

**Final Report, January 2015**

**In the Eye of the Beholder?  
An Investigation into Precognitive Dreaming**

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## OVERVIEW

Despite precognitive dreaming being one of the most commonly reported putative paranormal experiences, such experiences have received relatively little attention from parapsychologists. During her Perrott-Warrick Senior Researcher Fellowship, Dr Caroline Watt conducted 10 studies investigating various aspects of precognitive dream experiences. The studies have expanded our understanding of these experiences, and the results have been widely disseminated at academic conferences and in public talks. To date, seven of the studies have been published in peer-reviewed journals. The Fellowship has also enabled Dr Watt to write a book -- *A Beginner's Guide to Parapsychology* -- that will be published by Oneworld in 2015. Dr Watt is grateful for the support that she has received from the Perrott-Warrick fund, and is pleased to report that her Perrott-Warrick research programme has been credited with 'reviving interest' in dream-ESP research (Storm, 2014).

## INTRODUCTION

This final report provides an overview of the activities and outputs from Dr Caroline Watt's Perrott-Warrick Senior Researcher fellowship, which ran from October 2010 to December 2014. The fellowship supported Milan Valášek as a part-time research assistant for Dr Watt, also enabling Valášek to study for his PhD at the University of Edinburgh (nearing submission at the time of writing). It also supported a reduction in Dr Watt's teaching duties, enabling her and Valášek to focus on the Perrott-Warrick research programme, and in the final year giving Dr Watt the opportunity to write a book about parapsychology.

The research programme primarily investigated the experience of dream precognition along three fronts: controlled tests of the dream precognition hypothesis; the study of psychological factors that may lead to the experience of apparent precognitive dreaming; and an examination of the phenomenology of precognitive dream experiences.

### PRECOGNITIVE DREAMING: CONTROLLED STUDIES

We conducted three studies investigating whether individuals' dreams can predict randomly-occurring future events (video clips or short films). Two of these studies also examined psychological factors that might be associated with the experience of precognitive dreaming.

#### **Study 1: Online dream precognition and tolerance for ambiguity.**

This was an online study in which participants slept at their homes and submitted dream reports. Later they were shown a randomly selected video clip. Independent judges blind-rated the target and decoy clips against the dream reports. The study also investigated psychological variables that may contribute to precognitive dream experiences.

**Abstract:** This online dream precognition study examined variables, both psychological and parapsychological, that have been proposed to contribute to precognitive dream experiences. 50 participants each contributed four trials, where the task was to dream about a video clip that they would later view. Independent judges were used to score the correspondence between dreams and the target pool. No support was found for the hypothesis that individuals who are intolerant of ambiguity would report greater correspondence between their dreams and subsequently viewed target video clips. A relationship was found between the participants' prior confidence that their dreams would relate to the future target and actual perceived similarity between the target and dreams; however, there was no relationship between perceived similarity and judges' actual hit rates or similarity ratings. The test of the precognition hypothesis obtained above-chance scoring (32% hit rate) on the planned direct hits measure. Obvious methodological artefacts are ruled out, and the discussion concludes with an exploration of whether the judges' ratings also support the dream precognition hypothesis.

#### **Dissemination**

This study was presented at the 2012 Convention of the Society for Psychical

Research in Edinburgh, and was published in the *Journal of Parapsychology* in July 2014.

#### **Publication**

Watt, C. (2014). Precognitive dreaming: Investigating anomalous cognition and psychological factors. *Journal of Parapsychology*, 78, 115-125.

#### **Study 2: Testing dream precognition and sensory incorporation.**

This study was conducted in a sleep laboratory (with Richard Wiseman and Laurene Vuillaume). Each participant slept for two nights in the sleep laboratory. On the first night, we tested the claim that seemingly precognitive dreaming may be attributable to the incorporation into dreams of weak sensory information. The second night tested the precognition hypothesis. Participants were awoken for dream reports during the night, and in the morning they viewed a randomly-selected video. An independent judge blind-rated the dreams against the target and decoy videos.

