

# Making Sense of Generative AI for Creating Art: An Exploratory Study

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## Abstract

This short paper explores how people make sense of generative AI for creating art, and how various meanings that people associate with generative AI for creating art relate to their trust toward generative AI for creating art, general orientation toward technologies, and the level of creativity. Taking a perspective of communication and media studies, the present research reports preliminary findings of an exploratory survey (n = 112) conducted in April 2024. The results suggest that positive orientation toward technologies appears to be most relevant for positive meanings and higher trust toward generative AI in the context of creating art, and more frequent use of AI for creating art was also related to higher level of trust. Proficiency was the factor found to be related to creativity, but positive meanings and trust were not. The present study, although exploratory, shows the relevance of these factors, along with a communication and media perspective, to researching computational creativity, as technology continues to be appropriated into our everyday life.

## Introduction

Although artificial intelligence (AI) is not a new area of research, it is only recently that it has become noticeably relevant to our everyday experience. It is no longer confined within research laboratories or within the realm of science fiction but touches upon various areas of our life. One such arena is concerned with human creativity. From writing to creating visual arts and music, artificial intelligence has been making its way into the creative practices and industry, and its increasing relevance to our life is not only for creators but also for consumers. This short paper explores how people make sense of generative AI for creating art, and how various meanings that people associate with generative AI for creating art relate to their trust toward generative AI in creating art, general orientation to-

ward technologies, and the level of creativity. Taking a perspective of communication and media studies, the present research reports preliminary findings on these questions to evoke further discussions within the interdisciplinary field of computational creativity.

## Theoretical framework: Domestication and *Apparatgeist*

Technological innovations are often met with challenges in social acceptance. For a new technology to be incorporated into our everyday life, it needs to be “domesticated” as Silverstone and Haddon (1996) outlined. Domestication theory posits that the innovation, particularly the one involving media and information and communication technologies, is “by definition to a significant degree unfamiliar, and therefore both exciting but possibly also threatening and perplexing,” and the process of making it a part of our everyday life is like “a taming of the wild and a cultivation of the tame” (Silverstone & Haddon, p. 60). This is not only a process of adoption but very importantly, a process of appropriation, which requires certain symbolic meanings to emerge for a given technological innovation. That is, people need to make sense of technological innovation within their daily routines.

In line with Domestication Theory, *Apparatgeist* Theory (Katz & Aakhus, 2002) argues that personal communication technologies are both utilitarian and symbolic, raising the question of “how humans invest their technology with meaning and use devices and machines to pursue social and symbolic routines” (Katz 2003, p. 15). The theory underlines that the users, non-users, and anti-users all contribute to the sense-making process for an emerging technology, drawing our attention to both the individual and the collective aspects of societal behavior over time (Katz & Aakhus, p, 307). Both theories, in turn, suggest the im-

portance of uncovering the prevailing meanings for a technological innovation to understand the future direction of technological design and societal applications.

### **Generative AI for creativity: communication, collaboration, and trust**

Although technology has typically been considered as a medium of communication, communication and media scholars started to recontextualize a technology as an interactant that humans communicate with (e.g., Sugiyama & Vincent, 2013; Guzman, 2018). Computer as Social Actor (CASA) framework and Media as Social Actor (MASA) framework have become influential in communication and media studies in this regard. Gunkel (2020) further points out that communication is a fundamental aspect in understanding AI in both scientific and applied enquiry, yet it has been overlooked, arguing the importance of taking a communication perspective in this endeavor.

Taking this perspective, generative AI becomes a collaborator instead of a mere tool in accomplishing tasks. Generative AI like ChatGPT can be a co-author of the person who prompts. Coeckelbergh and Gunkel (2023) note that technologies have always been co-authors for humans although the involvement of generative AI is at a different scale compared to the older technology such as the typewriter. If generative AI is approached as a collaborator in writing or other creative process, it must be believable exhibiting the communicative behaviors that resemble human communication, which Breazeal (2002) notes to be an important characteristic for a robot to be perceived as social. Such perceived believability of generative AI as a social being could lead to a more productive collaboration. Trust is a fundamental concept in communication and media research (Pascual-Ferrá, 2021), and a certain level of trust toward AI as a collaborator for creative endeavors could also lead to a more productive collaborative outcome. Main and Grierson (2020) point out that the impact of intelligent creativity support tools (CSTs) could be significant for creators and the ongoing media discourse on AI creativity could influence how creators think about CSTs. Their survey of commercial designers indicates that designers have a pragmatic approach to collaborating with intelligent tools that offer supporting roles such as an assistant, a researcher, a facilitator, and a collaborator.

