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Spectrum of creative agencies in AI-based art: analysis of art reviews

Tikli Loivaranta[a], Johanna Hautala[b] and Riina Lundman[c]

[a]Department of Geography and Geology, University of Turku, Turku, Finland; [b]School of Management, University of Vaasa, Vaasa, Finland; [c]Faculty of Built Environment, School of Architecture, Tampere University, Tampere, Finland

ABSTRACT

The relation between creativity and AI is an ongoing debate in artmaking. AI challenges the traditional understanding of who (or what) can be the creative agent and whether the outcomes are creative. Such a debate is visible in art reviews of AI-based art, but their analyses are missing from the research on AI and creativity. We analyse 39 AI art evaluations from key global newspapers to answer the following questions: how is creative agency discussed, and how are the evaluations of creative outcomes affected by the understandings of creative agency? Our results demonstrate a spectrum of creative agencies, which expands from four (human-centred, AI-centred, co-agency, assemblage) to seven (AI-assisted, AI-enchanted, and AI-improvised) agencies. Perceived creative agency is connected to the evaluation of artworks: Positive evaluations often consider human creative agency, but negative evaluations blame AI. These findings suggest that new ways to assess creativity are emerging in the AI era.

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1. Introduction

Creativity and art go hand in hand. Traditionally, the skilled (human) artist is the agent who crafts the outcome—in other words, the creative piece of art. The creative value of this artwork is then evaluated in the art field and justified and published as professional art critiques in newspapers. AI challenges how creative agents and outcomes are understood in art. Due to the recent rapid development of generative AI systems such as ChatGPT, Dall-E, and MidJourney, AI is available to almost anyone regardless of their skills in artmaking. AI is one tool among others, and art is made together with AI as part of co-creative processes (Kantosalo and Toivonen 2016; Lundman and Nordström 2023; Nordström, Lundman, and Hautala 2023; Wingström, Hautala, and Lundman 2024). People express divided opinions about using AI in art, which vary from interesting to 'strange and even scary' (Latikka et al. 2023, 9). Artworks produced with AI have won or received awards in art competitions: in digital arts at the Colorado State Fair (USA 2022), which caused a discontent among some artists (Roose 2022), and the Sony World Photography Award, which the artist Boris Eldagsen turned down after revealing the winning work was created with Dall-E (Grierson 2023). The use of AI in art is a heated debate: who (or what) can be a creative agent; what actually is creativity in arts; and is creativity becoming merely a push-of-a-button expression?

CONTACT Tikli Loivaranta tkmloi@utu.fi https://www.linkedin.com/in/tikli-loivaranta/
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Current research on creativity and AI has focused on theorizing four creative agencies. Three of them consider two agents, human and AI: human-centred, AI-centred and human–AI co-agency (e.g. Harris and Rousell 2022; Kantosalo and Toivonen 2016; Lundman and Nordström 2023; Wingström, Hautala, and Lundman 2024). Fourth considers various agents, (also called actants), such as humans, technologies, and materials, that together form an agency as an assemblage (e.g. Duff and Sumartojo 2017; Nordström, Lundman, and Hautala 2023). Empirical research on evaluations of creativity in AI-based art has focused on the opinions of nonprofessional users or audiences. Such research has found that the creativity of human-made art is generally valued over art created with AI (Horton, White, and Iyengar 2023; Messingschlager and Appel 2025; Zhou and Kawabata 2023). Despite the fact that professional art evaluations and critiques play a central role in justifying and questioning creative agents and outcomes in art (Carroll 2009), the current empirical research is lacking analysis of such evaluations. We contribute to this need and bring art reviews into the debate on creativity in the AI era.

We present an analysis of 39 art reviews (professional critiques, reports from art contests, feature articles, and blogs) published in key newspapers with a focus on some global key art cities and technological hubs such as New York (*New York Times*), Los Angeles (*Los Angeles Times*), London (*Guardian*, *The Daily Telegraph*), New Delhi (*Times of India*), and smaller but technologically advanced cities like Helsinki (*Helsingin Sanomat*). We aim to analyse as wide a spectrum as possible of creative agencies in the art reviews, which is why we are interested in reviews in any field of art (e.g. visual art, music, and performance art). We ask the following: how is creative agency discussed in the evaluations of AI-based art; and how are these evaluations of creative outcomes affected by the understandings of creative agency? According to our key results, the evaluations demonstrate a spectrum of seven creative agencies: human-centred, human-centred AI-assisted, human–AI co-agency, AI-centred, AI-enchanted, AI-improvised, and agency as an assemblage. Thus, the reviews published in newspapers nuance the current theoretical research debate. Moreover, we find that the understanding of creative agency is connected to the evaluation of outcome. When the outcomes are evaluated as creative or of good quality, the focus is often on the human creative agency, considering AI as a tool. When the outcomes are considered uncreative or of lesser quality, it is often AI that is considered as the central creative agency, which then becomes empty of intention, creativity and meaning. These findings on the spectrum of creative agencies and the agency–outcome relations suggest that new ways to see creativity are emerging in the AI era.

2. Creativity and AI in arts—research review

2.1. AI and creative agency

Arts, from music to performing and visual arts, are traditional creative domains, and artmaking is generally considered a creative activity. However, there is no unambiguous definition of creativity and what that means in the context of art. Definitions of creativity usually consist of some or all of these elements: actor, process, outcome, domain, and space (Wingström, Hautala, and Lundman 2024). For example, creativity can be understood as an ability to create surprising, new, and meaningful outcomes (Boden 2004), such as an artwork that is valued by the audience and other members of the art field. Incremental, personal everyday creativity is referred to as 'little-c creativity,' whereas groundbreaking 'big-C Creativity' transforms domains (Simonton 2013, 71). Today, artists apply increasingly AI to make art across various domains. AI is a computational system that is capable of learning

autonomously from data, while also demonstrating other actions that we consider intelligence in humans, such as decision-making, reasoning, and problem-solving (Kaplan and Haenlein 2019; Russell and Norvig 2010). Through the learning process, AI's algorithm (i.e. 'recipe') is 'continuously edited and rewritten through the algorithm's engagement with the world' (Amoore 2020, 87). Currently, there has been a notable upsurge of generative AI systems in our everyday creative practices that can produce creative contents (e.g. texts, images, and music) rapidly and effectively.

