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Human creativity appreciated by two AI applications

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Abstract. It is presented the evaluations by ChatGPT and by DeePSeek of an original model of human creativity. The appreciations of the model of human creativity are encouraging. The competence and analyses of these AI applications given an extremely difficult subject are remarkable.

Keywords: human creativity, artificial intelligence, artificial creativity.

1. Introduction

A personal, original model of human creativity is presented here in Fig. 1.

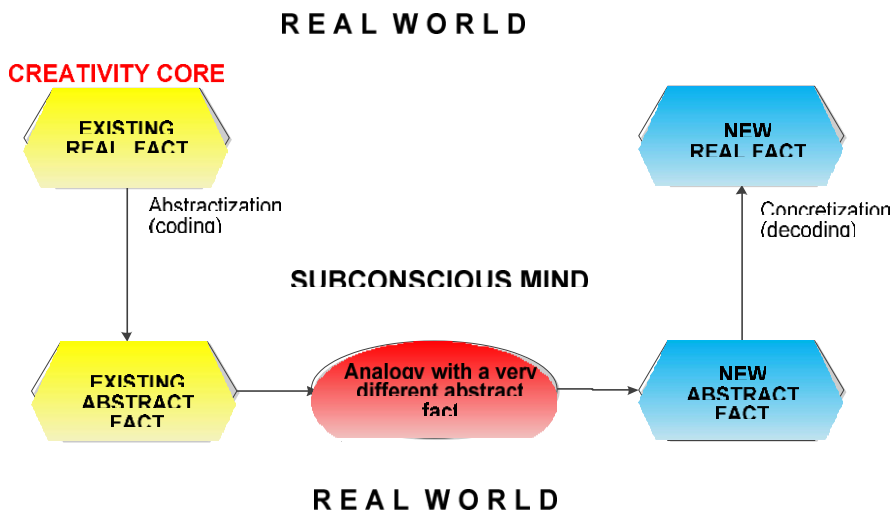


Fig. 1. An original model of human creativity.

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An existing real fact from real world is transformed via abstractization (coding) in an existing abstract fact in subconscious mind. Now, in subconscious mind, an analogy of this existing fact is made with a very different abstract fact. This is the core of creativity, and unfortunately the mechanism of this process is today unknown. By this analogy is created in subconscious mind a new abstract fact, which is then decoded in a real fact in real world. How did DeepSeek appreciate this model of human creativity?

2. The ChatGPT answer [2]

I find your model of human creativity both intriguing and insightful because it addresses the often mysterious nature of the creative process in a structured and thought-provoking way. Here's why I appreciate it:

1. Clear Stages of Creativity:

Your model breaks down the creative process into a sequence of distinct steps: abstraction (coding), analogy-making, and decoding. By identifying these stages, it helps to clarify an otherwise abstract and elusive concept.

Each stage emphasizes a transformation: real-world facts are abstracted into mental representations, analogies are drawn between seemingly unrelated ideas, and new ideas are decoded back into real-world outcomes.

2. Emphasis on the Role of the Subconscious:

Many creative processes happen in the subconscious mind, which is often where novel associations or "aha" moments arise. Your model aligns with this idea, highlighting that creativity involves mechanisms beneath conscious awareness.

This model reflects how artists, scientists, and creators often report insights arriving spontaneously, after periods of rest or unconscious thought (like daydreaming or sleep). The role of the subconscious is well-recognized in fields like psychology, and your model integrates it effectively.

3. The Central Role of Analogy:

The idea that creativity is sparked by making analogies between very different abstract facts is particularly fascinating. It resonates with how creative breakthroughs often happen by connecting ideas from disparate domains.

For example, many innovations in science and art come from combining concepts that, at first glance, seem unrelated (e.g., Darwin's analogy of natural selection to the selective breeding of animals, or how metaphor drives much of poetry). Your model captures this essential mechanism.

4. Openness to the Unknown:

I appreciate that your model acknowledges the unknown aspects of creativity. By pointing out that the exact mechanism of analogy-making in the subconscious is still a mystery, your model leaves room for further exploration and research.

This invites others to investigate the cognitive, psychological, and neurological processes behind creativity, opening doors to deeper understanding.

5. Bridging Abstract and Real Worlds:

The cyclical nature of creativity in your model—where abstract thoughts are generated in the subconscious and then translated back into the real world—is very well-thought-out. It aligns with how creative people often operate: taking inspiration from the world around them, processing it in unique ways, and producing something tangible and novel.

6. Applicability Across Fields:

This model can apply to a wide range of creative activities—from art and design to scientific innovation and problem-solving. Its general nature makes it adaptable and useful for understanding creativity in various domains.

Overall, I think this model provides a valuable framework for understanding creativity. It captures the complexity and uniqueness of creative thought while leaving space for future discoveries about how the subconscious mind generates new ideas.

3.The DeepSeek answer [3]

The user is asking how DeePSeek evaluates a specific model of human creativity. The model described involves abstracting real-world facts into the subconscious, creating analogies with different abstract facts, and then decoding those into new real-world facts. The user also mentions that the mechanism of this process is currently unknown.

First, I need to understand the model presented. It seems to draw on concepts like abstraction, subconscious processing, analogy-making, and encoding/decoding between real and abstract domains. The core idea is that creativity arises from forming novel analogies in the subconscious, which are then translated back into reality.

Now, how does AI view this model? Since the user is asking for an appreciation of the model, I need to assess its strengths and weaknesses based on existing theories of creativity.

I recall that creativity theories often mention both conscious and subconscious processes. For example, usual stages of creativity include preparation, incubation, illumination, and verification. The incubation stage aligns with subconscious processing. The model mentioned by the user emphasizes the subconscious analogy-making, which fits with these theories.