#### **Abstract**

Controlled research into alleged psychic functioning can aid our understanding of the nature and limits of consciousness. Some commentators have suggested that the decline in positive results from dream precognition studies might be due to the early experiments being carried out in sleep laboratories whilst later studies tested participants in their own homes. The present study assessed this argument. Twenty participants were selected for prior precognitive dream experience, and were invited to a sleep laboratory. Participants were asked to dream about a target video they would later view. A judge rated participants' dreams against the target and decoys. No evidence was found for dream precognition. The study also tested the hypothesis that precognitive dream experiences may occur when a person subconsciously incorporates sensory information into their dream. A sound clip was played to sleeping participants and a judge rated the target and decoy clips against the participants' dream transcripts. The correlation between degree of sensory incorporation and prior precognitive dream experience was non-significant. Suggestions for future research in this area are discussed.

#### **Dissemination**

The study was presented at the 2013 Convention of the Society for Psychical Research in Swansea, and has been accepted for publication in the *Journal of Consciousness Studies*.

#### **Publication**

Watt, C., Wiseman, R., & Vuillaume, L (in press). Dream precognition and sensory incorporation: A controlled sleep laboratory study. *Journal of Consciousness Studies*.

#### **Study 3: Schredl replication study**

This study (with Emma Mark) was completed in March 2014. It was a replication of the study by Michael Schredl (2010, *Journal of the Society for Psychical Research*) that had obtained significant results supporting the precognition hypothesis. The innovative methodology involved participants sleeping at home but then receiving target feedback in the lab in Edinburgh. Participants were randomly assigned to two groups, with each group acting as the other's 'control'. This study obtained significant results supporting the

precognition hypothesis, thereby replicating Schredl's findings. Dr Watt aims to submit this study for publication in 2015.

## **PRECOGNITIVE DREAM EXPERIENCES: PSYCHOLOGICAL FACTORS**

We have conducted five studies exploring the role that people's everyday psychological processes may play in precognitive dream experiences. Studies 4 and 5 (with Ashley, Gillett, Halewood and Hanson) investigated the role of memory bias and propensity to find correspondences, and were published together.

### **Study 4: Selective recall**

This study found that individuals have a tendency to be better able to remember matches between dreams and subsequent events, compared to mis-matches. This would tend to lead to people having greater numbers of precognitive dream experiences.

### **Study 5: Propensity to detect correspondences.**

This study found that people who reported that they believed in the paranormal, and that they believed in precognitive dreaming, were better able to find correspondences between randomly-paired dream reports and reports of world news events, compared to disbelievers. However, this effect was not found for more neutral correspondences tasks, so it appeared to be context-specific.

### **Study 4 & 5 abstract**

We report two studies into psychological factors that have been proposed to contribute to the claim of having experienced a precognitive dream. Study 1 investigated the role of selective recall in precognitive dream experiences. Participants read two diaries, one purporting to be a dream diary, and one purporting to be a diary of events in the dreamer's life. The events either confirmed or disconfirmed the reported dreams. As predicted, a significantly greater number of confirmed than disconfirmed dream-event pairs were recalled. Study 1 also investigated whether paranormal belief moderated the selective recall effect, but no relationship was found. Study 2 tested the hypothesis that paranormal beliefs may in part arise from a propensity to associate unrelated events. Participants undertook two tasks. For the 'contextual' task, participants were asked to find correspondences between randomly-paired news articles and dream reports. The 'neutral' task invited participants to produce a noun that would provide an associative connection between two unrelated nouns. As predicted, paranormal belief and precognitive dream belief were found to correlate significantly with ability to find correspondences between dreams and news event pairs. Contrary to prediction, no relationship was found between belief and performance on the neutral association task. Together, these studies illustrate the operation of mechanisms that, when present in individuals having dreams and experiencing subsequent events, would tend to lead to an increase in the number of experiences of a seeming coincidence between dreams and events that can be interpreted as precognitive.