Furthermore, a communication approach draws our attention to the words people use about the social world. Not only the media discourse as Main and Grierson note, but more generally, the words associated with AI technology for creating reveal how people make sense of the technology. Connecting back to the claims of domestication theory and *Apparatgeist* theory, meanings associated with an emerging technology contribute to the way it develops and is appropriated into various social and use contexts.

Based on the rationale above, the present study explores the prevailing meanings for generative AI for creating art.

More specifically, it examines the following research questions:

RQ1: What are the prevailing meanings associated with generative AI for creating art, and how do the meanings, trust toward generative AI for creating art, the general orientation toward technology, and the level of creativity differ depending on demographic characteristics?

RQ2: How are the meanings associated with generative AI for creating art relate to the level of trust toward generative AI for creating art, general orientation toward technology, and the level of creativity in producing artwork?

## **Method**

### **Instrument**

A survey questionnaire was composed of questions to measure relevant variables and open-ended questions. A semantic differential scale is suitable for measuring meanings (Osgood, Suci, & Tannenbaum, 1971), and the semantic differential scale for AI agents by Kim and Jung (2023) was adopted. The scale was developed to measure people's attitudes toward AI agents offering not only the positive/negative tendency but also more detailed meanings and images that people associate with AI agents. This 30-item scale is composed of the following 6 dimensions: Intelligence (e.g., knowledgeable-ignorant, intelligent-unintelligent), Activity (e.g., dynamic-static, active-passive), Expressiveness (e.g., obvious-subtle, sincere-insincere), Usability (e.g., easy-hard, friendly-unfriendly), Mood (e.g., happy-sad, sweet-bitter), and Naturalness (e.g., animate-inanimate, lifelike-artificial). Semantic values are scaled from positive to negative, so those with lower scores have more positive tendencies towards AI as a creative collaborator. To measure the level of trust toward AI in creating art, the Individualized Trust Scale by Wheelless and Grotz (1977) was adopted. To measure the orientation and the outlook toward technology, Technology Adoption Propensity (TAP) Index by Ratchford and Barnhard (2012) was utilized. This 14-item scale is designed to measure the likelihood for people to embrace new technologies, composed of the following 4 factors: Optimism (e.g., New technologies make my life easier), Proficiency (e.g., I can figure out new high-tech products and services without help from others), Dependence (e.g., Technology controls my life more than I control technology), and Vulnerability (e.g., I think high-tech companies convince us that we need things that we don't really need). The survey also included questions regarding the frequency of using the generative AI and the AI for creating art, along with some general demographic information. Furthermore, the survey asked the participants to write a prompt for the scenario "Imagine that the Vogue magazine asked you to create a cover for their July issue. What prompt will you give to the AI image

generator?" which was used to assess the level of creativity in visual art.

Many-facet Rasch modeling (MFRM) was used in the assessment of creativity. More specifically, this study utilized the MFRM to score the open-ended task accounting for rater and examinee variability and the quality of ideas (Primi, Silvia, Jauk, & Benedek, 2019). Two raters, one human (author) and one AI (GPT-4), performed the assessment. The creativity assessment includes the following 4 factors:

*Originality:* How unique or novel is the idea? Does it offer a fresh perspective or a twist on common themes?

*Relevance:* How well does the response relate to the theme of a summer issue for a fashion magazine like Vogue?

*Detail and Visualization:* Does the prompt provide specific details that enhance the imagery and potential impact of the cover?

*Appeal:* Would the described cover likely engage and captivate Vogue's audience?

From these factors a total score was compiled for each prompt by each rater and adjusted using MFRM.

