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Isabel Nolan (aphantasic). *A Lion with a Thorn in its Paw*, 2019. Polyurethane, plaster bandage, and paper mache, 46 x 13 x 37 cm (18 x 5.1 x 14.5 in). (artwork © Isabel Nolan and Kerlin Gallery, Dublin; photograph provided by the artist and Kerlin Gallery)

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Plural Imagination:
Diversity in Mind and Making

It can come as a surprise to realize how different other people’s inner lives are to one’s own. The experience of visual mental imagery—seeing in the mind’s eye—is one such dimension of difference. Some people experience imagery with near-perceptual vividness, as seems the case for Arthur Danto in our epigraph. And while most experience some kind of imagery, another minority of people experience none at all—they have no mind’s eye. In what follows we ask what this variation means for art making. How do such radical but externally invisible differences in artists’ inner lives impact their practice?

Perhaps because we tend to tacitly universalize from our own experience, assuming our own way of thinking to be everyone’s, this crucial aspect of art making has barely been addressed. What we instead find among much of the past five hundred years of art-theoretical literature are categorical assertions that art making either must or must not involve an originary act of imagining. The model of artistic subjectivity that emerged in the European Renaissance and persisted through Romanticism into the present as popular stereotype is that of one who imposes their vivid internal vision on a passive world, their environment serving only to realize what had been preconceived. The twentieth-century avant-garde in turn assaulted this stereotype in both practice and theory, employing, for example, stochastic techniques that meant that the form of the work depended on the contingencies of the environment rather than a mental preconfiguration.

Artists who do not experience imagery bely the Romantic stereotype—and seem to instantiate the avant-garde countermodel. They create without a visual preconception of how the work will look, manipulating material media, “in order to discover what it might do, how it will appear,” as one such artist in our study puts it. The creative activity seems to take place to a large degree “in the world,” on the picture surface, rather than solely in the mind. At the same time, however, there are artists—perhaps the majority—who do experience mental imagery and prefigure or compose the artwork to some degree in their mind’s eye. What the following urges, then, is the need to be wary of “totalitarian habits of mind,” as Ernst Gombrich put it in his seminal psychological study of art, to resist obscuring the individual subject’s particularity with normative statements claiming universal validity. We begin by outlining the two main forms of these assertions.

We are very grateful firstly to all the artists who participated in this research. We are also grateful to the audience at The Courtauld Institute of Art, London, where ideas presented in this paper were first aired, and to Amy Kind and her blog *The Junkyard*. Early drafts were substantially improved by discussions with Giovanna Colombetti. The faults are of course entirely the author’s own. Research for this article was supported by the Arts and Humanities Research Council Follow-on Funding Impact Engagement Scheme (AH/K502664/1).

2. The Imagining Artist

From the European Renaissance to the twentieth century it was widely held that artworks are realized in the outside world of forms first conceived internally, in the mind. It is the mode of making that is most important, that makes the work, and that sets the terms for the nature of the representation itself. Authorship is not preconceived in this way was not necessarily malformed like Orbaneja’s, but it is without invention, its practitioners, as Paul Duro writes, “constrained to operate within the preordained field of mimics.”

The Romanticism that developed in violent opposition to much of the academic, Neoclassical values Reynolds espoused kept this principle that authentic artworks originated in an act of imagining. But where Reynolds had held, in the words of William Blake’s annotations to the Esquimaux, that “Genius May be Taught & that all Pretence to Inspiration is a Lie & a Deceit,” the late eighteenth-century theory (influenced by Neoplatonic ideas of divine inspiration) aligned genius with an innate, preordained capacity to create images grew apace until he was able to create any likeness, even when there was no vague outline in the material to aid him.

We can see in Alberti’s speculation a model of art making that directly opposes the one previously outlined. Here there is no idée fixe, or “mental picture” of the work conjured up in the mind before being materially realized, the starting point is rather discovered accidentally, or, in the word, material. Isolated from the limitations of the material support. Avant-garde representatives of the one previously outlined.

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assert that there need be no internal origin. Theory followed on practice with, for example, Rosalind Krauss’s critiques of originality, and the consideration of painting at the semiotic level, in reference to its internal system rather than, as Mary Kelly put it, “the exhortation of artistic auteurs.”

Refusing such models of artistic subjection could also mean embracing outer life over inner life; taking one’s environment and the materials at hand as the sole stimulus for, and basis of, what is made. Hence sculptor Tony Cragg, when asked where his ideas come from, could declare, “I hate ideas! If I have one, I bang my head against the wall . . . As soon as I look at any material, I combine my thoughts with that material . . . I become influenced by everything that’s around me.”

