

Assessment of exploration-insight gains following 'discussion' of a dream using ChatGPT

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- There have been many accounts, including at the IASD conferences, of the use of ChatGPT for dream interpretation.



shadows, and to acknowledge the on going transformation within oneself.

A.I dream analysis - Can A.I. tools help us understand our dreams?

Jean-Baptiste Beau

Lausanne, Switzerland

In the last 18 months, large language models (LLMs) like ChatGPT have become available to everyone, significantly impacting various fields from education to content creation and business. Now, they're being used in real-life applications for medical diagnosis and mental health support; we present the findings of some studies evaluating the use of LLMs for health. This presentation dives into the use of LLMs for dream analysis showing examples, learnings from a large-scale implementation, benefits and limitations, and future directions.

How Large Language Models Work

LLMs are a kind of deep learning model where neural net-

being available 24/7 and easy to use, (2) affordability, being free or accessible with a cheap subscription, (3) adaptation, as they can react to instructions and follow many methods, and (4) scalability, being able to reach a high number of people in different countries and speaking different languages.

However, this process should not be mistaken for professional therapy sessions; we discuss the limitations and ethical implications including (1) reliability, or how it's hard to get 100% accuracy, (2) accountability, the question of who's responsible, (3) privacy, or how personal data is used and stored, and (4) biases that come with how the models were trained.

Future Directions

The performance of conversational A.I. models is evolving at a pace we can hardly comprehend. Most predictions regarding the performance of the next models have proved to be wrong. A brief history and timeline of the development of A.I. models is presented. We discuss the implications of this growth on previously mentioned applications and limitations.

- Although the feasibility of this use of ChatGPT has been shown, to our knowledge no-one has assessed the quality and validity of those interpretations.

- Raile, P. (2024). The usefulness of ChatGPT for psychotherapists and patients. *Humanities and Social Sciences Communications*, **11**, 47. <https://doi.org/10.1057/s41599-023-02567-0>
- ‘There is no comparable technology as easily accessible as ChatGPT, which is equipped with comprehensive information about mental health problems, real-life answers and can even provide interpretations.’
- Asks whether ChatGPT can provide a useful tool for patients and/or psychotherapists within a psychotherapeutic setting or even serve as a substitute for psychotherapy.

- Interpretations of a dream according to different schools were requested:
- ‘the interpretations were not bad, but also not outstanding.... certainly not appropriate for publication in professional journals.’
- But this use of ChatGPT would be a ‘good opportunity for people who already have psychotherapy experience to work alone with their material, like dreams or memories. This requires the ability to self-reflect as well as the willingness to deal with discomfiting interpretations.’

- So it is plausible that ChatGPT dream interpretations might have some usefulness and some validity. Especially as ChatGPT can deal with metaphorical language (it is irony that it has a problem with).
- We must bear in mind that, according to Raile (2024), 'A major weakness of ChatGPT ... is its failure to ask for more information, such as biography'.

- We therefore designed a study that would provide input to ChatGPT similar to that provided during the Ullman group dream discussion technique. That is:
 - The dream;
 - Recent waking life context, including concerns, events and other experiences, whether ostensibly related to the dream or not; and
 - Free associations to the items of the dream content.
-
- Outcomes would be compared to those found in studies using the Ullman technique, and Clara Hill's cognitive experiential method.

- Edwards et al. (2013) conducted dream discussion sessions using the Ullman dream appreciation technique.
- Outcomes of the sessions were assessed using the Gains from Dream Interpretation questionnaire (GDI: Heaton et al., 1998).
- Exploration-Insight gains were found to be significantly higher than for many studies by Clara Hill that used the well-established Hill (1996) therapist-led dream interpretation method, and higher than the mean exploration-insight score for those studies.

- Edwards et al. (2015, Frontiers in Psychology) found exploration-insight gains and personal insight gains were higher for discussing dreams than discussing a recent wake life event using the Ullman technique.
- Blagrove et al. (2019, Psychology of Consciousness) found exploration-insight gains were higher for discussing dreams than for discussing a daydream.

- In the Ullman method the dream-sharer reports a dream, reports recent waking life experiences and concerns, and reports free associations to elements of the dream. These are discussed with the group.
- In the study reported here the participants each composed a document with three reports, of the dream, the waking life context, and associations to the dream.
- To be included in the study the dream report must be at least 30 words, and the combined three reports must be at least 150 words.