## Participants

Participants from the United States were recruited on the survey platform *prolific* in April 2024. One hundred and sixteen responses were collected with the age range between 18 and 73. After eliminating incomplete responses, 112 responses were used for the analysis.

## Results

RQ1: What are the prevailing meanings associated with generative AI for creating art, and how do the meanings, trust toward generative AI for creating art, the general orientation toward technology, and the level of creativity differ depending on demographic characteristics?

Firstly, descriptive statistics were calculated for each demographic category providing intriguing results. Overall, the general meanings associated with generative AI for creating art was not particularly positive or negative, but the standard deviation was high ( $M = 113.9$ ,  $SD = 31.9$ ,  $n = 112$ ), although it is noticeable that usability had the highest level of association ( $M = 3.4$ ,  $SD = 1.01$ ,  $n = 112$ ), and naturalness had the lowest level of association ( $M = 4.91$ ,  $SD = 1.43$ ,  $n = 112$ ). This could indicate that generative AI is perceived as a functional tool rather than a collaborator that carries life-like naturalness.

Further analyses indicate some noteworthy differences across various demographic characteristics. One of them is regarding where the survey respondents currently reside. The major city-dwellers reported more negative associations with generative AI for creating art ( $n = 22$ , 117.5) than rural (small city/town) participants ( $n = 90$ , 113.1).

This trend was observed for each of the six factors (Intelligence, Activity, Expressiveness, Usability, Mood, Naturalness). Interestingly, despite these differences, AI Trust did not differ much between the two groups (52.1 ~ 52.5). However, as expected the TAP factor for proficiency and the total creativity score based upon the respondent's prompt was higher for the residents of major cities. A proficiency of 4.1 compared to 3.8 and an average creativity score of 14.5 compared to 13.6. In terms of the actual use of ChatGPT more generally and more specifically for creating art, there was no notable difference between those who live in major cities and rural areas, and both groups reported low frequency in using generative AI for creating art (1.7 for city-dwellers, 1.8 for rural resident). Overall, this could mean that those who live and work/study in major cities are more competent with technologies in general, yet in terms of the actual use of ChatGPT is still quite limited particularly when it comes to creating art. They tend to be creative, and exhibit rather negative associations for generative AI for creating art.

Male ( $n = 44$ , 110.3) attitudes towards AI were significantly more positive than Females ( $n = 65$ , 114). Furthermore, Female TAP was lower (12.8) than Male (13.5) with notably lower proficiency scores (Female = 3.7, Male = 4). Male (14.2) creativity score was higher than Female (13.4), lending credibility to the notion that at this early stage of AI usage, proficiency is more important than either AI meanings or trust. Non-Binary proficiency (4.7) and creativity scores (16.3) were notably highest but they held attitudes that were the most negative (166.0) and were the least trusting of AI (24.7) (and may suggest further study despite the small sample size,  $n = 3$ ). Recognizing those outcomes, age also may play a significant factor in proficiency, as Males (29.5) were younger than females (32.3) and city-dwellers (27.3) were younger than rural residents (32). The average age for Non-Binary individuals was 29.

In respect to age, the youngest Age (119) category had the highest total score across the six AI meaning factors, suggesting more negative attitudes towards Artificial Intelligence. The middle-aged category came next (114.9) with the oldest having notably the lowest score amongst age groups (105.9), one of lowest of any demographic subset. Subsequently the eldest had the highest trust scores (53.8) compared to the youngest (52.3) or middle-aged groups (51.4). Although it was somewhat surprising, this finding is in line with the US survey in July 2023 reporting that GenZ was most concerned with AI like chatbots and image generators replacing jobs, compared to older generations (Commodity HQ & MITRE, September 19, 2023). Moreover, it is intriguing to note, middle-aged respondents had the highest technological proficiency (4.1), and the youngest (3.7) had proficiency scores comparable to the eldest (3.6).

The lowest, and therefore most positive meanings displayed towards AI were surprisingly from those that were Unemployed ( $n = 20$ , 101.5). Moreover, the Unemployed

group displayed high AI trust (55.7). This group's positivity was followed by a more intuitive result, Tech workers (n = 13, 108.4) generally more positive towards AI meanings than most groups other than Service Workers (n = 12, 106.1) and the Unemployed. Tech workers also had the highest proficiency (4.2), high TAP scores (14.2), but surprisingly (perhaps unsurprisingly due to experience) the lowest AI Trust (47).