Current generative AI can be seen to have many characteristics related to creativity, which questions the central element of creativity: the actor. Creative actor has agency—that is, a capability to make decisions and actions that are purposeful and influential—in the creative process (Harris and Rousell 2022, 428; Nordström, Lundman, and Hautala 2023). A common question in the current debates about AI-based art is whether AI can hold such agency and be considered a creative actor, agent, or even an AI artist (Browne 2022). Several creative agencies can be recognized in AI-based art (Lundman and Nordström 2023), of which current research provides four key perspectives (Figure 1). Three of these perspectives can be considered in a continuum between two actors, human and AI, whereas the fourth one is theorized as an assemblage of various actors. The first approach leans on anthropocentric or **human-centred creative agency** (No. 1, Figure 1) (Lundman and Nordström 2023) and argues, 'no,' only a human being can be a creative actor. The argument is often supported by pointing out the differences between AI and humans. Most importantly, AI is seen to lack human-like consciousness, identity, feeling, and the ability to create meaning for an artwork (Wingström, Hautala, and Lundman 2024, 10).

The second perspective says, 'yes,' AI can be creative. This can be understood as **AI-centred creative agency** (No. 2, Figure 1). The roots lay in computational (or artificial) creativity with an aim to analyse human creativity by independently creative computational systems (Reddy 2022). Developing computational creativity that could take over creative tasks has indeed been one key aim of AI (Reddy 2022, 296–297).

Some forms of creativity are 'easier' for AI to reach than others. According to Boden (2004, 3–6), *combining* existing ideas in new ways is one of three forms of creativity, which is also typical of AI. The other two forms include finding novelty in existing conceptual spaces by *exploring* them in detail (e.g. via different styles) and *transforming* the concept space itself, which allows one to reach thoughts 'they couldn't have thought before.' The capacity of AI 'to create new aesthetic modes and experiences' is also recognized (Browne 2022, 133). AI has even been discussed as an author. For example, Amoore (2020, 86) applies Foucault's concept of 'author function' to consider AI's authorship (Faubion 2000). ChatGPT has been acknowledged 'as a co-author in scientific literature' and has even had its own ORCID ID (https://orcid.org/0000-0003-0513-5046) for a while (Martínez-Ezquerro 2023, 164; referring to Rossoni and Chat GPT 2022).

The third perspective exists in between 'yes' and 'no.' Here, AI is not considered an independently creative actor, but it is seen to be able to *contribute* to creative practices with humans (Kantosalo and Toivonen 2016). The term used to describe this is **human–AI co-creative agency** (No. 3, Figure 1) or a co-creative approach to creativity (Lundman and Nordström 2023). The differences between humans and AI are acknowledged. The aim is not to create a human-like AI and, thus, not to create a competitive position between humans and AI. Rather, the aim is twofold: first, to develop AI, whose process can support and inspire the creative process; and, second, to develop co-creative practices between humans and AI. Thus, creativity, especially in the

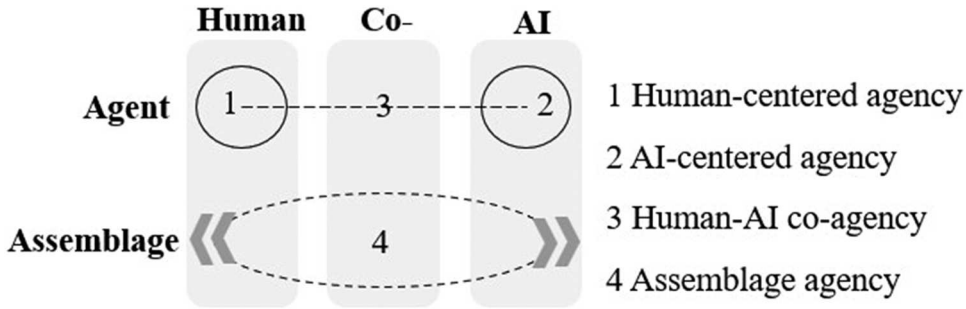

Figure 1. Key creative agencies in current research.

context of the generative AI that generates new images and text based on existing images and text, can be seen as a 'cumulative result built on the works who came before' (Martínez-Ezquerro 2023, 166).

When co-creativity is examined in more detail, it is possible to distinguish between different creative agencies between human and AI. In the co-creative process of artmaking,

AI and humans form a mutual co-agency (Nordström, Lundman, and Hautala 2023) that can be considered a continuum with many degrees of creative agencies in action. At one end, AI is (only) a tool that expands the possibilities for creativity for the human and takes over tasks that can be automated and are time-consuming and boring for the artist (Lim et al. 2023; Stefan and Brown 2015, 112). For example, Lim et al. (2023, 15) found that AI increased 'awareness of what is possible in the situation and inspired the students to explore different types of drawing styles and interpretations of the prompt.' At the other end, AI is a companion, and creativity is taking place in human–AI interaction (Wingström, Hautala, and Lundman 2024). For instance, AI's learning process can provoke the artist to question their artwork and create novelty and meaning they could not have reached without AI (Nordström, Lundman, and Hautala 2023). Such co-agency between humans and AI is not static but evolving. For example, an artist may first lead the process and limit AI's learning through codes and datasets. In the second phase, AI's agency is realized through its learning process that may inspire and challenge the artist and shift creative process into new avenues. In the third phase, the artist might lead again and curate the finished outcome (Nordström, Lundman, and Hautala 2023).

Whereas these three key perspectives on AI and creativity mentioned above are visible in the current research, the fourth one that considers creative agency distributed among various actors (i.e. humans, AI and other technologies, and materials) is less often discussed. We call this relational or **assemblage creative agency** (No. 4, Figure 1). The idea of assemblage has been important for posthuman theory that also acknowledges the agency of nonhumans (like technological systems, animals, and plants) and notes that rather than an attribute of autonomous subjects, agency is a relational effect that is 'distributed across the assembled bundles of humans, nonhumans, issues and things that compose the contingently emerging sociomaterial world' (Duff and Sumartojo 2017; Joronen and Häkli 2017, 563). Assemblage is a collective where emphasis is on the relation between its continuously becoming 'parts,' a relation which Duff and Sumartojo (2017, 429, emphasis added) interpret as 'capacity to link ideas, practices, innovations, materials and techniques in the generation of novelty.' Examples of creative assemblages have been collected into a special issue on posthuman creativity (Harris and Rousell 2022), such as creativity as thinking/feeling