Hypotheses

- Exploration-Insight subscale score will be non-significantly different from mean scores for this variable in studies by Clara Hill (meta-analysis in Edwards et al., 2013), Edwards et al. (2013, 2015), and Blagrove et al. (2019).
- Personal insight subscale mean score will be non-significantly different to the mean score in Edwards et al. (2015).
- Own Attitude Towards Dreams subscale score is predicted to be significantly correlated with exploration-insight gains as measured by the GDI.

Method

- Participants
- N=24
- Males, n = 5; females, n = 19; mean age = 31.39 (SD = 14.86)

- Excerpt of instructions to participants
- 1. You should now have three paragraphs of at least 150 words in total, one paragraph about your dream, one paragraph about your recent waking life, and one paragraph about what associations you can give to parts of the dream, that is, what parts of the dream might refer to or mean in your waking life. The more detail in these three paragraphs the better!
- 2. At the bottom of the three paragraphs type 'What does my dream mean?'
- 3. You will copy and paste this text into the second questionnaire and into ChatGPT.

At the bottom of the three paragraphs they were instructed to type 'What does my dream mean?'

They then copy and pasted this text into ChatGPT.

They then read the ChatGPT output and completed the GDI questionnaire.

Materials

- The Attitude Towards Dreams questionnaire (ATD; Cernovsky, 1984). This has three subscales, (1) own attitude toward dreams, (2) perceptions of attitudes of significant others towards dreams, and (3) perceptions of attitudes of other people in general towards dreams or toward individuals who publicly discuss dreams.
- The Gains from Dream Interpretation questionnaire (GDI; Heaton et al., 1998). This has 14 items and uses a 9 point scale for each item (1–9, with descriptors “strongly disagree” to “strongly agree”). This questionnaire comprises 3 subscales: Exploration-Insight gains, Experiential gains, and Action gains.

Exploration-insight subscale

- 1. I was able to explore my dream thoroughly during the session.
- 2. I learned more about what this dream meant for me personally during the session.
- 6. I learned more from the session about how past events influence my present behaviour.
- 7. I learned more about issues in my waking life from working with the dream.
- 8. I felt like I was very involved in working with the dream during the session.
- 12. I learned things that I would not have thought of on my own.
- 13. I was able to make some connections, that I had not previously considered, between images in my dream and issues in my waking life.

Personal insight subscale

- Following Edwards et al. (2015) we used the personal insight subscale comprising items from the GDI. This goes beyond just seeing meaning in the dream, the subscale addresses effects of seeing meaning.
- 5. I got ideas during the session for how to change some aspect(s) of myself or my life.
- 6. I learned more from the session about how past events influence my present behaviour.
- 7. I learned more about issues in my waking life from working with the dream.
- 10. I learned a new way of thinking about myself and my problems.
- 11. I will use the things that I learned in this dream interpretation in my life.

- The following rewordings of the items demonstrate how they are amended to evaluate the ChatGPT interpretation of the dream.
- 5. I got ideas from the ChatGPT interpretation for how to change some aspect(s) of myself or my life.
- 6. I learned more from the ChatGPT interpretation about how past events influence my present behaviour.
- 7. I learned more about issues in my waking life from the ChatGPT interpretation.
- 10. I learned a new way of thinking about myself and my problems.
- 11. I will use things that I learned in this ChatGPT dream interpretation in my life.

Final item

- Overall, how accurate do you find the ChatGPT interpretation of your dream?
- 1 = extremely inaccurate
- 9 = extremely accurate

Replication of Edwards et al. (2013) using ChatGPT for dream 'discussion'. (#209956)

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Pre-registered on: 01/28/2025 07:32 AM (PT)

1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

Gains from Dream Interpretation questionnaire (GDI; Heaton et al., 1998) exploration-Insight subscale score will be non-significantly different from mean scores for this variable in studies by Clara Hill (meta-analysis in Edwards et al., 2013), Edwards et al. (2013, 2015), and Blagrove et al. (2019).

GDI Experiential gain subscale mean score may be lower or comparable to mean scores in the Hill, Edwards et al. (2023, 2015) and Blagrove et al. (2019) studies, there is no prediction here.

GDI Action gain mean score will be lower than for means in the studies by Hill, Edwards (2013, 2015), and Blagrove et al. (2019).

Personal insight subscale mean score will be non-significantly different to the mean score in Edwards et al. (2015).

