



## 評介《想像力與創意思考》

### THINK OUTSIDE THE BOX (AND ONTO TRANSCENDENT-INSTRUCTIVE CONTEXTS): A REVIEW OF “IMAGINATION AND CREATIVE THINKING” BY AMY KIND

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#### ABSTRACT

This article serves as a review of Amy Kind's “Imagination and creative thinking” (2022a) while also providing insights into educational matters. The overarching theme explored throughout this piece revolves around the notion of transcendent and instructive imaginings and their application within the realm of education. Employing a pedagogical lens, we examine Kind's perspectives and expand upon certain philosophical dialogues to address pressing educational challenges. Specifically, we discuss ChatGPT and its boundaries of creativity, focusing on the current alignment problem within AI and machine learning in relation to imagination and creative thinking. This article contributes to the comprehension of Kind's philosophical discourse and facilitates exploration of the role of imagination in various educational pursuits, particularly those concentrated on fostering creativity.

*Keywords: imagination, creativity, education, imaginings, ChatGPT*

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本文評介：Kind, A. (2022a). *Imagination and creative thinking* (1st ed.). Cambridge University Press. <https://doi.org/10.1017/9781108973335>



Amy Kind's "Imagination and creative thinking" (2022a) is one of the "Elements in philosophy of mind" in Cambridge Elements Series, edited by Keith Frankish and published by Cambridge University Press. In her Element, Kind scrutinises the essence of imagination and creative cogitation, elucidating their intricate interplay and multifaceted significance across diverse spheres of human endeavour. Additionally, she probes inquiries regarding the delineation of imagination, its cognitive entanglements, the paradigm of creativity, the interrelatedness of imagination and creativity, their nurturance as acquired proficiencies, and their prospective manifestation in artificial intelligence systems. In this review, Kind's examination of the faculties of imagination and creative thinking is expounded upon, with a concurrent integration of pedagogical considerations to further augment Kind's conceptual framework and bring educational dynamism to the narrative.

### **"Imaginings" in Educational Frontline**

The initial point of significance worth discussing within the Element is the concept of transcendent and instructive imagining. This idea is particularly intriguing, as evidenced by its prominent placement in the title of this article. Instructive imagining refers to the use of imagination with the purpose of learning something about the world as it is. It is a way of engaging with the world and gathering knowledge through the act of imagining. In this context, imagination is constrained by the facts and realities of the situation, and it is used as a tool to explore possibilities within those constraints. On the other hand, transcendent imagining refers to the use of imagination to transcend or escape the world as it is. It is a more whimsical and unconstrained form of imagination that allows the imaginer to explore possibilities that may not align with reality. Transcendent imagining is often used for entertainment, passing the time, or as a means of escapism.

To embrace a pedagogical standpoint to expound upon Kind's explication of the imaginative process, the elucidation of the "I-self" and "Me-self" conceptualisation argued by Urhahne and Wijnia (2023) could prove advantageous. Instructive imagining can be perceived as a modality for individuals to investigate and comprehend their "Me-self" through active involvement with the world and the accumulation of self-referential knowledge. Conversely, transcendent imagining can be linked to the "I-self", which embodies the cognitive and behavioural essence of the individual. The "I-self"

serves as a reservoir of motivational propensities and the catalyst for purposeful conduct, enabling individuals to surpass their present circumstances and envisage prospects that surpass their immediate actuality.

Here are two illustrative examples in practical classroom settings. The introduction of surrealism as an artistic movement within an art class can serve to engage students in the exercise of transcendent imagining. They can be encouraged to produce their surrealistic works by amalgamating disparate objects, distorting perspectives, and integrating dreamlike elements. This creative endeavour facilitates the exploration of alternative perspectives, the questioning of conventional paradigms, and the nurturing of their artistic expression. By tapping into their I-self, students can harness their inherent motivational propensities and stimulate their cognitive processes to foster innovative thinking. In a different vein, during a history lesson focused on ancient civilisations, students can be prompted to envision themselves as inhabitants of specific ancient societies, such as Ancient Egypt or Ancient Greece. Through the process of instructive imagining, they can be urged to contemplate the day-to-day existence, cultural practices, and tribulations encountered by individuals within those historical epochs. This pedagogical activity enables students to cultivate a more profound appreciation for the contextual fabric of the past and develop empathic connections with individuals from divergent time periods. By forging a connection with their Me-self, students can expand their comprehension of diverse cultures and augment their capacity for historical empathy.