with data in research assemblage consisting of researcher, data, and theory (Vagg 2022). Due to networked technologies, the relations within assemblages become increasingly intensive. However, to detail the agency that human and nonhuman actors can practice, Hayles (2017, 115) describes 'cognitive assemblages' that are 'complex interactions between human and nonhuman cognizers and their abilities to enlist material forces.' Thus, in cognitive assemblage, cognizers can practice agency towards each other and material force because they decide to do so. In Braidotti's (2019, 54) thinking, assemblage forms 'a new collective subject,' a 'we-are-(all)-in-this-together-but-we-are-not-one-and-the-same' kind of subject. This way, agency is distributed across human and technology actors, as Jordan (2021) showed in an analysis of theatre plays (see also Nordström, Lundman, and Hautala 2023). In the co-creative process between artists and AI, distributed agencies are present in various techno-material and social relations and imaginations that meet and affect each other at and beyond the human–AI interface (Lundman and Nordström 2023). In sum, assemblage differs from human–AI co-agency for two key reasons. First, assemblage recognizes the bundle of various actors compared to bipolar human and AI co-agency. Second, in co-creativity, the actors are primary and then interact with each other; whereas in assemblage, the relations are primary, and creative agency—as well as the fluid, indeterminate actors—are constituted through those relations.

2.2. Evaluating creativity in (AI) arts

The evaluation of artworks often takes place in the art domain, consisting of artists, audience, educators, critics, gallery curators and owners, funders, and so on. They decide whether an artwork is 'creative' or otherwise valuable (or not), often individually but sometimes collectively, for instance, by selecting winners of art competitions, or by publishing critiques that evaluate artworks. Thus, the evaluation of creativity and art becomes constructed through various social processes (Csikszentmihalyi and Sawyer 2014; Fischer et al. 2005) and in specific spatio-temporal contexts (Natale and Henrickson 2024). Occasionally an artistic outcome (e.g. an image, a movie, or a novel) that an artist creates is not considered creative in the art domain, although the process of making the outcome includes creativity. Therefore, although we started this section by stating that artmaking is generally considered inherently creative, we acknowledge the views of an artist and domain may differentiate from each other. Nevertheless, to recognize the 'big C' (i.e. creativity) in artistic outcomes, some kind of public evaluation is required.

Evaluating creativity is one aspect of evaluating artworks. As a whole, one of the main purposes of various types of art evaluations is to guide the audience through the multiplicity of artworks towards those that have *value* (Barrett 2000; Carroll 2009). When evaluation is carried out, what is being valued varies. Carroll (2009) makes a distinction between success value and reception value, and he claims that art critics should essentially focus on the former—that is, how well the artist has succeeded in communicating their *intention* (and not on how the artwork is received by the audience). This brings us to questions on creative agency, especially regarding AI. According to Carroll (2009, 51), what we value or disvalue in art 'is the artists' *exhibition of agency* in the process of having created the artwork' (Carroll 2009, 51, emphasis added). Exhibition of an artist's agency is an integral part of what art is: artworks are artworks only if they are intended as such (Alperson 2003). Conversely, in the context of AI, Mazzone and Elgammal (2019) suggest that 'without the *necessity* of the individual expressive artist in our definition of art, how we conceptualize art and art making is greatly expanded' (Mazzone and Elgammal 2019, 8). Moreover, current post-humanist and assemblage theories see agencies as relational and distributed rather than possessed

by individuals (e.g. Barad 2007). Nevertheless, the expression of the intention of a human artist—or the lack thereof—lingers in AI-based artworks (Anscomb 2021) and in the reviews of them, as our analysis demonstrates.

Despite the increase in the number of AI-based artworks, exhibitions, and performances, there is surprisingly little research related to their artistic or creative evaluation, although a need for a deeper engagement with the topic has been acknowledged (e.g. Mazzone and Elgammal 2019). For instance, Grba (2022) calls for a more critical perspective that would also consider the poetics and politics of AI art. With respect to creativity, Grba (2022, 25) writes how 'artists should articulate and respect their methodologies as heterogeneous productive frameworks whose processes and outcomes inform the audience by stirring inquisitiveness and critical thinking, by stimulating imagination, and by encouraging progressive action.' Moreover, Grba demonstrates the importance of institutions and the public for a more diverse examination of AI art. However, in these accounts, the creative agency of AI is often missed, although focusing solely on the creativity of AI would not reach the deeper aspects of the value of AI-based art either. For instance, the Lovelace test, which has been developed to test the creativity of AI (Bringsjord, Bello, and Ferrucci 2001), does not answer the question of artistic intention. Moreover, as part of a creative process, AI can also black-box human agency if the roles between humans and AI remain unclear and opaque (Vartiainen and Tedre 2023). On the other hand, AI can also support (human) creativity. In a study about creating new haiku poems with or without AI, it was found that 'the beauty rating' of haikus created in human–AI collaboration was the highest (Hitsuwari et al. 2023). All these examples demonstrate an interesting and sometimes ambiguous connection between the creative outcome, agency, and evaluation of (AI) arts.

3. Materials and methods

Our materials consist of 39 articles that evaluate AI-based art from English language newspapers *The New York Times* (1–11), *The Guardian*, (12–22), *The Daily Telegraph* (23–27), *Los Angeles Times* (32–37), *Times of India* (38–39), and Finnish *Helsingin Sanomat* (28–31) (Online appendix 1). We applied Proquest Central search (and Finnish national digital library) to identify newspaper articles evaluating AI-based art with the following prompt: ('artificial intelligence' OR ai) AND (art OR artist) AND (review OR critic OR contest OR prize). The search included all articles published before 31 May 2023. The 39 articles date between 1993 and 2023, and 82% have been published between 2018 and 2023. Art reviews that consider AI-based art without mentioning AI may have been missed in our search.

The articles include an evaluative aspect to AI-based artistic outcomes, be they conventional reviews or critiques (25), art contest reports (5), or feature articles or blogs (9). As newspaper art reviews by sole professional art critics are becoming rarer, a plurality of voices is often included: various actors in the art field (e.g. artists or art consumers) are interviewed or cited.

The articles evaluate artworks in the fields of visual art, music, performance art, and multimedia installations. Three kinds of artworks are evaluated: ones where a human artist (or team) generated code for the creative process; artworks made with generative AI requiring no expertise of coding; and artworks where algorithmic generation is part of the artistic outcome; for instance, the outcome is a robot that continues the creative process.

We were interested as to whether creativity is discussed as human-centred, AI-centred, co-creativity or assemblage (the first research question), as well as what implications the different understandings of creative agency have in the evaluation of artistic outcomes (the second research question). While the perception of creative agency is revealed in longer passages of text,

there were certain keywords that were found in the descriptions of creative agencies. For instance, an artist *uses* AI in human-centred creativity, and in co-creativity, artists might *work with* AI.