### **Dissemination**

These two studies were presented at the 2013 Convention of the Parapsychological Association in Italy and at the 2012 Bial Foundation Symposium. In April 2014 they were published in the *International Journal of Dream Research*.

### **Publication**

Watt, C., Ashley, N., Gillett, J., Halewood, M. & Hanson, R. (2014). Psychological factors in precognitive dream experiences: The role of paranormal belief, selective recall and propensity to find correspondences. *International Journal of Dream Research*, 7, 1-8.

Open access:

<http://journals.ub.uni-heidelberg.de/index.php/IJoDR/issue/view/1542>

### **Studies 6 and 7: Precognitive dreaming and implicit processing.**

Studies 6 and 7 continued this line of work by investigating (with Valášek, Hutton, Neill, Nuttall, & Renwick) the proposal that precognitive dream experiences may be attributable to the dreamer's extrapolation from unconsciously perceived sensory information. To test this hypothesis, we predicted that performance on implicit tasks would correlate with precognitive dream experience. Study 6 employed an implicit learning task, while Study 7 employed a measure of change blindness. The studies were published together.

### **Study 6 & 7 Abstract**

It has been proposed that seemingly precognitive (prophetic) dreams may be a result of one's unconscious processing of environmental cues and having an implicit inference based on these cues manifest itself in one's dreams. We present two studies exploring this implicit processing hypothesis of precognitive dream experience. Study 1 investigated the relationship between implicit learning, transliminality, and precognitive dream belief and experience. Participants completed the Serial Reaction Time task and a battery of items. We predicted a positive relationship between the variables. This prediction was not supported. Study 2 tested the hypothesis that differences in the ability to notice subtle cues explicitly might account for precognitive dream beliefs and experiences. Participants completed a modified version of the flicker paradigm. We predicted a negative relationship between the ability to explicitly detect changes and precognitive dream variables. This relationship was not found. There was also no relationship between precognitive dream belief and experience and implicit change detection.

### **Dissemination**

These two studies were presented at the 2013 Parapsychological Association Convention in Italy, at the 2012 Bial Foundation Symposium in Porto, and were published in August 2014 in the journal *Consciousness and Cognition*.

### **Publication**

Valášek, M., Watt, C., Hutton, J., Neill, R., Nuttall, R. & Renwick, G. (2014). Testing the implicit processing hypothesis of precognitive dream experience. *Consciousness and Cognition*, 28, 113-125.

### **Study 8: Individual differences in precognitive dreaming**

This study, which formed part of Valášek's PhD research, was a questionnaire-based study. It investigated how various demographic,

attitudinal, and sleep related factors correlated with precognitive dream belief and experience.

### **Abstract**

A large proportion of the general population believes that dreams can provide information about future events that could not have been obtained by any known means. The present study identifies several factors contributing to the belief and experience of prophetic (precognitive) dreams. Participants ( $N = 672$ ) completed a battery of questionnaires measuring demographic variables, attitudes towards dreams, sleep characteristics, and precognitive dream (PD) belief, experience, and frequency. Three 'sleep clusters' were identified based on the analysis of the sleep-related variables. PD belief was related to PD experience as well as the frequency of PDs. Women were more likely to believe in PDs as well as experience them. There was a positive relationship of PD belief and experience with age and a negative one with education. Personal significance ascribed to dreams in general was primarily related to PD belief and, to a lesser extent, to PD experience. Most notably, we found that a high frequency of PD experiences was associated with an erratic sleep pattern and a higher likelihood of sleep medication use. The present study provides basis for specification of more complex models explaining the prevalent phenomena of precognitive dream belief and experience.

### **Dissemination**

This study has been submitted for publication.

### **Reference**

Valášek, M. & Watt, C. (submitted) Individual differences in prophetic dream belief and experience: Exploring demographic, attitudinal, and sleep-related correlates.