### **Harmonising Standardisation and Creativity for Ingenuity**

Kind employs a dual taxonomical approach to investigate the creativity literature, wherein our focus lies specifically on the H-creativity and P-creativity paradigms (Boden, 1994). P-creativity, referred to as psychological creativity, encompasses the cognitive processes involved in the origination of innovative and authentic concepts within an individual's mental landscape, irrespective of their antecedent existence. It entails the synthesis of notions in idiosyncratic manners and the emergence of previously unimaginable ideas within the cognitive repertoire (Grant, 2016) of the individual. Conversely, H-creativity, otherwise known as historical creativity, surpasses the confines of individual cognition and pertains to ideas or creations that manifest as truly unprecedented throughout the vast expanse of human history. It encompasses ideas or creations that have not been previously conceived by any other entity, thereby denoting

their distinct and epoch-making nature.

Gardner's multiple intelligences (1983) serves as the paramount exemplification of Kind's discourse on the intricacies of creativity. According to Gardner, individuals possess different intelligences or abilities, such as linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic intelligences. P-creativity can be seen as utilising and synthesising these intelligences in unique ways. As for H-creativity, it can be associated with the collective intelligence of societies or cultures. H-creativity may involve the convergence of multiple intelligences across individuals, resulting in groundbreaking innovations.

Going forward, Kind employs the surprisingness-agency construct within the discourse surrounding creativity. Creativity is built upon two essential pillars: surprisingness, which necessitates an element of unexpectedness in creative endeavours; and agency, highlighting the critical role of intentional human agency in the creative process. Here we intend to halt the discussion and present a relevant inquiry, drawing inspiration from Grigorenko (2019): How does the emphasis on standardised education and uniform outcomes affect the encouragement of diverse intelligences and creative thinking? In terms of advantages, the integration of surprisingness into standardised education holds the potential to introduce unexpected elements within the established curriculum, thereby challenging students' preconceived notions and nurturing diverse intelligences. The structured nature of standardised education further offers a supportive framework that allows students to experiment and take calculated risks, facilitating their effective navigation of the creative process while maintaining a sense of direction and purpose (Lassig, 2021). Moreover, the incorporation of agency into standardised education empowers students to actively engage in their own learning journey by promoting autonomy and personal decision-making, consequently encouraging the exploration of individual interests and strengths. However, it is important to simultaneously acknowledge that the rigid structures and predetermined expectations inherent in standardised education often restrict the inclusion of surprising elements and unconventional approaches. This limitation can hinder the cultivation of creative thinking as students find themselves confined within established boundaries, potentially impeding the exploration of innovative ideas. Additionally, the standardised approach may impede the development of creative thinking and the exploration of diverse intelligences, as students may perceive their personal

agency to be undermined within a one-size-fits-all educational system.

In accordance with Gaut's assertion (2010), “not all imaginings are creative, but if one is being actively creative, imagination is peculiarly suited to be the vehicle for one’s creative explorations” (p.1043). To cultivate creativity and facilitate the pursuit of exploratory endeavours, it is then crucial to establish a delicate equilibrium between the principles of standardisation and the recognition of imagination's capacity to drive and fuel creative initiatives.

### **Mindsapes and Experiences**

In the Element, Kind challenges the notion that imagination and creativity are indistinguishable. She asserts that while imagination is primarily a cognitive process, creativity extends beyond the confines of mental activity. While creativity can indeed be observed as a facet of mental engagement, particularly in instances of process-oriented creativity, it also manifests through individuals themselves and the tangible outcomes they produce. To delve deeper into Kind's perspective on the interplay between imagination and creativity, we present Table 1 below, which offers a breakdown and analysis. Additionally, we employ the lens of educational phenomenology to shed light on the intricate connections between these two constructs.