We applied a qualitative coding approach (e.g. Cope 2010) for the data. We (the three authors) developed a coding frame organized around themes based on the research questions and on our previous research on AI and creative agencies (Wingström, Hautala, and Lundman 2024; Nordström, Lundman, and Hautala 2023). The first author conducted the coding, and a research assistant coded a sub-set of data to cross-check the framework's consistency. Quotes from the articles were coded to categories that included humans, AI, and human–AI relation (how are these *actors and relations* described?); human-centred, AI-centred, co-creativity and assemblage creativity (how is the *creative process including these actors and relations* described); Creativity (Do the texts mention the word creativity? If creativity is mentioned, how it is described?) and Evaluation (Is there a rating for the artworks? How are the artworks evaluated?). We further refined the analysis by creating new sub-codes describing better the subtle differences in how creative agencies are described (see the results section).

In order to answer the second research question, we reflected on the interactions between codes describing the evaluations, and codes describing the creative agencies. This was done by classifying the evaluations as (mostly) positive and (mostly) negative. Within these classifications, we then reflected on the role of the most prominent creative agencies in each evaluation, and assessed, whether patterns emerge revealing relations between certain types of creative agency and certain types of evaluations of the outcome.

4. Results

4.1. Spectrum of creative agencies

In the analysed art reviews, we identify all four key creative agencies discussed in current research in the AI-based art as well as new nuances and variations between and beyond them. We call this variation the spectrum of creative agencies (Figure 2).

Most art reviews portray one creative agency at a time. In **human-centred agency** (No. 1 in Figure 2), AI is a medium or a tool that is used by a human artist who is the sole creative agent (e.g. 5, 7, 15, 19, 35, and 36, see Appendix 1.). The artist's agency is emphasized as the user of the tool: 'This is very much a work of art by Wearing that happens to make use of AI' (19).

Moving one step away from human-centred agency along the spectrum, a few evaluations discuss human artists as central to the creative process and in control of creative projects but grant some agency, such as author credits, to AI (16, 25). We call this **human-centred technology-assisted co-agency** (No. 5 in Figure 2). A good example is a review of a musical album created with 'an AI she (the musician, Herndon) created' and that could compose its own music by listening and mimicking (14). Nevertheless,

> The human voice is the central instrument … indeed, the whole album feels more like an announcement of human authority rather than a capitulation to machines … Herndon counters the hysteria around AI with an album that presents it as a quizzical, cute pet on the leash of a human master: a sensitive, responsive part of the family. (14)

In these descriptions, although the contribution to the final outcome is rather limited, AI approaches a collaborative role: rather than 'just a tool,' it is, for instance, a 'cute pet.' The writers of the evaluations use terms like collaboration or 'beautiful friendship' (19). AI enables human artists to do otherwise difficult things. For instance, AI allowed a 'proxy to talk about some areas [they weren't] that happy talking about' (16) or assisted the artist as an idea generator. Participants in a music competition for AI-based music described the following:

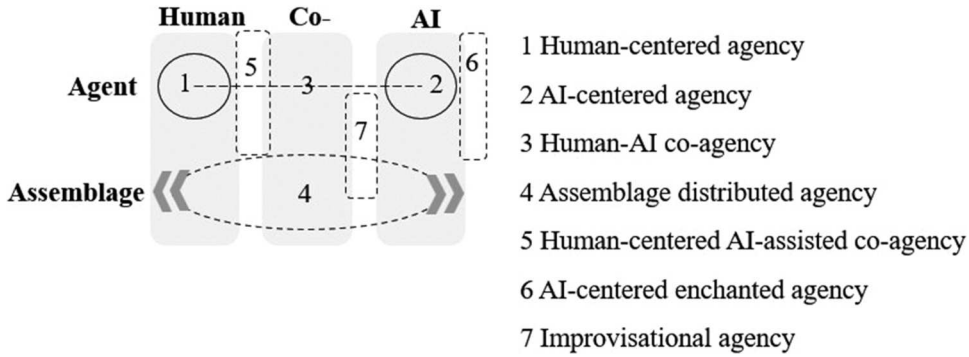

Figure 2. The spectrum of humans and AI creative agencies.

> M.O.G.I.I.7.E.D. described how they worked with the technology both as a tool and as a collaborator with its own creative agency. That approach is what [the musician] called 'the happy accident theorem.' 'You can feed some things into an AI … and then what comes out actually sparks your own creativity,' he said. 'You go, "Oh my god, I would never have thought of that!" And then you riff on that idea.' 'We're raging with the machine,' he added, 'not against it.' (2)

Third in the spectrum is neither human nor AI-centred agency but **human–AI co-agency** (No. 3 in Figure 2). Three interviews (11, 25, 31) with David Cope discuss his creation, which is an AI named 'Emily Howell' (or EMI) that regenerates music in the style of famous composers. In these artworks, humans are 'in control' and make and train the code, command the program, and select the pieces that are the final outcome but in a co-creative process with AI. In this case, creative agencies can also vary within making an art piece. Earlier research has found that co-creative agencies evolve during the creative process (Kantosalo and Toivonen 2016 Lundman and Nordström 2023; Nordström, Lundman, and Hautala 2023;). Similarly, in the example of Emily Howell, the development of AI is brought up, and the transformation of co-creative agencies is acknowledged. The developing algorithm becomes increasingly independent:

> As the program developed, Cope played less and less of a role … (Cope still gives Emily Howell feedback on what he likes and doesn't like, but she's doing most of the heavy lifting these days.) (25)

Some of the more recent evaluations of AI-based art refer to the outcomes as *created by AI,* which can be understood as **AI-centred agency** (No. 2 in Figure 2). Here, the human artist thinks of a prompt and 'pushes the button,' but AI is the one that 'creates.' This piece written about images generated in the style of Alejandro Jodorowsky is exemplary:

> Whatever he might have had in his mind's eye was not what he was going to get. He needed to state his prompt cleanly and clearly. But the creativity bubbled out of the machine. (1)

Moving even one step farther from current theorizations of AI-centred agency, some evaluations described artists accepting AI to 'take over' the co-creative process. In such **AI-centred enchanted agency** (No. 6 in Figure 2), the artist surrenders control and becomes a vessel for expressing AI's creativity. A report of a contest won by an AI-generated image provides an example:

> Mr. Allen became obsessed, creating hundreds of images and marveling at how realistic they were. No matter what he typed, Midjourney seemed capable of making it. 'I couldn't believe what I was seeing,' he said. 'I felt like

> it was demonically inspired—like some other-worldly force was involved.' (3)

A partial takeover by AI may happen when the outcome is a real-time co-creative process, such as a live performance, where AI is one of the (improvising) actors with humans (4, 13, 26, 27, 28). Although this co-agency is still a 'conversation' between separate actors (distinctly AI or human) engaging in co-creation, no one actor controls the final outcome as the performance unfolds. We call this **improvisational co-agency** (No. 7 in Figure 2). Improvisation includes elements of surprise within a co-creative spatiality (Lundman and Nordström 2023). In this way, while AI and human actors remain separate, improvisational co-agency moves a step outside the continuum towards **assemblage agency** (No. 4, Figure 2), where the line between various sources of creativity is less definite: for instance, the event of the live performance itself is a participant to this co-creative process.