## **PRECOGNITIVE DREAM EXPERIENCES: PHENOMENOLOGY**

This line of work consists of two studies that employ correlational designs and factor analysis to explore the phenomenological characteristics of precognitive dream experiences.

### **Study 9: Perrott-Warrick Dream Registry**

This study was conducted (with Valášek, Cawthron and Almanza) between May 2012 and January 2014. Its primary goal was to identify differences between prospectively reported precognitive dream experiences, retrospective experiences, and regular dreams.

### **Abstract**

Previous research on the characteristics of precognitive dream experiences has largely been based upon retrospectively reported dreams, which may be susceptible to various reporting biases. The present study compared prospective and retrospective precognitive dreams with non-precognitive dreams. A dream registry was opened for a sixteen-month period of collection of prospective precognitive dream and event reports and ratings from a selected sample of individuals reporting prior precognitive dream experience. The original registry participants as well as additional recruits then rated their retrospective precognitive and non-precognitive dreams on the same dimensions. The pattern of findings, when comparing the three types of dreams, suggests that reporting biases affect the survey and case collection



literature. Prospective precognitive dreams did not share a particular phenomenological 'marker'. We were unable to assess changes over time in the degree of similarity between prospective precognitive dreams and matching events because independent judges did not agree on similarity ratings, suggesting that the interpretation of a dream as precognitive is quite personal to the experient.

#### **Dissemination**

The Perrott-Warrick Dream Registry study was presented at the 2014 Conference of the Society for Psychological Research, in York. It has also been accepted for publication in the *Journal of the Society for Psychological Research*.

#### **Reference**

Watt, C., Valášek, M., Cawthron, S., & Almanza, A. (in press). In the eye of the beholder: Uncovering the characteristics of prospectively reported spontaneous precognitive dreams. *Journal of the Society for Psychological Research*.

### **Study 10: Creation of the Attitudes Towards Paranormal Experiences Scale**

This study formed a part of Valášek's PhD research, and addressed the current paucity of suitable instruments to explore the phenomenology of paranormal experiences, and their correlates. The study involved developing a scale that particularly focused on precognitive dream experiences. This scale could be a useful tool for other researchers, facilitating further research into the topic.

#### **Abstract**

Considering the prevalence of paranormal belief and experience in the general population, there has been little rigorous investigation into their phenomenological nature. Currently used measures do not provide a means to ascertain attitudes towards paranormal experiences. Moreover, there are several conceptual issues with the way researchers have been approaching this topic. For these reasons we believe that there is a need for a measure of attitudes towards specific paranormal experiences. This paper reports on the development and validation of the Attitude towards Paranormal Experiences Scale focusing in particular on the subjective experience of precognitive (prophetic) dreams. A 63-item scale was administered to participants with reported previous precognitive dream experience ( $N=330$ ) along with additional variables. After excluding items with unsatisfactory metric characteristics ( $N=32$ ), a robust exploratory factor analysis yielded a 5-factor solution labelled factors "Benefit" (perceived benefit derived from one's precognitive dream experience), "Importance" (personal significance and reliability one ascribes to this experience), "Negative emotion" (towards one's precognitive dreams), "Credit" (desire for acknowledgement for one's precognitive dream ability), and "Privacy" (tendency to keep one's precognitive dreams to oneself). The reliability of these subscales ranged from acceptable (Negative emotion,  $\alpha = .65$ ) to high (Benefit =  $.84$ ). Further analysis of the relationship between individual factors and additional variables provide evidence on the scale's validity. The paper concludes by identifying directions for future research employing this new measure.

#### **Dissemination**

This study was presented as a poster at the British Society for the Psychology of Individual Differences conference in London, April 2014. It has been submitted for publication.