Table 1.

*Explanatory framework for the necessity claim, sufficiency claim, and necessity+sufficiency claim*

<b>Claim</b>	<b>Explanation</b>
The necessity claim	Imagination is necessary for creativity. This claim states that without imagination, creativity cannot occur. Imagination is a prerequisite for the generation of creative ideas and solutions.
The sufficiency claim	Imagination is sufficient for creativity. This claim states that imagination alone is enough to produce creativity. If someone possesses a strong imagination, they can exhibit creative thinking and output without any other factors or abilities.
The necessity+sufficiency claim	Imagination is both necessary and sufficient for creativity. This claim combines the previous two claims, stating that imagination is both a prerequisite and a standalone factor for creativity. Imagination is essential, and when present, it is enough to foster creative thinking and output.

Educational phenomenology, drawing inspiration from philosophers, Edmund Husserl and Maurice Merleau-Ponty (Smith, 2018), provides an interpretive framework for comprehending the interplay between imagination and creativity as depicted in the table. Within the phenomenological perspective, imagination assumes a pivotal role as a fundamental aspect of human consciousness and subjective experience. It enables individuals to surpass immediate perceptual realities and engage in imaginative variations, envisioning fresh possibilities and alternative perspectives. Imagination transcends mere mental faculties and intertwines deeply with bodily experiences and world interactions. In the context of Table 1, the phenomenological understanding of the necessity claim, sufficiency claim, and the necessity+sufficiency claim regarding imagination and creativity becomes apparent.

The necessity claim asserts that imagination is indispensable for creativity, underscoring that creativity's existence or occurrence necessitates the presence of imagination. Phenomenologically, this implies that our creative acts and experiences are grounded in the imaginative variations we undertake, surpassing established boundaries and exploring alternative modes of perception, understanding, and representation of the world (Neubauer et al., 2019). Inversely, the sufficiency claim proposes that imagination alone is sufficient for creativity. From an educational phenomenological viewpoint, this can be interpreted as the notion that imagination, in conjunction with intentionality and the drive for creativity, can yield creative outcomes autonomously. Imagination serves as a gateway to uncharted possibilities, enabling individuals to unleash novel ideas, perspectives, and expressions that contribute to the creative process. Lastly, the necessity+sufficiency claim posits that imagination is both necessary and sufficient for creativity. In a phenomenological sense, this perspective acknowledges that imagination not only facilitates the creative process but also intertwines intimately with it (Suddick et al., 2020). Imagination emerges as the primary medium through which individuals explore, experiment, and generate creative ideas, while simultaneously playing a crucial role in transforming those ideas into tangible creative outputs.

Ultimately, educational phenomenology thus highlights the significance of imagination within the creative process, recognising its experiential and embodied nature. Imagination is not separate from creativity but rather an integral aspect, shaping our perceptions, intentions, and actions. Through imagination, individuals engage with the world in novel and transformative

ways, unlocking avenues for creative expression, problem-solving, and personal growth within educational settings.

Kind's discussions elucidate the fact that creative encounters in education encompass a multitude of distinctive attributes such as openness, nonlinearity, perspectivism, and future orientation (Glăveanu & Beghetto, 2021). However, it is important to note that the presence of intentionality and awareness is not innately associated with these attributes. While creative action generally demonstrates a broad sense of purposefulness, the precise nature of one's intentions and objectives becomes shaped and articulated within the very educational encounter itself. Within the context of education, it is crucial to recognise that while our awareness of the experience is indispensable, as it defines our perception of it as an educational experience in the first place, it does not necessarily mean that we are always cognisant of these experiences as being "creative". This is particularly relevant when considering the role of external observers in evaluating creativity. As long as the majority of the key characteristics delineated in the operational definition are present, these observers, such as educators and researchers, can evaluate the educational experience as creative. This observation holds particular significance for the field of education as it contributes to the ongoing research and understanding of creativity within the educational domain.