Today art making driven by algorithms and artificial intelligence continues to undermine the role of conscious pre-configuration in the creative process.

4. Composing Internally, Composing Externally

The difference between these two theories of art making comes down, we want to now argue; to the issue of composition: not in the sense of the arrangement, good or bad, of an image’s elements, but where composition takes place. For Romano Alberti, “the intellect turns . . . mental images . . . into a finished composition which it afterwards represents in painting”: composition is internal, in the mind of the artist. For Leon Battista Alberti, it is external, taking place out there, in the world, the artist “adjusting and removing outlines and planes in the way demanded by the object itself.” One theory holds that the artwork is given form mentally then externalized, the other that the artwork must be given physical form without a mental preconditioning. It is a matter of internal or external composition.

We can see that the assumption of internal or external composition—that art making must take place one way or the other—might relate to certain contrasting views of human existence. The internal-composition model, in which creation takes place within the mind and is only afterward realized in the outside world, fits with a modern, Western, dualist view of human beings, in which the body is part of the material world, while the mind appears to produce conceptions of its own. Internal composition is the art making that most accords with that post–Enlightenment, “self-governing reflective individual,” like Joshua Reynolds’s ideal artist, “whose inner life can be conveyed at will to a public composed of similarly sovereign individuals.” And the internal composition model befits a being who is conceived as essentially separate from their environment, so whose capacity as a maker lies within them rather than in relationships with the rest of nature. Conversely, the external composition model of art making suggests a maker who—rather than standing separate from and superior to the rest of nature, on which they monodirectionally imprint their will—makes art through interaction and integration with their environment.

While an individual’s commitment to mind–material dualism does not necessarily entail an assumption of the internal composition model of making (and materialism does not entail external composition—we are claiming nothing about the ontological presumptions of either Alberti), it is true to say that when artistic or theoretical strategies have sought to minimize the conscious intention of the artist, to equalize the human maker with the rest of nature, it is often in critical opposition to the kind of human subjection implicated by the internal compositional model. We can think in these terms of Hugo Ball’s declaring in 1916 that “the individualistic-egoistic ideal of the Renaissance ripened to the general union of the mechanized appetites which now see before us, bleeding and disintegrating.”

Recent anthropological theory has advanced an external composition model for similar reasons. According to Tim Ingold, a “hylomorphic” view of making, where “practitioners impose forms internal to the mind upon a material world out there,” “perpetuates a pernicious misconception of human existence; instead, “the most [the maker] can do is to intervene in worldly processes that are already going on . . . adding [their] own impetus to the forces and energies in play.” The creation of things should be understood as this process of “morphogenesis,” in which “form is ever emergent rather than given in advance.” In the case of drawing, “it is not as though the hand . . . gradually emotes what first fills the head, such that the entire composition slides like a transfer from mind to paper.” Ingold cites a statement by sculptor and draughtsman Richard Talbot in support: “When I’m sitting out to do the drawing, I don’t have a preconceived image.”

6. The Maker’s Reality

In theories of art making like Ingold’s, statements about how people make art are applied universally—because the theorist wants to encourage a certain view of human existence—and particular instantiations are selected in support. But if we put the practitioners’ accounts first rather than in support of a polemical pitching of morphogenesis against hylomorphism, a different story is told, one which renders universal claims about how art is made invalid. Different artists work in different ways: some only in preconceived ways before executing it, while others do not preconceive what they are making until they start executing it, a “maker’s reality” of neurocognitive diversity. We devote the rest of our argument to substantiating and developing the implications of these claims.

7. What Imagery Is and How It Varies

Mental imagery vividness, we are asserting, plays a prominent role in the way artists work. But what is mental imagery, and what does it mean to say it varies between individuals? And how could one possibly know that it does?

Mental imagery is quasi-perceptual experience that can occur in the absence of the appropriate external stimuli. It is quasi-perceptual because it resembles perceptual experience, of say, a chair, but one is not actually perceiving a chair in one’s environment. It is typically an experience that one can voluntarily have and control the content of—people can often decide what kind of chair to image and change it—although sometimes people report experiences that are taken to be
The relationship between imagery vividness and imagination has been a topic of interest for cognitive psychologists for decades. The literature has shown that individuals with vivid imagery tend to be more creative, imaginative, and flexible in their thinking. Conversely, individuals with poor imagery tend to be more literal in their thinking and have difficulty seeing the world in a novel way.

However, the mechanisms underlying this relationship are still not fully understood. One area of research has focused on the role of the default mode network (DMN), a brain network that is active when individuals are not engaged in external tasks. Studies have shown that individuals with vivid imagery have a stronger connection between the DMN and the right hippocampus, a brain area involved in memory consolidation.

