

Dreaming precognitively: A comparison with a non-dreaming condition and with human and artificial judges

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Summary. This study aimed to compare the precognitive results obtained during dreaming and non-dreaming conditions with a group of selected participants trained to recall their dreams in two separate experiments. In the first experiment, we used artificial judges; in the second experiment, we used human judges. The participants in this study were adults with extensive experience in remembering and recording their dreams. The task was to dream a randomly selected image, called the target, generated immediately after the research assistant received the dreams transcriptions from all participants. In both experiments, the percentages of the target correct identification in a dreaming condition were 28.6% and 31.4% above the expected statistical chance of 25%, as identified by artificial and human judges, respectively. On the contrary, the percentage in the non-dreaming condition was only of 13.8%, well below the expected probability of 25%.

Keywords: Dreaming, symbolic information, precognition, Large-Language Models

1. Introduction

Conscious precognition can be obtained in different states of consciousness (for a review of conscious and unconscious precognition, see Mossbridge, 2023).

Precognition in a dreaming condition has been experimentally studied since 1970 at the Maimonides Medical Center in New York (Ullman, Krippner, and Vaughan, 1973), starting from the hypothesis that such a non-ordinary state of consciousness favors extra-sensory perceptions.

They carried out their experiments in a dreaming lab. The general procedure was the following one: before the participants fell asleep, they connected EEG and eyelids electrodes to identify rapid eye movements (REM) correlated to the sleep REM phase. When this phase was identified during the participants' sleep, one of the experimenters woke up him/her and asked to report the contents of any dream. The transcripts of the dreams were subsequently compared with a set of other images by independent judges to see if the dreams matched the target picture selected randomly after the receipt of the dream transcripts.

Since then, many other proof and process-oriented studies in and outside a sleep lab have been carried out (e.g. Roe, Jones & Maddern, 2007; Watt, 2014).

The more recent quantitative synthesis of the experimental evidence related to precognition in a dreaming condition is presented by Storm et al. (2017), showing a mean

percentage of correct target identification of 12% above the expected chance probability considering both the experiments carried out at the Maimonides Medical Center and in other laboratories.

This study aimed to compare the precognitive results obtained during dreaming and non-dreaming conditions with a group of selected participants trained to recall and transcribe their dreams, in two separate experiments.

Differently from previous similar studies, in the first experiment, we used only artificial judges (AJs) to compare the results obtained during the dreaming and non-dreaming conditions. The reason was that AJs based on generative artificial intelligence algorithms using Large-Language Models, not only are faster than humans in judging the participants' dreams and perceptions, but are also more accurate in detecting symbolic, e.g. winding paths and stairways echo the swirling movement in Van Gogh's painting, and non-symbolic information related to images (e.g. Mossbridge et al. 2025).

In the second experiment, we compared the results obtained during only dreaming conditions using human judges.

2. Experiment 1

2.1. Method

2.1.1 Participants

The participants in this study were five adults, three women and two men, between the ages of 50 and 80 (Mean = 68; SD = 13.6), with a strong interest in the study's objectives.

All participants had more than four years of training in dream recall and transcription, an essential prerequisite for this study.

All of them participated in the study "Dreaming Similar Content Intentionally: An Empirical Evidence" (Scala et al., 2024).

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Submitted for publication: July 2025

Accepted for publication: August 2025

DOI: 10.11588/ijodr.2025.2.112162

2.1.2 Materials

Participants expressed a preference to use famous paintings as targets. Consequently, the research supervisor created 12 sets of four paintings each, selected from internet images, with the sole criterion to select paintings from classical (e.g., Caravaggio) and modern (e.g., Picasso) periods.

2.1.3 Procedure

Six dreaming and six non-dreaming sessions were pre-planned to be carried out over a one-week period, alternating between a dreaming and a non-dreaming session.

For the dreaming sessions, the participants agreed on the nights to consider for dreaming purposes. They always planned two possible nights but chose only one; this was because sometimes there may be nights when dreams are not remembered.

For the non-dreaming sessions, the participants met online on Saturday or Sunday evening. At the agreed-upon time, usually 9:30 PM, they connected by a video call for 5-10 minutes to reaffirm their experimental intent.

After the call, each participant engaged in the visualization task in a non-dreaming condition, knowing that the other participants were doing the same. This task consisted of the attempt to visualize mentally the details of the target with closed eyes.

There was no time limit, and each of them focused on the task as much as he/she deemed useful and necessary to transcribe their perceptions of the future target.

After all of the participants sent their dreams or perceptions transcriptions, the target was selected by the research supervisor using the www.random.org integer selection procedure, a reliable source of random events based on atmospheric noise and certified by independent third party, and sent to the participants as feedback.

2.1.4 Dreams and Perceptions Analysis

We selected three artificial tools, which allow to analyze uploaded written material and images, in this case, the free versions of Claude Sonnet 4 (<https://claude.ai>), Qwen3 (<https://chat.qwen.ai>), and Mistral Medium 3 (<https://chat.mistral.ai>)

The prompts for the analyses were:
for dreams:

“Read the dreams of different dreamers in the uploaded file “[File Name]”. After that, examine if there are elements, even if symbolic, related to the four uploaded famous paintings in the dreams. If there are elements of this type, choose the image with the most elements for each dream”;

for perceptions:

“Read the perceptions of different participants in the uploaded file “[File Name]”. After that, examine if there are elements, even if symbolic related to the four uploaded famous paintings, in their perceptions. If there are elements of this type, choose the image with the most elements for each perception.”