**Reference**

Valášek, M. & Watt, C. (submitted) Creation of APES: Construction and Validation of the Attitude towards Paranormal Experiences Scale

**BOOK: A BEGINNER'S GUIDE TO PARAPSYCHOLOGY**

In the final year of the Fellowship, Dr Watt wrote the first draft of her book that will be published by Oneworld. It will form part of the 'Beginner's Guide' series. The final draft will be handed over to the publishers by 28th February 2015, in time for 2015 publication. The chapter topics are listed below.

Introduction: What is parapsychology?  
Chapter 1: The historical roots of parapsychology  
Chapter 2: Macro-PK claimants  
Chapter 3: Applied ESP  
Chapter 4: The disembodied self  
Chapter 5: Spirit communications, hauntings and apparitions  
Chapter 6: The ESP controversy  
Chapter 7: ESP and time (*including Perrott-Warrick dream precognition work*)  
Chapter 8: Mind and the physical world  
Conclusion

In all of these outputs, the support of the Perrott-Warrick fund was gratefully acknowledged.

## **Public dissemination**

In addition to presenting this research at academic conferences and in journal articles, Dr Watt has given a number of public talks about her Perrott-Warrick research programme.

**Edinburgh Festival Fringe, Skeptics on the Fringe, August 2011**, Caroline Watt gave a talk entitled "The psychology of precognitive dream experiences".

**Edinburgh International Science Festival**, presentation on Sweet Dreams, (April 2012) - included review of precognitive dream experiences research.

**Cheltenham International Science Festival**, presentation on Sweet Dreams (June 2012) - included review of precognitive dream experiences research

**Scottish Society for Psychical Research conference** (Edinburgh, Oct 2012). Caroline Watt presented a paper entitled: "In the eye of the beholder? Investigating precognitive dreaming."

**Edinburgh Science Festival Talbot Rice Art Gallery False Memory Event** (April, 2013). Caroline Watt presented a paper entitled: "In the eye of the beholder? Precognitive dream experiences." This event was organised by APRU artist-in-residence Alasdair Hopwood, supported by the Wellcome Trust. Further details: <http://falsememoryarchive.com/edinburgh.html>

**Edinburgh Fortean Society** (September 2013). Caroline Watt presented a paper entitled: "In the eye of the beholder? Precognitive dream experiences."

**Edinburgh Skeptics** (May 2014) Caroline Watt presented a paper entitled: "Precognitive dreaming: Is it all in the mind?"

**Glasgow University Student Psychology Society** (Jan 2015). Caroline Watt presented a paper entitled: "Precognitive dreaming: Is it all in the mind?"

**London: Centre for Inquiry**, Conway Hall. During 2015, Dr Watt will be giving a talk on her Perrott-Warrick Research Programme to CFI; date tbc.

## **Publications**

Valášek, M., Watt, C., Hutton, J., Neill, R., Nuttall, R. & Renwick, G. (2014). Testing the implicit processing hypothesis of precognitive dream experience. *Consciousness and Cognition*, 28, 113-125.

Watt, C. (2014). Precognitive dreaming: Investigating anomalous cognition and psychological factors. *Journal of Parapsychology*, 78, 115-125.

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Watt, C., Wiseman, R., & Vuillaume, L (in press). Dream precognition and sensory incorporation: A controlled sleep laboratory study. *Journal of Consciousness Studies*.

Watt, C., Valášek, M., Cawthron, S., & Almanza, A. (in press). In the eye of the beholder: Uncovering the characteristics of prospectively reported spontaneous precognitive dreams. *Journal of the Society for Psychical Research*.

## **Papers under review or in preparation**

Valášek, M. & Watt, C. (submitted) Individual differences in prophetic dream belief and experience: Exploring demographic, attitudinal, and sleep-related correlates.

Valášek, M. & Watt, C. (submitted) Creation of APES: Construction and validation of the Attitude towards Paranormal Experiences Scale.

Watt, C. (in preparation) *A Beginner's Guide to Parapsychology*. Oneworld.

Watt, C. & Mark, E. (in preparation) Dream precognition: A replication and extension study.

## **References**

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