### **Imagination Unleashed: ChatGPT and Its Boundaries of Creativity**

According to Kind's contention, if imagination is established as the underlying basis of creativity and if the cultivation of imagination through training is possible, it logically follows that there exists a valid justification to posit that creativity can similarly be fostered through purposeful endeavours. This standpoint diverges from Plato's perspective (Hamilton & Cairns, 1961), which posits dependence on divine inspiration from the muses for the enhancement of our imaginative and creative faculties. In contrast, Kind emphasises that the power to augment these capacities lies within our own autonomy and will. In the discourse surrounding creativity within contemporary liberal societies, Hills and Bird (2018) present their insights as follows:

Creativity, in our view, is the disposition or set of linked dispositions of an individual: to have many ideas (fertility); which are novel (originality) and generated through the use of the imagination



(imagination); and to carry through these ideas to completion (motivation) (p. 95).

Both sides investigate the significance of imagination in relation to creativity. Kind explores the nurturing of imagination through deliberate training as a method to cultivate creativity, while Hills and Bird underscore the inclusion of imagination as an essential element within the defined dispositions of creativity. Nevertheless, their approaches and emphases diverge. Kind places emphasis on individual autonomy and volition in the enhancement of imaginative and creative capabilities, whereas Hills and Bird provide a more expansive definition of creativity that encompasses various dimensions beyond imagination alone.

The varied interpretations concerning the interplay between imagination and creativity become captivating as Kind continues her examination of imagination and creativity within the context of machines and artificial intelligence. She delves into the progressions in computing and AI that have engendered machines manifesting diverse aptitudes, including artistic creation, musical composition, and poetic composition. The case study centres around Aaron, a machine devised by Harold Cohen, purposed to emulate cognitive capacities akin to human drawing and interpretation (Cohen, 1995). Kind scrutinises distinct prerequisites for creativity and queries whether machines like Aaron satisfy these requisites. Furthermore, she expounds upon other systems such as music composition programmes and poetry generators. Nonetheless, she ultimately posits that these machines offer limited insights into machine imagination, as they fail to demonstrate the cognitive processes associated with human imagination.

To extend the discourse beyond Kind's *Element* and incorporate a contemporary topic widely debated in recent months, we aim to examine another AI system that holds significant prominence, namely the ChatGPT. The ChatGPT (Generative Pre-trained Transformer) system has gained significant cultural notoriety and is easily accessible via a web portal developed by OpenAI, its creator. This programme, which generates text in response to written prompts, has garnered such immense popularity that it is likely to be “at capacity right now” (Thorp, 2023, p. 313) if one attempts to utilise it. Employing a technique known as Reinforcement Learning from Human Feedback, ChatGPT has been trained to exhibit a highly conversational nature. However, as mentioned on the website, ChatGPT occasionally produces answers that may sound reasonable but are inaccurate or illogical. Several instances highlight conspicuous errors that it

can make, including citing nonexistent scientific research.

ChatGPT and Generative Adversarial Networks (GANs), explored in Kind's *Element*, are divergent architectures with disparate applications. ChatGPT constitutes a language model used for the comprehension and generation of natural language. It engenders text by leveraging input prompts and demonstrates proficiency in interrogative response, conversational interaction, and informative dissemination. Conversely, GANs consist of a generator and a discriminator network, predominantly employed in the generation and manipulation of visual imagery. GANs excel in tasks such as image synthesis, style transference, and super-resolution (Aggarwal et al., 2021). While ChatGPT is trained on textual data, GANs are trained on annotated datasets to fabricate synthetic data that emulates authentic data. In sum, ChatGPT primarily concentrates on linguistic tasks, whereas GANs showcase prowess in the generation of visual content.