The highest, and therefore most negative, scores for meaning were, perhaps unsurprisingly, recorded for Creative & Freelance (n = 6, 152.8), yet the sample size was limited for this group. The next highest scores were for those working in Healthcare (n = 12, 118.4) and Education (n = 27, 121.9). The Healthcare group also had a low AI trust score (48.7) similar to Tech workers.

RQ2: How are the meanings associated with generative AI for creating art relate to the level of trust toward generative AI for creating art, general orientation toward technology, and the level of creativity in producing artwork?

Pearson's R correlation analysis was conducted to test significant relationships across the quantitative variables collected by the survey. As expected, each of the six factors for AI meaning collected by the semantic differential scale strongly and positively correlate with one another (correlations between the six factors range in strength from 0.81 to 0.55). Interestingly, the variable AI Trust was just as strongly correlated with the six factors for AI meaning, although given the inverse scale, negatively so. The strongest relationships were found to be between trust and intelligence (-0.77) and trust and expressiveness (-0.75), with a high degree of correlation between trust and sum total of the six AI meanings overall (-0.80). As a result, 'trust' may be considered as a seventh item of AI meaning, although additional evaluations of its inclusion in AI meaning surveys are necessary.

The above result illustrates the strong associations respondents have between AI trust and AI meaning. Additionally, we find that as trust increases, so does Technology Adoption Propensity (TAP) to a moderate but significant degree (0.25). Moreover, increasing AI trust shows a moderate but significant relationship with the frequency of use of AI to create art (0.24). This frequency, in turn, is unsurprisingly correlated with GPT use (0.48), but also moderately correlated with the Mood factor (-0.24).

TAP is also correlated with each of the six factors of AI meaning but to a lesser degree than trust. A moderately strong relationship between TAP and Activity (-0.27) is notable, but not surprising. The negative coefficients, again, are due to inverse scaling. Out of all the TAP factors, Optimism and Vulnerability seem to be the most consistent in their relationships with AI meaning and trust. Optimism is moderately correlated with each of the six factors except for Usability and Mood (range: -0.20 to -0.32), While Vulnerability is moderately correlated with

each factor except Usability (range: -0.20 to -0.28). We can interpret these findings to suggest that higher Technology Adoption Propensity leads to a better view and more trust of AI in the context of artmaking although the relationship is not as strong as one would have thought. More specifically, the relationship between AI meaning, trust, and TAP is strongest between those that are optimistic of technology, but also those who feel vulnerable to its pull.

Lastly, we explore the potential relationships that emerge between AI meaning, trust, TAP and our four creativity factors: Originality, Relevance, Detail, and Appeal, assessed via the prompts provided by our Vogue Magazine scenario. Each of the four creative factors are strongly correlated with one another (range: 0.56 to 0.86). The sum of the four factors is weakly but significantly related to proficiency (0.19), which although much lower than expected, is intuitive. Additionally, the sum of the four factors were moderately correlated with Vulnerability (-0.20), as well as with the two factors of creativity: Relevance (-0.20) and Appeal (-0.24). Since our creativity sum and Vulnerability are scaled equivalently, we can speculate that those with less concern for technology, are more willing to develop more detailed, and therefore creative prompts. Vulnerability regards to the extent people feel vulnerable about those behind the technology such as criminals and high-tech companies, and it could be the case that those who feel less vulnerable were willing to share more creative prompt in this anonymous survey conducted by researchers they do not know, which could be a consideration for future research. The survey also included an open-ended question to gather qualitative comments about AI for creating art, which will be analyzed as we continue our research endeavor and might provide additional insights.

