

Os textos são da exclusiva responsabilidade dos autores
All texts are of the exclusive responsibility of the authors

REALITY MONITORING AS A COGNITIVE MEDIATOR OF HYPNAGOGIC IMAGERY

Alejandro Ezquerro-Nassar, Jane Garrison, Valdas Noreika, Jon Simons, Anna Snoeck
& Tristan Bekinschtein

University of Cambridge

Grant 312/18

Background: Studies that contrast conscious and non-conscious neural states are ubiquitous in consciousness science. However, very few studies have addressed the dynamic transition from wakefulness to sleep. Even less empirical literature exists concerning the cognition and phenomenology of the hypnagogic state, despite hypnagogic imagery being widely reported across people and cultures.

Aims: 1) To investigate the sources of thought and memory in hypnagogic transitions.
2) To map the neurophenomenological trajectories through the sleep-wake transitions.
3) To map modulations of the hypnagogic experience by sleep deprivation.

Method: Participants performed a reality monitoring task adapted from Simons, et al (2006) where they were asked to study a series of complete and incomplete word pairs. The incomplete pairs consisted of just the first word followed by “and” (e.g. “salt and ___”). After listening to 24 items, they were tested on their memory of these items by indicating whether they had previously heard or imagined the second word of the pair (i.e. to identify the source of the auditory event). They were also presented with novel items, which they could also indicate with a button press. Alertness was manipulated during the test phase by making some of the blocks deliberately prolonged and tedious so that participants would become drowsy throughout the memory retrieval process. High-density EEG was recorded throughout the experiment.

Preliminary results: Given that this study will be preregistered, only pilot data for 8 participants has been analysed. Recognition memory and reality monitoring accuracy both appear to be impaired by drowsiness. We have observed what seems to be a larger effect for reality monitoring than for recognition memory, which is also reflected by differences in reaction times. This is in line with our hypothesis that the transition from wakefulness to sleep specifically involves a disruption of reality monitoring processes that give way to hypnagogic imagery. For our formal analysis we intend to include within subject comparisons between normal sleep and sleep deprived sessions, as well as multilevel modelling of accuracy and reaction times across our alertness and sleep deprivation conditions.

Keywords: Reality monitoring; Sleep onset; Sleep deprivation; Memory; Dreams; Hypnagogic imagery; Consciousness; EEG

E-mail contact: ae392@cam.ac.uk