In assemblage agency, the humans and AI agencies are entangled, distributed, and less clearly bounded. Consequently, the origin of creativity is undetermined: it is simultaneously human-centred, AI-centred, and distributed. In an exhibition called 'Uumwelt,' Pierre Hyughe's artworks emerged in a collaboration with a neuroscientist Yukiyasu Kamitani, who translated MRI brain scans into pictures via AI, presented as quickly flickering sequences of blurry images on screens. The reviewer writes,

> The screens here have their own kind of life, and as you spend longer in the Serpentine's dimmed galleries the very boundaries between images and humans (and other living creatures) start to dissolve … The images are never complete, in a perpetual process of becoming … What we are looking at is 100 dogs, 1,000 seascapes, formed pixel by pixel out of the human brain and an ever-growing database … The pictures are themselves 'alive,' biotic, reacting to stimuli and growing in sophistication, and the show thus comprises a grand assemblage of real and artificial intelligences. (9)

Here, the artwork is an outcome of a process where the agencies of the artist, neuroscientist, brain-scan participants, and image-rendering AI software have collaborated to produce outcomes whose origin cannot be determined. The boundaries of actors are described to dissolve in the artwork's 'perpetual process of becoming': the artwork is seen to be produced in this relational in-between space. Furthermore, as the blurry images flicker, each individual audience member might see different things. Another reviewer indicated this, focusing on the response of the artworks in the Uumwelt exhibition:

> That we may all see these collages as representing something quite different indicates the intensely personal nature of perception. (20)

In this category, the audience joins the assemblage of making the images. Creative agency is distributed much wider than only between humans and the machine, to the extent that it is difficult to know who or what it is, or where it lies in between. Moreover, art becomes transformed because AI provides creative tools to everyone (2, 11), grants access to '*digital unconscious*' (19), or universalizes artistic creativity:

> 'Uumwelt' is a breakthrough of immense importance, because it both charts a path forward for artists and universalizes the act of artistic creation. (9)

4.2. The role of creative agencies in evaluations: outcome–agency relation

Those evaluations that consider the artistic outcomes to be of good quality express a wide variety of creative agencies (Nos. 1–7 in Figure 3) or do not discuss agencies at all. The artwork may be described as impressive because of AI and its capability to bring into artwork 'something no human eye had seen before' (37), from which 'you can't take your eyes off' (36). The most common creative agencies in positive

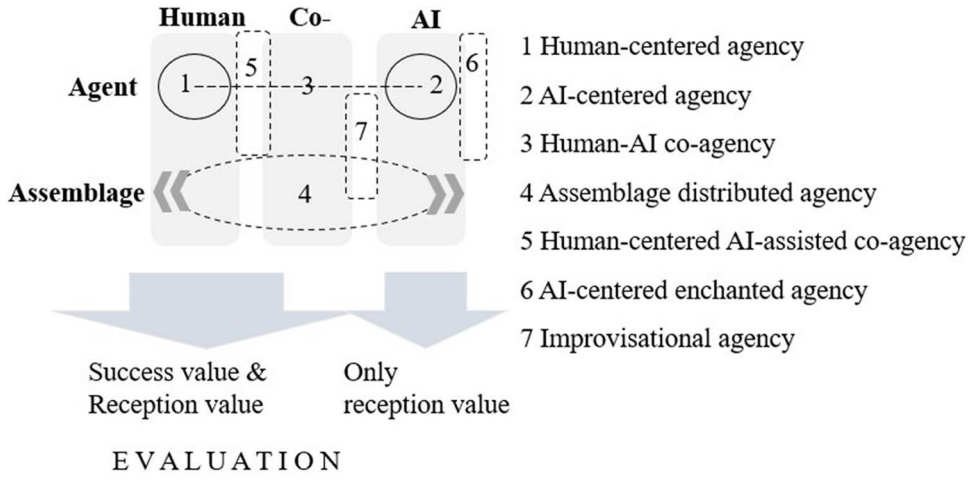

Figure 3. The relations between agencies and evaluations.

evaluations are human-centred or co-creative agencies. For instance, through the skilled use of AI, the artist is seen to bring interesting distortions into artwork, which are complimented (the first quote is a 5-star review):

> Paglen's digital gardens are upsetting … But he is just showing the truth. And when you look into the dead, soulless spaces of his fake nature scenes, the reality is brutal. (15)

> Gillian Wearing uses the fantastical possibilities of AI to create a truly disconcerting image … It uses the distortions that AI can create, yet within a portrait that is human and real. (19)

On the contrary, the evaluations that criticize the (poor) quality of outcomes often (though not always) blame AI as the creative agency 'responsible' for this failure (13, 21, 24, 30). Music created with AI is described 'nonimpressive' and 'unapproachable' (30, 24) as well as 'creepy,' 'threatening,' 'weird,' or 'cacophonic,' 'like listening to two radio channels at once' (30). In particular, those negative evaluations that focus on discussing AI as a central creative agency mostly describe the artworks as non-art, noncreative, 'pointless' (26), 'utterly irrelevant' (21), or even 'less-than-art' (21), in which even the word *art* sometimes requires quotation marks:

> To be bored by the mindless doodlings and droolings of the AI artworks here is to know in your bones that AI does not yet possess anything like a conscious, let alone creative, mind. (21)

> The Guardian's art critic said the painting was 'yet another example of the cynical, transparent con that is AI art' … The mixture of leaden accuracy and, at the same time, complete lack of emphasis, feeling or conviction in Ai-Da's depiction of Her Maj is a telling glimpse of the limits of the AI 'art' genre. (13, Ai-Da is a painting robot)