## Conclusion

According to the survey conducted by YouGov (1000 respondents over 18 years old in the US) in January 2023, only 12% of survey respondents reported that they have used ChatGPT. Although generative AI use has been quickly spreading since then, it is still at an early stage of domestication into various areas of our everyday life. As Katz and Aakhus noted, symbolic meanings emerge as users, non-users, and anti-users interact and negotiate meanings of a given emerging technology over time, and therefore, it might have been too early to be able to observe them clearly. At this point, positive orientation toward technologies as measured with TAP appears to be most relevant for positive meanings and trust toward generative AI in the context of creating art, and more frequent use of AI for creating art was also related to higher level of trust. Proficiency was the factor found to be related to creativity, but positive meanings and trust toward generative AI for creating art were not. Still, the present study, although exploratory, identified trends that offer insights into the rela-

tionships between meanings associated with generative AI for creating art, trust toward generative AI for creating art, general orientation toward technologies, demographic characteristics, and the level of creativity for making art, serving as both a framework and baseline for formulating hypotheses. Relevance of these factors, along with a communication and media perspective, to researching computational creativity, seem promising as technology continues to be appropriated into our everyday life.

## References

- Breazeal, C. L. 2002. *Designing Sociable Robots*. Cambridge, MA: MIT
- Coeckelbergh, M. and Gunkel, D.J. 2023. ChatGPT: deconstructing the debate and moving it forward. *AI & Society*. <https://doi.org/10.1007/s00146-023-01710-4>
- Commodity HQ, & MITRE. (September 19, 2023). How concerned are you, if at all, about the following related to AI offerings like chatbots, image generators, and facial recognition tools? [Graph]. In Statista. Retrieved April 28, 2024, from <https://www.statista.com/statistics/1449228/concerns-ai-tools-replace-jobs-united-states/>
- Gunkel, D. J. 2020. *An Introduction to Communication and Artificial Intelligence*. Cambridge, UK: Polity
- Guzman, A. L. (ed). 2018. *Human-Machine Communication: Rethinking Communication, Technology, and Ourselves*. New York: Peter Lang.
- Katz, J. E. and Aakhus, M. 2002. *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge: Cambridge University Press.
- Katz, J. E. 2003. *Machines That Become Us: The Social Context of Personal Communication Technology*. New Brunswick, NJ: Transaction.
- Kim, S. and Jung, Y. 2023. Development of semantic differential scales for artificial intelligence agents. *International Journal of Social Robotics*, 15: 1155-1167.
- Main, A. and Grierson, M. 2020. Guru, Partner, or Pencil Sharpener? Understanding Designers' Attitudes Towards Intelligent Creativity Support Tools. arXiv.org 9.
- Osgood, C. E., Suci, G. J., and Tannenbaum, P. H. 1957/1971. *The Measurement of Meaning*. IL: University of Illinois Press.
- Pascual-Ferrá, P. 2021. The Measurement of Trust in Communication Research: Part 2. *Communication Research Trends*, 40(1): 4–36.
- Primi, R., Silvia, P. J., Jauk, E., and Benedek, M. 2019. Applying many-facet Rasch modeling in the assessment of creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 13(2): 176–186. <https://doi.org/10.1037/aca0000230>
- Ratchford, M. and Barnhard, M. 2012. Development and validation of the technology adoption propensity (TAP) index. *Journal of Business Research*, 65(8):1209-1215.
- Silverstone, R. and Haddon, L. 1996. Design and the domestication of information and communication technologies. In Mansell, R.; Silverstone, R., eds., *Communication by Design: The Politics of Information and Communication Technologies*. New York: Oxford University Press. 44-74.
- Sugiyama, S. and Vincent, J. 2013. Social robots and emotion: transcending the boundary between humans and ICTs. *intervalla: Platform for Intellectual Exchange* 1: 1-6. [http://www.fus.edu/intervalla/images/pdf/1\\_sugiyama\\_vincent.pdf](http://www.fus.edu/intervalla/images/pdf/1_sugiyama_vincent.pdf)
- Wheless, L. R. and Grotz, J. 1977. The measurement of trust and its relationship to self-disclosure. *Human Communication Research*, 3(3): 250–257. <https://doi.org/10.1111/j.1468-2958.1977.tb00523.x>
- YouGov. (February 1, 2023). Share of adults in the United States who have used ChatGPT as of January 2023 [Graph]. In Statista. Retrieved April 28, 2024, from <https://www.statista.com/statistics/1368579/chatgpt-usage-us/>