ChatGPT possesses the capacity to serve as an asset for augmenting productivity and fostering creativity. Creativity, being a pivotal constituent in the initial stages of innovation, contains the discovery of novel concepts and associations, as well as the generation of fresh ideas (Henriksen et al., 2023). ChatGPT, when employed skillfully, can manifest creative attributes and function as a supportive tool or collaborative partner. Examples of beneficial utilisation include app development, collaborative ideation sessions, proficient essay composition, and the review of incorrect test responses. ChatGPT resides within a zone of possibility (Dirkin & Mishra, 2010), outlining the domain wherein educators and students can envision and recontextualise the purposes and applications of technology, drawing from their beliefs, values, and aspirations.

Building upon Kind's concept of transcendent and instructive uses of imagination, our argument focuses on ChatGPT's capacity. It facilitates transcendent exploration beyond reality. By harnessing creative potentials in ChatGPT, students are empowered to envision alternative perspectives and immerse themselves in fantastical scenarios. Moreover, in the realm of instructive imagining, ChatGPT's extensive knowledge base and language provide support to students as they construct mental models and experiment with hypotheses. This interactive engagement fosters active learning, cultivates critical thinking skills, and establishes meaningful connections between theoretical concepts and practical applications (Baidoo-Anu & Owusu Ansah, 2023; Kohnke et al., 2023). Before the arrival of ChatGPT, scholars employing

a posthuman perspective (Harris & Holman Jones, 2022) had already critiqued conventional psychological notions of creativity. They emphasised that creativity could extend beyond human cognition and be inherent within the expansive fabric of our surroundings, including the natural environment as well as the digital or computational domain.

To tackle the alignment problem in AI and machine learning (Christian, 2020), which pertains to the task of ensuring that the goals and behaviour of an AI system are congruent with human values and intentions, attention must be given to the instructive imagining process with ChatGPT. Developers and researchers should prioritise training the model using diverse and reliable datasets, fact-checking its responses, and continuously refining its capabilities to guarantee accurate and aligned output (Kasneji et al., 2023). When it comes to transcendent imagining, it is vital to ensure that the generated content by ChatGPT adheres to ethical principles and upholds humanistic ideals. To address the alignment problem in transcendent imagining, steps such as curating diverse datasets, incorporating moral guidelines, and implementing content moderation (Cao et al., 2023) can be taken for training ChatGPT.

Upon revisiting Kind's inquiry in the Element, how can we accurately determine the point at which machines can be deemed genuinely creative and capable of engaging in imaginative pursuits? Kind posits that our recognition of human beings employing their imagination extends beyond mere observation of their creative outcomes; it is through conversing with them about their creative processes that we glean insight into their cognitive undertakings, fostering our perception of them as engaging in acts of imagination. Determining when machines have reached the milestone of creativity and imagination requires the establishment of appropriate benchmarks, tests, and criteria. It is a complex and ongoing attempt that involves interdisciplinary efforts to better understand and evaluate machine-generated outputs in comparison to human creativity.

### **Prism of Imagination**

The emphasis of Kind's discourse centres on human imagination and creativity, while simultaneously recognising the emergence of machines capable of generating imaginative and creative outcomes. With the progression of technology, it is inevitable that novel philosophical dilemmas will arise, prompting a broader comprehension of these notions beyond the confines of

human capabilities. Kind anticipates forthcoming advancements in this field of philosophy and aspires for this conversation to serve as a fundamental basis for continued investigation in the years ahead.

In bringing our review to a close, we are prompted by a question raised by Kind in one of her other publications (2022b), which echoes the sentiments expressed in this Element. How can we learn to imagine? Philosophers often hold imagination to a higher standard than other mental activities. For example, in discussions of the value of imagination, it is often compared to perception, which is considered fallible but still justifies beliefs. This raises the question of why imagination should not be able to play a similar justificatory role. The challenge lies in understanding how to effectively train and engage in imagination. It is not necessarily a need for something more, but rather a need for a more nuanced understanding of practicing imagination.

Kind's Element acts as a prism of imagination, refracting philosophical insights and illuminating the diverse realms of art, technology, literature, and education. Within this prism, the interplay of imagination and creative thinking takes centre stage, intertwining and enriching these domains. As we embark on the journey of acquiring modal knowledge, imagination emerges as a powerful force, akin to an epistemological compass, guiding us through the intricate landscape of possibilities.

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