In these cases, merely knowing that AI has been involved in the process may inspire negative evaluations. Our findings support previous research that found people value AI's creativity less than humans'—that is, if they know the creative agency (Horton, White, and Iyengar 2023; Messingschlager and Appel 2025; Zhou and Kawabata 2023). An example of this is how, throughout his career, musician David Cope has received the best reviews for AI-based compositions (25, 31) and how his algorithmic melodies have moved audiences to tears (25). However, when he explains that the compositions were created with AI, the attitudes change:

> When they assume the music is human, they are obviously moved and speak in the same

> terms as if it had been by Chopin … But when I tell them that there is nothing behind the music but cold, hard machinery doing addition and subtraction … they won't admit they were moved. (11)

Among the evaluations, there was only one case where an AI program was seen as a rather central creative agent and in a prominently positive light: an AI robot that was described in anthropomorphic terms as 'gracious and humble' (4). The rest of the evaluations of artworks by AI-centred agencies were mixed, pointing out, for instance, how impressive they are while also questioning their creativity (1, 3, 36).

> A zillion gigabytes of data and a panoply of artificial intelligence algorithms don't art make. Much of this is pure hokum. … And yet, [you should not] under any circumstances, miss it. (36)

4.3. (De)valuating outcomes—why blame AI?

The evaluations reveal three reasons why the creative value of AI art is questioned. First, AI is seen to lack the ability to be truly creative (5, 31, 37) and to only replicate and mix what already exists (i.e. 'Just press a button') (32). Some evaluations have pointed to the problem of plagiarism (e.g. 3).

> A neural network might be able to replicate old Beatles albums, but it cannot imagine what the Beatles would have done if they had kept playing, adapting and changing. 'We value originality even when it is clearly provocative,' says Scaruffi. 'In general, the less faithful the imitation is, the more interesting it sounds to a music critic … ' (24)

Thus, only humans are understood to be capable of being original and exceptionally creative, producing masterpieces (25) or breaking 'the Billboard Hot 100' (2).

Second, the inability of AI to *feel* human feelings (11) or be (self)conscious (21) has been linked to the inability to create art that moves us or brings artistic reward: 'The machine records, but does not see' (13, see also 37). In the words of Hofstadter (1979), AI cannot 'understand the joy and loneliness of a chilly night wind, the longing for a cherished hand' (11).

The third point is crucial for understanding creativity in the context of art. Traditionally, artworks are considered as such only when they are *intended as art* (Alperson 2003). AI lacks intention and is 'not trying to say anything' (11). However, in the current AI era, it is questioned if such view of art should be broadened: 'without the *necessity* of the individual expressive artist in our definition of art, how we conceptualize art and art making is greatly expanded' (Mazzone and Elgammal 2019, 8). If we accept Carroll's (2009) suggestion that artworks should be evaluated based on their *success value*, intention is a central factor: success requires an intention. Algorithms may perform their tasks successfully, but behind their performance is the intention of the human artist. The reviewers discuss artists' *use of AI* in relation to their intention to communicate something via the artworks. This is expressed, for example, when an artist 'knows exactly what he wants to say' (8) or 'shows the truth' by using AI to communicate the brutal aspects of reality (15). However, despite lacking intention-based success value, AI-based art may still be impressive or possess reception value:

> EMI still demonstrates that engaging music can be written by a composer with absolutely nothing to say. Dr. Cope says he does not see why some people find that disturbing. 'When I am camping in the Sierras there is an incredible beauty I see,' he said. 'But it is unintended by nature. The plants are not trying to express things to me and the mountain is not trying to communicate. But I'm inspired anyway.' (11)

Thus, our analysis shows a linkage between how creative agency is understood and how the success and/or reception value of art (Carroll 2009) is discussed and evaluated. Art that is made by an intentional actor may be evaluated

by both reception and success value, whereas art without an idea of the artists' intention and, consequently, its success may only be evaluated by its reception value (Figure 3). Due to the lack of any intentions, it is *impossible* for AI alone to 'succeed' as the artwork appears as a result of mere chance. Thus, if creative agency is constructed as centred around AI, it is seen to fail the expectations of creativity typical for human artists, and the resulting art is deemed noncreative, 'mindless,' or 'pointless.' Conversely, in human-centred creative agency, AI is understood as a tool, medium, enabler, or, at most, a co-creator, as in a 'pet on a leash.' In this view, the success of the artist may be evaluated (e.g. successful use of AI or success in coming up with something original). Indeed, creative agency was most often understood as human-centred or co-creativity, whereas few evaluations described a strongly AI-centred creative agency.

The human artist's intention and its successful communication are present even in the evaluations of assemblage co-creative artworks. Whereas these reviews (9, 20) applaud the decentralization of creative agency between individual humans, machines, and beyond, they emphasize the creativity of the artist who came up with the idea to question their own centrality. This in fact returns the human artists' intention to the centre of the creative process. Although creativity may spring from various sources (e.g. the participants' MRI scans and AI), it is still the artist who came up with the idea and now 'reads our minds and discovers a new artform' (9).

Conversely, such assemblages where the intentional artists are decentralized or their agency is erased make many of the evaluators feel uneasy. Copying the style of particular artists by 'just pushing a button' (32) may be seen as plagiarism (3). Others see this kind of AI art as a more innocent attempt to invoke the past artists' styles (11, 32) or AI-based art more generally as an opportunity to democratize art. The responses were mixed: for instance, a reviewer (1) was simultaneously doubtful and fascinated by the 'fresh splendor' of images in the style of Alejandro Jodorowsky:

> To what extent do these rapidly generated images contain creativity? And from what source is that creativity emerging? Has Alejandro been robbed? Is the training of this AI model the greatest art heist in history? How much of artmaking is theft, anyway? (1)

5. Conclusion

AI has increasingly become more of an active part of artmaking, with a spectrum of humans and AI agencies participating in the production of artistic outcomes. Despite the fact that the debate on agency and the outcomes of AI-based art are heated (e.g. Grierson 2023; Lundman and Nordström 2023; Mazzone and Elgammal 2019; Roose 2022; Wingström, Hautala, and Lundman 2024), previous research on digital creativity and arts has not analysed professional AI art evaluations. As the key empirical contribution of our article, we analysed 39 newspaper evaluations of AI-based art. Our results expand the theoretical understanding of creative agencies into a spectrum of human, AI, and co-creative agencies and beyond. The most human-centred art evaluations are those in which AI is seen clearly as a medium or a tool that is used by the creative human artist. In many evaluations, some agency is granted to AI, from which emerge the various degrees of co-creative processes and even AI-centred creativity. Most of the evaluations see humans and AI as separate yet collaborating agents. Nevertheless, in some cases, the human and AI agencies are seen to be entangled with each other and even further rhizomatically distributed so that the origin of creativity cannot be determined: it is simultaneously human-centred, AI-centred, co-creative, and distributed everywhere as an assemblage. Other forms of creative agencies also arise in evaluations, which are AI-assisted

or enchanted creativity and improvisational co-creativity (see Figure 2).