Another area of research has focused on the role of the mirror neuron system (MNS), a network of neurons that allow individuals to recognize and imitate other people's actions. Studies have shown that individuals with vivid imagery have a stronger MNS, which may contribute to their ability to imagine themselves in different contexts.

Overall, the relationship between imagery vividness and imagination is complex and multifaceted, and further research is needed to fully understand the mechanisms underlying this relationship.
familiar with the material. Views with other members of the team who were involved, there was an informal comparison of Thematic Content Analysis approach, where our practice? We used an inductive question, “How does aphantasia / hyperphantasia affect your practice?” We noted to our surprise, reported having a creative practice of some form: they were visual artists, designers, architects, and writers. Intrigued, we secured funding to stage an exhibition of work by those with “extreme imagination” and issued an open call for creative work to our database of contacts, which by that time contained both hyperphantasics and aphantasics. This produced 65 responses, from which we selected 18 exhibitors (6 hyperphantasics and 12 aphantasics). Our findings here are based on a qualitative analysis of interviews with the exhibitors. While these findings are preliminary—the sample is small and unrepresentative (the number of hyperphantasics reflecting the number in the research group’s database, due to research having focused on aphantasia, rather than in the population), and a further, more systematic study based on a larger sample of artists is necessary—they have significant implications.

What soon became apparent, as we developed the exhibition, was what little connection there seemed to be between imagery vividness and the nature of the artworks themselves. Work by the aphantasic creators included both figurative and abstract pieces and was in a variety of media, including painting, video, and sculpture. There was no consistency of theme or subject. The individuals we examined were themselves just as diverse. They worked in a number of fields, from graphic design to architecture to millinery. There were both amateur and professional, untrained and trained, and many were highly academically qualified. What was distinctive, however, was how they described the processes they employed to produce an artwork.

For our aphantasic participants there was an externality to the composition process. The starting point specifically was consistently external. Several artists reported requiring reference images or objects to depict or work from. SB, an illustrator, said that she relies “very heavily on photographic references in [her] artwork.” DT, a figurative painter, claimed to be “more or less constrained [sic] to observation,” always looking for “external motives,” which could be “anything, from media images to specific objects or scenes that [he] photograph[s].” The milliner CS said that she has “an extensive collection of reference images saved on my Google Drive. I use these a lot to look at techniques, remember past projects or inspire me for a new one. Before Google and Pinterest I used to print them out as color images and keep them in ring binder folders.”

Several participants said that they needed to start with a prepared image rather than a blank surface. One multidisciplinary artist, AB, makes videos in which a well-known old master painting is digitally manipulated to the point of erasure. For CS, preexisting representational material is integral to her design process, as a base on which to form her own images. “I draw ideas on printed-out photos of half-made hats, and pin hats together on my head whilst looking into the mirror.”

Where some start with preexisting images, others start by making a mark or marks on the blank surface, which will serve as a stimulus or a material to work from. IS is one of these: “I try to get some marks down, however loose or
approximated, as quickly as possible. Then I can really begin to push and engage with the appearing image. The collages that SB submitted for the study were made in a similar way. She described how she applies the material “blindly” (i.e., without an intended final image) to the surface and “gradually shapes, and colors evoke essences of meaning.” Only in the process of making the picture did she recognize it as an image: a depiction of “distressing events” that she had been preoccupied with but unable to visualize. She concludes that “a figurative representation of them emerged unintentionally.” The collages were then accordingly titled.

The artists also perceived themselves to have externalized the composition process. The British artist MC, who paints detailed figurative scenes, was especially articulate about this:

The lack of ability to visualize images in my mind is a great motivation; I must physically work on a drawing or painting in order for my imagination to become visually manifest. I often start a picture with no intention and...
certainly no end goal; it materializes in an improvisatory way. This sense of stepping out into the unknown is thrilling and the subsequent discovery of latent imagery fascinating. Largely bypassing conscious decision making, the way images (usually figures) emerge from my subconscious is akin to dreaming, and the resulting work is often just as strange, surprising, and revealing as that would suggest.