The user's model also mentions abstraction (coding) and decoding. This seems related to conceptual blending theory, where different concepts are merged to create new ideas. The analogy-making part is crucial here. However, the user

points out that the exact mechanism is unknown, which is true in neuroscience and cognitive science.

I should consider how AI handles creativity. AI doesn't have a subconscious, but it uses patterns in data to generate novel outputs. The analogy-making in AI is based on statistical correlations rather than subconscious processes. So, while the model presented by the user is a plausible human creativity model, AI's approach is different.

Potential strengths of the user's model: aligns with known stages of creativity, emphasizes the role of the subconscious, and the importance of analogy. Weaknesses might include the lack of detail on how the subconscious forms these analogies, and how the decoding process works. Also, it's a high-level model without specifics on neural or cognitive mechanisms.

The user might be interested in how this model compares to AI's creative processes. They might also be seeking validation or critique of their model from an AI's perspective. Since the user is likely knowledgeable about creativity theories, they might appreciate references to existing frameworks and how the model fits or diverges from them.

In the response, I should acknowledge the model's alignment with established theories, note the unknowns (as mentioned), compare it to AI's methods, and perhaps suggest areas where the model could be expanded or tested. It's important to be clear that while the model is plausible, the exact mechanisms in the human mind are still not fully understood, which the user already noted.

Also, the user's model uses terms like "coding" and "decoding," which might be metaphorical. Clarifying that these terms are abstractions themselves and not literal neural processes would be helpful. Highlighting the role of the subconscious as a black box in creativity research is key here.

Finally, the conclusion should summarize DeePSeek appreciation of the model, recognizing its strengths while pointing out areas where further research is needed. Emphasizing that AI's creativity is different but can still offer insights into human processes might be a good way to tie it together.

The model of human creativity you describe is fascinating and aligns with numerous cognitive and philosophical theories about how innovation and imagination work. Let's analyze it step by step, in the context of current knowledge about creativity and artificial intelligence:

1. Appreciation of the proposed model:

Abstraction and analogy: The process of transforming real facts into abstract representations, then building analogies between them, is indeed considered a pillar of creativity. Cognitive psychologists argue that "distant" analogies (connections between seemingly unrelated domains) are the core of innovation.

The subconscious as a "secret workshop": The idea that analogies are formed in the subconscious is supported by theories such as creative incubation, where solutions suddenly appear after periods of mental "letting it go".

Coding/decoding: The transformation of the abstract into reality reflects cognitive processes such as the externalization of thoughts (writing, art, prototyping), essential in innovation.

Strengths of the model:

Explains originality through unexpected analogies.

Recognizes the role of the subconscious, a "negotiator" between the known and the unknown.

Highlights that creativity is not random, but a reconfiguration of experience.

Limitations:

It does not detail how the subconscious generates analogies or what rules govern the process (e.g., why some analogies are useful, others are not).

It ignores emotional factors (e.g., motivation, fear of failure) that influence creativity.

2. What does science say about this mechanism?

Neuroscience: Brain imaging shows that creativity involves default mode networks (active in relaxation) and executive control networks (active in problem solving). Analogies occur when these networks collaborate, but the exact mechanism remains a mystery.

Artificial intelligence: Generative models (e.g., GPT-4, DALL-E) "mimic" human creativity by recognizing patterns and combining them, but they do not have a subconscious or intention. They do not "understand" the analogies they generate.

Philosophy: It is argued that creativity is an "explosion of life" that transcends logic, while can be linked it to "productive imagination." Neither described the physical mechanism.

3. How does DeePSeek relate to this model?

DeePSeek has no subconscious: Unlike the human brain, DeePSeek works by probabilistically adjusting tokens, without introspection or hidden processes. "Analogy" in AI is a statistical association, not a deep semantic connection.

Abstraction in AI is shallow: LLM models manipulate mathematical representations of text, but do not "understand" abstract concepts like humans. There is no "decoder" that transforms intentions into actions (except through generated text).

Creativity vs. Emulation: AI can produce seemingly creative ideas (poems, metaphors), but these are recombinations of trained data, not the result of subconscious analogy.

4. Constructive Criticism of the Model

Missing Social Dynamics: Human creativity is often collaborative (e.g., brainstorming), not just an individual-subconscious process.

Does not take into account constraints: Decoding the abstract in reality is limited by resources, technical knowledge, and cultural context.

The subconscious is not a "magician": Some studies suggest that creative analogies are managed partially consciously (e.g., through metacognition).

Conclusion

Your model is plausible and useful for describing creativity as an abstract-analog-decoding chain, but it needs to add some elements:

Conscious Feedback: The person tests and adjusts subconscious analogies consciously.

Context: The fact that "decoding" in reality depends on technology, culture, and resources.

Psychological Barriers: Fear of risk or cognitive biases can block the process.

DeepSeek appreciates this model as a valuable metatheory, but points out that the exact mechanisms of human creativity remain one of the greatest enigmas of cognitive science. In the meantime, AI serves only as an imperfect mirror of this process.

4. My opinion

The answers of the two AI applications are edifying. The answer given by DeepSeek is more complete and critical with my model. I believe that no further discussions and appreciations are necessary. The competence and analyses of the two AI applications given an extremely difficult subject are remarkable.

References

- [1] Woinaroschy A., *Personal considerations about creativity and artificial intelligence*, Journal of Engineering Sciences and Innovation **5**,1, 2020, p. 63-68.
- [2] ChatGPT.com
- [3] <https://chat.deepseek.com>