2.1.5 Target Identification Criterion

We considered as a correct target identification, the detection of the selected target by at least two AJs, referring to

the symbolic and/or non-symbolic information observed in each participant's dreams or perceptions.

Here follows an example of correct target identification by the AJs referring to the dreams of a participant:

Target painting: The Kiss by Klimt.

AJ Claude 4: *“Dreamer ME. These dreams feature colorful clowns, light green and yellow colors reminiscent of Cézanne, and a wedding scenario in a Belle Époque setting.*

Most connected image: Image 1 (Klimt's The Kiss)

- *The “very bright” colors (green, red, blue) relate to Klimt's decorative elements*
- *The Belle Époque reference directly connects to Klimt's Art Nouveau period*
- *The theme of marriage/wedding corresponds directly to the intimate couple in The Kiss*
- *The mention of “white suit” parallels the light clothing of the figures in Klimt's painting*

AJ Qwen3: *Dreamer ME. Wedding union and romantic symbolism align most closely with The Kiss's intimate, golden embrace.*

AJ Mistral: *Dreamer ME. Image: The Kiss (Image 1)*

Connections: The bright colors (green, red, blue) of the clowns align with Klimt's decorative palette. The Belle Époque setting directly ties to Klimt's Art Nouveau period, and the wedding theme strongly connects to the intimate couple in The Kiss. The “white suit” in the dream mirrors the light clothing of the figures in the painting.

The AJs data, and the materials, are available open-access in the files [ArtificialJudgesData.zip](#), and [Exp1Materials.zip](#) at: <https://figshare.com/s/229b39b786081eaa0f14>

2.2. Results

In the six dreaming sessions, participants contributed 28 reports because two participants did not report dreams in two different sessions. The target painting was identified correctly by at least two AJs in 8/28 trials, corresponding to 28.6%, 3.6% above the statistical chance of 25%.

In the six non-dreaming sessions, participants contributed 29 reports because one participant did not report perceptions in one session. The target painting was identified correctly by at least two AJs in 4/29 trials, corresponding to 13.8%, 11.2% below the statistical chance of 25%.

3. Experiment 2

3.1. Method

3.1.1 Participants

The participants in this study were six adults, four women and two men. Five of them participated in experiment 1.

3.1.2 Procedure

The participants' task was to dream about a randomly selected image, called the target, immediately after two consecutive nights, common to all participants.

Six dream sessions, one per week, were scheduled, in which each participant had to try to dream the target image individually.

After having received all participants' dreams, the research supervisor sent to them a set of four images, requesting them to select the target image.

After having received all participants' target selection, the research supervisor selected the session target using the www.random.org integer selection procedure.

3.1.3 Materials

Images Creation. Six sets of four images each were created. All images were created using artificial intelligence systems with the following prompt: "Create a realistic image with elements that inspire sacredness, spirituality, transcendence, and wonder."

The choice of these types of images was based on the hypothesis that these types of images contained symbolic elements that are easier to find in dreams. Copies of the six sets of images are available at <https://figshare.com/s/229b39b786081ea0f14>

3.1.4 Data Analysis

The percentage of correct identification of the target image out of the total number of participants' choices was calculated.

3.2. Results

For each session, each participant could provide only one choice, for a total of 36. One participant did not provide a choice because he had not recalled any dreams in a session. Of the remaining 35 choices, the target image was correctly identified 11 times, corresponding to 31.4%, 6.4% more than what was expected by statistical chance.

If we sum up the results observed in the dream conditions of the two experiments, we obtain 19 correct target identifications out of 63 trials, corresponding to 30.1 %, 5.1% above the statistical chance of 25%. This result did not reach a statistically significant result (Exact binomial z score = .79; $p = .21$, one-tailed) using the classical frequentist null hypothesis significance testing simply because of its low statistical power. However this result is relevant following a parameters estimation approach (Calin-Jageman & Cumming, 2024), in this case, the estimation of the results are above the statistical chance.

4. Discussion

This study aimed to compare the precognitive abilities of a selected group of participants in dreaming and non-dreaming conditions and compare human and AJs in detecting the correct target.

In both experiments, the percentage of the target correct identification in a dreaming condition was 28.6% and 31.4% above the expected statistical chance of 25%, identified by artificial and human judges, respectively.

On the other hand, the percentage of the target correct identification in a non-dreaming condition was only 13.8%, well below the expected statistical chance of 25%.

Dreaming is confirmed to be a favorable mental condition for precognition of visual information with respect to a non-dreaming condition in agreement with the available evidence. This is probably a consequence of the richness of visual information obtained during dreaming with respect to the normal awake condition.

Even if the materials were different, famous paintings in the first experiment and realistic images in the second one, it seems that AJs can achieve comparable performance

with the human ones, 28.6% and 31.4% of correct target identification, respectively. Even if further comparisons between artificial and human judges are recommended, we can provisionally suggest that their performance in the tasks used in the two experiments is comparable, with the great difference that the AJs complete their task in a few minutes.

5. Study Limitations

Our findings cannot be generalized to other participants. Only further studies with different participants can support the strength of our results.

Similarly, the artificial versus the human judges comparison cannot be generalized to other large-language models. Their performance varies greatly depending on both their statistical model and how they are prompted to solve the requested tasks (Abdurahman et al. 2025).

Acknowledgments

The authors acknowledge the accurate revisions and suggestions of two anonymous reviewers.

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