

Roundtable Discussion: Definitions of Creativity & How They Shape AI Creative Tools

Led by Isabelle Levent with participants including Ben Bogart, Maria Vela, Vivan Soares, Keunwoo Choi, and others.

Premise: Why Does Defining Creativity Matter?

Creativity, unsurprisingly, lacks a standard definition. Psychologists, philosophers, and artists all offer different descriptions, broadly falling into two categories: creativity as defined by its *product* vs. its *process*. Computer scientists use definitions, often operationalized in benchmarks, to evaluate and design new technologies and methods. Shaping a research agenda around AI-enabled creative tools therefore requires interrogating the question: how do we define creativity? The purpose of our roundtable was to explore various definitions of creativity and how they might inform different approaches to creative tooling—an ambitious topic for a 60-minute conversation.

Our roundtable participants consisted predominantly of art students/practitioners alongside a few computer scientists, leading to a conversation focused on personal creative experiences and comparisons of generative AI to different creative mediums.

Definitions of Creativity

To seed the conversation, we started with three definitions drawn from philosophy and psychology that emphasize the tension between product vs. process based approaches to defining creativity.

1. Margaret Boden, a psychologist, defines creativity as the “ability to generate ideas” that are “novel, surprising, and valuable.” She distinguishes between psychologically novel, new to an individual, and historically novel, new to the world at large. Surprise can be combinational, an unfamiliar juxtaposition of familiar ideas; exploratory, previously unexamined but fitting into a familiar pattern; or transformational, something impossible that is now possible. Boden leaves value, arguably the most important part of the definition, vaguely defined [2].
2. Lindsay Brainard, a philosopher, defines creativity, in part, as a successful kind of exploration that has an epistemic value, focusing on process as opposed to output. When an individual obtains something of epistemic value, they have gained some knowledge, understanding, or identified a true belief [3]. That is the creative act.
3. Ellis Torrence, creating cognitive assessments in the 1960s, proposed the Torrance Tests of Creative Thinking, a series of divergent thinking tests meant to measure creativity. Of the three definitions presented, this test provides the most concrete evaluative framework and the most narrow interpretation of creativity. Questions from the test include coming

up with unusual use cases for objects and writing imaginative stories. Divergent thinking is measured using fluency (number of unique responses), flexibility (diversity of responses), originality (novelty of responses), and elaboration (level of detail within responses) metrics [1].

Most participants gravitated towards Brainard's definition, which focuses on process, but raised the question: if creativity is defined by process, how can it be evaluated? Participants contributed their own definitions as well. For one, creativity is a choice that requires time, discipline, and being open to every idea that comes to mind. Creativity is allowing for everything to be unresolved. For another, creativity is new, detailed, and perfect. Or, creativity is a surprise to oneself. Each definition was personal, more often emphasizing experience or process over product, an approach at tension with creating generalizable evaluations for creativity-support tools.

Looking Forward: Open Questions

In the second half of our discussion, we explored how process-based vs. product-based definitions lend themselves to different approaches for building creative tooling. Two main questions emerged from our conversation, which suggest future areas for design and research.

1. **How might we build generative AI tools for creative work that break expectations, interfaces that encourage surprise?** This question was inspired by the story behind "The Köln Concert," a piece improvised by Keith Jarrett on a broken, run-down piano. The recording, once released, became the best-selling solo jazz album [4]. When experts encounter constraints in an artistic medium, they can leverage them to create unexpected pieces of art.
2. **How might artists explore a space of possibilities with fine-tuned control like a synthesizer?** The knobs, sliders, and keyboard allow a musician to control sound in novel ways and create new sounds that were not previously possible. How does this metaphor extend to generative AI tools? What can the evolution of the synthesizer teach us about AI as a medium today?

While our discussion was dominated by art students/practitioners, practical questions about building evaluations or creating fine-tuned control require researchers and designers. Continuing to create environments for collaboration between creatives and technologists is critical.

References

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3. Brainard, L. (Forthcoming). What is Creativity? *The Philosophical Quarterly*.
4. Elsdon, P. (2013). Introduction. In Keith Jarrett's *The Koln Concert* (pp. 5–6). Oxford University Press.