Furthermore, we demonstrate that the ways in which the art reviewers perceive agency in the creative process are connected to the evaluations of the artistic outcome. Good quality of artworks can be a result of whichever creative agency though mostly in some way emphasizing the role of the human actor. Conversely, in artworks considered to be of lesser quality, AI is usually the central creative actor. Particularly the success and reception values of an artwork (Carroll 2009), vary in the evaluations (see Figure 3). For the success value, intention is central, which most reviewers consider to be lacking in AI. This leads to the question of whether AI can be blamed if an artwork is considered 'not valuable.' Many reviewers value human-centred creative agency, whereas AI is 'only' a tool, a medium, an enabler, or, at most, a co-creator. Conversely, when AI is given creative agency, it is seen to fail the expectations typical for human artists. This kind of art is often deemed noncreative, 'mindless,' or 'pointless' and to be determined by mere chance, as the traces of a human artist's intention are concealed. Such art may only be evaluated by its reception value. Our findings lead us to ask whether these two forms of value (intention and reception) are enough when evaluating creativity in the era of AI or whether in the future research we should evaluate AI-based art process along the spectrum of agencies. Some evaluations recognize AI's capacity to bring something new and valuable to the artwork—for instance, through its learning process that may even enchant the artist, which can be explained with processual rather than intentional or reception value.

The results of our research deepen the discussions on creativity and AI-based art. The findings are useful for researchers, artists, and reviewers who want to understand what kinds of new agencies artmaking with AI brings, and how this may affect the evaluation of AI-based art. A fascinating starting point is to view creativity as a form of co-creativity between humans and AI and/or as an assemblage, where creative agencies are distributed not only between humans and machines but across distant spaces and times (see also Lundman and Nordström 2023). Still, many questions regarding AI-based art remain open, especially related to their ethics, plagiarism, and effects on the creative workforce. These topics are also raised in some of the evaluations but from varying viewpoints; although some evaluators are worried about rank amateurs pushing buttons, others think this is valuable: the process of creativity is democratized. While our analysis is based on art reviews, the questions of evaluating art and AI in different art fields and their specific evaluation practices, and analysing who or what gives meaning and value to art and creativity (Natale and Henrickson 2024)—remain interesting for further research. Hence, in a broader sense, the results of our study can be extended beyond the art domain to the wider field of digital creativity and the creativity studies in general. Understanding creative agencies as a spectrum provides us a more diverse picture on the relations between humans and AI. Demonstrating the relationship between the evaluations of creative outcomes and the conceptions of creative agencies reveals the various expectations, thoughts, prejudices, and fears that we have regarding the ever-growing role of AI in our society.

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Notes on contributors

Tikli Loivaranta is a Project Researcher in Human Geography at the University of Turku. Her posthumanist-oriented research covers topics such as creativity and sustainability.

Johanna Hautala is an Associate Professor of Regional Development and Innovation Policy at the University of Vaasa. Her research focuses on creativity, knowledge creation, and innovations in the context of advanced technologies. She applies perspectives of space, place, mobility, and process in her research.

Riina Lundman works currently as a Project Manager at Tampere University. She holds a PhD in Human Geography and is specialized in public arts and urban studies.

References

Alperson, P. 2003. "Creativity in Art." In *The Oxford Handbook of Aesthetics*, edited by J. Levinson, 249–250. Oxford: Oxford University Press.

Amoore, L. 2020. *Cloud Ethics*. Durham: Duke University Press.

Anscomb, C. 2021. "Creative Agency as Executive Agency: Grounding the Artistic Significance of Automatic Images." *The Journal of Aesthetics and Art Criticism* 79 (4): 415–427. https://doi.org/10.1093/jaac/kpab054.

Barad, K. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham: Duke University Press.

Barrett, T. 2000. *Criticizing Art: Understanding the Contemporary*. 2nd ed. New York: McGraw-Hill.

Boden, M. A. 2004. *The Creative Mind: Myths and Mechanisms*. London: Routledge.

Braidotti, R. 2019. *Posthuman Knowledge*. Vol. 2. Cambridge: Polity Press.

Bringsjord, S., P. Bello, and D. Ferrucci. 2001. "Creativity, the Turing Test, and the (Better) Lovelace Test." *Minds and Machines* 11 (1): 3–27. https://doi.org/10.1023/A:1011206622741.

Browne, K. 2022. "Who (or What) is an AI Artist?" *Leonardo* 55 (2): 130–134. https://doi.org/10.1162/leon_a_02092.

Carroll, N. 2009. *On Criticism*. New York: Routledge.

Cope, M. 2010. "Coding Qualitative Data." In *Qualitative Research Methods in Human Geography*. 3rd ed., edited by I. Hay, 281–294. Oxford: Oxford University Press.

Csikszentmihalyi, M., and K. Sawyer. 2014. "Creative Insight: The Social Dimension of a Solitary Moment." In *The Systems Model of Creativity*, edited by M. Csikszentmihalyi, 73–98. Dordrecht: Springer.

Duff, C., and S. Sumartojo. 2017. "Assemblages of Creativity: Material Practices in the Creative Economy." *Organization* 24 (3): 418–432. https://doi.org/10.1177/1350508416687765.

Faubion, J. 2000. "Foucault, M. What is an Author?" In *Aesthetics, Method, and Epistemology, Essential Works of Foucault, 1954–1984*. Vol. 2, edited by J. Faubion, 205–222. New York: Penguin.

Fischer, G., E. Giaccardi, H. Eden, M. Sugimoto, and Y. Ye. 2005. "Beyond Binary Choices: Integrating Individual and Social Creativity." *International Journal of Human-Computer Studies* 63 (4–5): 482–512. https://doi.org/10.1016/j.ijhcs.2005.04.014.

Grba, D. 2022. "Deep Else: A Critical Framework for AI Art." *Digital* 2 (1): 1–32. https://doi.org/10.3390/digital2010001.

Grierson, J. 2023. "Photographer Admits Prize-Winning Image was AI-Generated." *The Guardian*, April 17. https://www.theguardian.com/technology/2023/apr/17/photographer-admits-prize-winning-image-was-ai-generated.

