soundtrack and updates spreadsheet.

Night 2:

1. 9.30pm - ish. LV greet participant on arrival, remind participant of procedure (including noting that LV will enter room to wake them during the night for dream reports); show participant the room in which they will view the video target clip in the morning.

2. MK/tech apply electrodes.

3. Bedtime - LV reminds the participant to make a gentle wish that their dreams during the night will relate to the target video that they will be seeing and hearing in the morning.

4. MK/SW monitor EEG, tell LV when REM period is happening.

(MK/SW make EEG recordings throughout the night)

5. LV awakens participant towards end of \*each\* REM period, enters room and uses digital recorder to make a record of dream report. LV reminds participant that they can use the call buzzer to bring her back to the room if they remember more of their dream after she has left.

(during the night - LV sets up room for showing target clip, and makes transcript of dream reports - save file using participant ID code, and label each dream separately, but all in one file; include the date of the trial in the document)

6. LV obtains dream report after final REM period (this will be the Rem period prior to awakening around 7.30am). LV reviews all the night's dream reports with participant, and using digital recorder makes a record of any further comments or associations that the participant has.

7. Electrodes removed; Participant has c30 mins to dress/shower/have tea/coffee/toast.

8. LV completes transcription of the dream reports and associations, LV then randomly selects the target pool (1-10) using random.org site and emails the file containing dream reports & associations, and a note of the target pool identity, to CW.

MK/tech to witness target pool selection, sign logbook to confirm that emailing of target pool selection to CW is done \*before\* the target identity is selected, and to confirm that the pool selected is accurately logged.

9. \*AFTER\* CW has been sent the transcript file and the target pool ID by email, LV uses random.org to randomly select which clip will be the target (1-4). LV makes a record of the selected pool and target for that session. MK/tech to witness the target selection and to sign logbook to confirm that the target selected is accurately logged.

10. LV takes participant to the viewing room, and seats them comfortably. LV briefly reminds the participant of their dream reports. LV gives the participant the appropriate 'prop'. LV gives the participant headphones and checks that the audio level is comfortable, and then plays the target video (4 repeats, more if the participant requests). Using the form provided, LV asks the participant to rate their dream reports (as a whole) for the degree of similarity to the target clip.

11. LV 'debriefs' the participant (give them debriefing sheet) - answering any remaining questions. LV asks participant to give their contact details if they want to be sent a summary of the study results. To avoid leakage of target information, LV asks the participant to keep the identity of the target video as a secret until LV notifies them it is "safe" to talk about the trial to friends etc. LV and MK/Tech also required not to discuss target identity with others until the trial has been judged.

12. LV pays the participant £150 for their participation, and asks the participant to sign a receipt for this. The participant is thanked and is free to leave at this point.

#### Judging procedure

There are two judges. The judging will be done by email, with each judge having the target pools and photos of the props on a memory stick or external drive. Neither judge is otherwise involved with the study. The Primary Judge is a trusted member of staff of the KPU research group. The second judge is not affiliated with the KPU research group or the University of Edinburgh.

For each precognition trial, as soon as possible after LV has sent the trial info to CW, CW sends the identity of the target pool for judging to the two independent judges, along with the matching dream report & association transcript. One of these judges is previously designated the Primary Judge, and the psi outcome will be based on that judge's judgements. The second judge's judgements will be used for a measure of inter-rater reliability. To prevent exposure to possible target information, on the morning when the participant will view the precognitive target, the Primary Judge refrains from using any social media until after the judging task has been completed and sent to CW.

Judges rate the night's dreams on a scale from 1-100 for similarity with each of the four targets. No tied ratings are permitted, and each judge's ratings will be changed into ranks (with Rank 1 = highest similarity rating, Rank 4 = lowest similarity rating). The primary psi outcome measure will be Sum of Ranks based on the Primary Judge's ratings.

Once CW has received the Primary Judge's ratings, CW asks LV to reveal the target identity for that trial, and CW records whether the trial was a hit or a miss. LV can then email the participant to tell them they are free to talk about the target with others, if desired.