This externality to the composition process described by our aphantasic artists is made clear when we compare them to the hyperphantasics that we interviewed. All of our hyperphantasic participants reported that their artworks originate in mental imagery. KB’s artwork “came to [her] unexpectedly one evening fully formed”; GvH worked to “capture the different sounds, shapes, and colors” she experiences while listening to music, building up layers of paint to recreate “the strong sense of space and depth [she] imagine[s].” Other hyperphantasics spent longer manipulating their mental imagery. MEC, who works by weaving together separate fabric patterns, stated that,

I spend hours over days or months composing the whole piece in my mind. I visualize the designs, the two separate paintings, make changes, rotate it to check the structures from different angles, and make corrections and adjustments to the design before I put it down on paper. When I finally make the finished piece, the weaving and resulting image come out how I composed them in my mind.
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1. History of the Imagery Experience

Historical Implications

The answer must begin in somewhat deflationary terms. As we have seen, there seems to be no relation between the form of an
artwork and the imagery experience of the artist. We might assume that those
with stronger imagery would be urged to externalize it, and so their work might tend toward abstraction or language in their work. But this is not the case, at least
as was suggested by our artists. And, again, judging from our artists, the level of
realism in representational work has nothing to do with vividness of internal
imagery and everything to do with artistic intention and the learned ability
to realize it. This works in both directions. A detailed and “realistic” depiction does not mean the artist images vividly, and “seeing” a scene vividly in one’s mind eye is independent of the ability or desire to render it graphically. The same goes for
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different representations of animals by people who lived in Europe hundreds of thousands of years ago (Galon, Inquiries, 70–71). Similar proposals were put forward by Wilhelm Wundt, Elements of Art Psychology, trans. Edward Lumsden Schaul (London: Macmillan, 1914), and Erich Rudolph Janssen: “Psychology and Art.” Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft 19 (1925) 1–89 (see also 123, 130), with some as
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1. Art Making and Neurocognitive Diversity

To address this we can employ the paradigm of neuroepistemology. This for-
grounds the notion that neurocognitive functioning varies among humans as
a result of natural variation, whether inherited or acquired—and so challenges
everyone that demands individuals function in a certain “normal” or “cor-
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11. Historical Implications

Such, then, are some implications of differential imagery experience for art mak-
ingar about what to make will in the act of making go away to attend to external,
from which the artist images vividly. For Gombrich, the firmness of design is owed to vivid imagery; the displays representational qualities indistinguishable
from that of those who experience vivid imagery, it cannot be said that “completeness and
realism of design is owed to vivid imagery, the existence of vivid imagery, and the recognition that they have always existed, underscores claims
that primordial art making must be owed to the maker experiencing vivid imagery: Whitney Chadwick’s account, as in e.g., “Reproduction and Depiction in Paleolithic Art,” Reproduktion und Darstellung im Paläolithikum (Summer 1987) 4–5; emphasizing acts of recognition and modi-

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we have described here. Normative theories of internal composition assume
that artworks must begin as mental images, in which case only individuals who

experience mental images can fulfill the criteria for being an “artist.” Conversely, normative theories of external composition imply a nonimaging art maker. Both theories assume the artist to be of a certain neurotype—“a cluster of similar neurological and cognitive ways of being.” The existence and practices of artists who experience extremes of visual mental imagery, both abundance and absence, challenge these theories’ assumptions. Aphantasics undermine the stereotype of artistic genius with the vivid inner life, while hyperphantasics—and, indeed, those with so-called normal imagery—challenge claims like Tegolo’s that all artworks are made through morphogenesis, with preconception playing no casual role.

The notion that certain theories of art making or models of artistic subjectivity involve certain neurotypes—the imager, the nonimager—has potentially exclusionary implications. Under sway of the popular stereotype, and associating from their own experience, aphantasics individuals might at an early stage feel themselves to lack imagination or creativity—because they do not think like artists supposedly should—and do so not develop or pursue creative activities. They would need to be reassured that these qualities are not dependent on an ability to generate mental imagery, and that creation, for both adults and children, can be an external process, characterized by play, trial and error, and experiment.

It is important to note that artists do tend to be vivid imagers, and vivid imagers do tend to take up creative occupations. But if, as we have shown, imagery is not a necessary part of a creative life (for aphantasics, indeed, imagery lack is itself a motivation to make images), we have to wonder what lies behind these tendencies. The influence of the popular stereotype again raises itself as a possibility: vivid imagers may tacitly recognize themselves in it, while those with weaker imagery might not see themselves as creative, and thus be directed away from those vocations. All the more reason, there must surely be, to reveal and challenge universalizing, normative models of art making and art maker. In his Principles of Psychology, William James observed that “until very recent years it was supposed . . . that there is a typical human mind which all individual minds are like, and that propositions of universal validity could be laid down about such faculties as ‘the Imagination.'”

Gallot’s study had blown this view apart: the contemporary recognition of neurological and cognitive diversity promises to have a similar effect on assumptions about “the” artistic mind. As James learned from Gallot’s study, and as aphantasics and hyperphantasics artists remind us 140 years later, “There are imaginations, not ‘The Imagination,’ and they must be studied in detail.”

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