The Own Attitude Towards Dreams subscale score is predicted to be significantly correlated with exploration-insight gains as measured by the GDI. No predictions are made for correlations between the other ATD and GDI subscale scores.

Male female differences will be assessed for the GDI and ATD subscales and ATD total score. Where sex differences are significant, sex will be partialled out of the Pearson correlations.

3) Describe the key dependent variable(s) specifying how they will be measured.

The three GDI subscales, the three ATD subscales, and ATD total score.

4) How many and which conditions will participants be assigned to?

There are no conditions, the mean of data for the whole sample is compared to means in the literature, and correlations between variables are computed for the whole sample.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Between groups t-tests to compare GDI subscale scores from this study with Hill, Edwards et al. (2013, 2015) and Blagrove et al. (2019) GDI subscale scores.

Only hypothesis is for the exploration-insight subscale.

Between groups t-tests to compare personal insight subscale score with mean personal insight subscale score from Edwards et al. (2015).

Results

Input to ChatGPT variables

	Mean	SD	Min	Max
Length of dream (words)	223.08	143.56	67	497
Length of wake life context (words)	138.2	93.33	32	390
Length of associations (words)	122.72	91.35	26	369
Total word length (words)	488.48	281.08	143	1046

Insight-exploration

	N	Mean	SD
ChatGPT	24	6.73	1.47
Edwards et al, 2013	11	8.17	0.54
Hill studies meta- analysis	437	7.40	1.15
Edwards et al, 2015	11	7.82	0.84
Blagrove et al, 2019	30	7.60	0.88

All comparisons of ChatGPT mean with other means $p < .006$

Own Attitudes Towards Dreams did not correlate with exploration insight, $r = 0.054$, $p = 0.820$.

	2019		ChatGPT		
	Mean	SD	Mean	SD	p
Exploration-Insight subscale	7.60	0.88	6.73	1.47	.006
1. I was able to explore my dream thoroughly during the session	8.35	0.97	7.88	.952	.020
2. I learned more about what this dream meant for me personally during the session	8.00	0.86	7.15	1.95	.037
6. I learned more from the session about how past events influence my present behaviour	6.57	1.79	5.88	2.30	.142
7. I learned more about issues in my waking life from working with the dream	6.95	1.74	6.58	1.84	.310
8. I felt like I was very involved in working with this dream during the session	7.97	1.28	6.96	2.43	.044
12. I learned things that I would not have thought of on my own	7.53	1.22	6.23	2.34	.009
13. I was able to make some connections, that I had not previously considered, between images in my dream and issues in my waking life	7.85	0.89	6.42	2.25	.003

Personal-insight

	Mean	SD
ChatGPT	6.03	1.75
Edwards et al, 2015	6.60	1.43

t=0.943, df = 33, p=.352

- Overall, how accurate do you find the ChatGPT interpretation of your dream?
- 1 = extremely inaccurate
- 9 = extremely accurate
- Mean = 7.33 (SD=1.14)

So, very or moderately accurate

Discussion

- Participants saw the ChatGPT dream interpretation as very or moderately accurate.
- However, we must beware the Barnum effect, such as can occur with horoscopes.

- Exploration-insight, combining thoroughness of the ‘discussion’ with insights about the dream, was significantly lower than in previous studies on Ullman- and therapy-based discussions.
- Exploration-insight was not related to Own ATD, maybe because there was no active discussion to mediate effects of ATD. So outcomes of ChatGPT dream interpretation are not dependent on the person’s Own ATD.
- Personal insight, where there is an effect or change due to identifying meaning in the dream, was comparable to that obtained in Edwards et al. (2015) using an Ullman discussion.

- Future research
- Conditions of dream report alone, dream with wake life context, and dream with wake life context and free associations (as in this study) should be compared on GDI measures. But outcomes are expected to be below those found in the current study.
- A condition with extended ‘conversation’ should be studied:
- ‘Dear ChatGPT, ask me questions so as to make your dream interpretation more accurate.’

- Future research
- Past research has not addressed the extent to which the benefits of the discussion of dreams are dependent on the dream report in contrast to the discussion.
- Addressing this requires studies in which there are conditions of own dream versus other's dream as the basis for the discussion.
- In dream discussion groups these conditions are confounded by cultural and personal beliefs about dreaming.
- Using ChatGPT will diminish this confound as the 'discussion' is unaffected by knowledge of the provenance of the dream.

Thank you!

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