Harris, D. X., and D. Rousell. 2022. "Posthuman Creativities: Pluralist Ecologies and the Question of How." *Qualitative Inquiry* 28 (5): 427–434. https://doi.org/10.1177/10778004221080219.

Hayles, K. 2017. *Unthought: The Power of the Cognitive Non-Conscious*. Chicago: University of Chicago Press.

Hitsuwari, J., Y. Ueda, W. Yun, and M. Nomura. 2023. "Does Human–AI Collaboration Lead to More Creative Art? Aesthetic Evaluation of Human-Made and AI-Generated Haiku Poetry." *Computers in Human Behavior* 139:107502. https://doi.org/10.1016/j.chb.2022.107502.

Hofstadter, D. 1979. *Gödel, Escher, Bach: An Eternal Golden Braid*. New York: Basic books.

Horton, C. B., Jr., M. W. White, and S. S. Iyengar. 2023. "Bias Against AI Art Can Enhance Perceptions of Human Creativity." *Scientific Reports* 13:19001. https://doi.org/10.1038/s41598-023-45202-3.

Jordan, R. 2021. "Distributed Agencies in Dramatic Form: A Posthuman Perspective on Lucy Prebble's The Sugar Syndrome and Sarah Ruhl's Dead Man's Cell Phone." *Modern Drama* 64 (1): 1–23. https://doi.org/10.3138/md.64.1.1055.

Joronen, M., and J. Häkli. 2017. "Politicizing Ontology." *Progress in Human Geography* 41 (5): 561–579. https://doi.org/10.1177/0309132516652953.

Kantosalo, A., and H. Toivonen. 2016. "Modes for Creative Human-Computer Collaboration: Alternating and Task-Divided Co-Creativity." In *Proceedings of the Seventh International Conference on Computational Creativity*, 77–84. Paris.

Kaplan, A., and M. Haenlein. 2019. "Siri, Siri, in My Hand: Who's the Fairest in the Land? On the Interpretations, Illustrations, and Implications of Artificial Intelligence." *Business Horizons* 62 (1): 15–25. https://doi.org/10.1016/j.bushor.2018.08.004.

Latikka, R., J. Bergdahl, N. Savela, and A. Oksanen. 2023. "AI as an Artist? A Two-Wave Survey Study on Attitudes Toward Using Artificial Intelligence in Art." *Poetics* 101:101839. https://doi.org/10.1016/j.poetic.2023.101839.

Lim, J., T. Leinonen, L. Lipponen, H. Lee, J. DeVita, and D. Murray. 2023. "Artificial Intelligence as Relational Artifacts in Creative Learning." *Digital Creativity* 34 (3): 192–210. https://doi.org/10.1080/14626268.2023.2236595.

Lundman, R., and P. Nordström. 2023. "Creative Geographies in the Age of AI: Co-Creative Spatiality and the Emerging Techno-Material Relations Between Artists and Artificial Intelligence." *Transactions of the Institute of British Geographers* 48 (3): 650–664. https://doi.org/10.1111/tran.12608.

Martínez-Ezquerro, J. D. 2023. "Authors in the Age of Language-Generation AI: To be or not to be, is That Really the Question?" *Archives of Medical Research* 54 (3): 163–167. https://doi.org/10.1016/j.arcmed.2023.03.002.

Mazzone, M., and A. Elgammal. 2019. "Art, Creativity, and the Potential of Artificial Intelligence." *Arts* 8 (26): 1–9. https://doi.org/10.3390/arts8010026.

Messingschlager, T. V., and M. Appel. 2025. "Mind Ascribed to AI and the Appreciation of AI-Generated Art." *New Media & Society* 27 (3): 1673–1692. https://doi.org/10.1177/14614448231200248.

Natale, S., and L. Henrickson. 2024. "The Lovelace Effect: Perceptions of Creativity in Machines." *New Media & Society* 26 (4): 1909–1926. https://doi.org/10.1177/14614448221077278.

Nordström, P., R. Lundman, and J. Hautala. 2023. "Evolving Coagency Between Artists and AI in the Spatial Cocreative Process of Artmaking." *Annals of the American Association of Geographers* 113 (9): 2203–2218. https://doi.org/10.1080/24694452.2023.2210647.

Reddy, A. 2022. "Artificial Everyday Creativity: Creative Leaps with AI Through Critical Making." *Digital Creativity* 33 (4): 295–313. https://doi.org/10.1080/14626268.2022.2138452.

Roose, K. 2022. "An A.I.-Generated Picture Won an Art Prize. Artists Aren't Happy." *New York Times*, September 2. https://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html.

Rossoni, L., and Chat GPT. 2022. "A inteligência artificial e eu: escrevendo o editorial juntamente com o ChatGPT." *Rev Eletrônica Ciênc Adm* 21:399–405. https://doi.org/10.21529/RECADM.2022ed3.

Russell, S., and P. Norvig. 2010. *Artificial Intelligence: A Modern Approach*. 3rd ed. Harlow: Pearson.

Simonton, D. 2013. "What is Creative Idea? Little-c Versus Big-C Creativity." In *Handbook of Research on Creativity*, edited by K. Thomas and J. Chan, 69–83. Cheltenham: Edward Elgar.

Stefan, J., and A. R. Brown. 2015. "Generative Music Video Composition: Using Automation to Extend Creative Practice." *Digital Creativity* 26 (2): 110–120. https://doi.org/10.1080/14626268.2014.932289.

Vagg, J. 2022. "Experiencing-with Data: Exploring Posthuman Creativity Through Rhizomatic Empathy." *Qualitative Inquiry* 28 (5): 541–551. https://doi.org/10.1177/10778004211069696.

Vartiainen, H., and M. Tedre. 2023. "Using Artificial Intelligence in Craft Education: Crafting with Text-to-Image Generative Models." *Digital Creativity* 34 (1): 1–21. https://doi.org/10.1080/14626268.2023.2174557.

Wingström, R., J. Hautala, and R. Lundman. 2024. "Redefining Creativity in the Era of AI? Perspectives of Computer Scientists and New Media Artists." *Creativity Research Journal* 36 (2): 177–193. https://doi.org/10.1080/10400419.2022.2107850.

Zhou, Y., and H. Kawabata. 2023. "Eyes Can Tell: Assessment of Implicit Attitudes Toward AI Art." *I-Perception* 14 (5): 1–14. https://doi.org/10.1177/20416695231209846