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Material Imagination

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Material Imagination Schematization as a Matrix for Experience through Design

Folkmann, Mads Nygaard

Abstract

As a mass medium of modern culture, design sets the frame for human imaginative interaction with the world. In its many appearances, design can be seen as kind of material imagination where concepts and sensual appearances meet in different constellations. In this process something is made present what before was non-existing. Taking a starting point in the Kantian notion of schematization, which can be seen as the ability to construct meaning through synthesis in the process of human imagination, I take two steps in the article. First, I propose how the creation of design solutions can be seen as the product of a series of constructive factors related to schematization. Second, I discuss in two examples of design, how these factors operate and how the process of imagination is conditioned by the specific materiality of the design.

Imagination is central to all human activity. Imagination creates abstractions from the present reality and may drive human cognition in new directions. The modern notion of imagination as a creative and productive force is a child of both the Enlightenment and the Romanticism in the eighteenth and nineteenth centuries where it played a central role in the cultural politics of liberating modern man.¹ In English Romanticism, the poet Samuel Taylor Coleridge famously claimed imagination's ability to a *creatio ex nihilo* and to enact a gaze on the world which "dissolves, diffuses, dissipates, in order to re-create".² In German Romanticism, the poet Novalis talked about a process of internalisation, "Nach Innen geht der geheimnißvolle Weg",³ whereby new meaning could arise.

In claiming the imagination as creative and productive, the Romantic Movement in Europe set the scene for the dominant conception of imagination today. But already in Romanticism, imagination was not only seen 'freely' as a matter of the mind, but led to explorations of material media for new experiences which would not be possible elsewhere.⁴ A reason for this exploration was, in part, that the ideological claim of imagination to have a liberating force also on a socio-cultural level did not meet its complement in real life. Instead, imagination had to find new expressions.

In a general perspective, beyond Romanticism up till today, we may understand imagination in this double light: as a matter of human mind and as expressed or framed by specific material media, that is, the appearances instigating sensorial experiences. On the one hand we may, as Jean-Paul Sartre did in his seminal investigation of the product of the imagination in *L'imaginaire* (1940), look into the constitution of the imagining consciousness which operates on the basis of negation and posits its object "comme un néant", in a "position d'absence ou d'inexistence".⁵ Sartre's radical insight is that imagination not only is a productive force but also an un-realising and destructive one, even if, as the philosopher Peter Murphy has pointed out, "imagination does not just represent 'what is absent' [but] also positions objects that otherwise could not exist".⁶ On the other hand we may ask what happens when this process, which Sartre describes

in a phenomenological-psychological perspective, meets the materiality of different expressive media.

The rise of imagination has nurtured free artistic practice but how does it relate to or is framed by the more bound field of design? Since the rise of industrial design in the 19th century, design has existed in a span of, on the one hand, being related to art and free artistic practice, and, on the other hand, being submitted to purpose. Design is form (related to art) as well as function (related to purpose), but sometimes not even functional, as e.g. in conceptual design. But what interests me in this context is the tension between the bound elements of design and the open space of possibilities enabled by imagination.⁷ When we see design as “a liberal art of technological culture”, as stated by design theorist Richard Buchanan, open for “a deeper, integrative argument about the nature of the artificial in human experience”, we may ask how design set the frame for human imaginative interaction with the world.⁸

In the following I will engage in a discussion of the material imagination in design. In two settings of design, product design and digital design, I will ask how the process of imagination is framed by the materiality in the design. The first case is a portable music device designed by Cecilie Manz. This can be seen as an example of industrial design, where objects may be regarded as “functional, immanent, mass-produced and mute” even if they also may be talkative in the way they interact with us.⁹ The second case is a digital design by the multimedia design group Oncotype and represents a development in the field of design from (more or less static) products to dynamic media productions. The Kantian notion of schematization will be central for reflecting upon how the creation of design solutions can be seen as the product of a series of constructive factors which I will formulate in relation to knowledge, perspective and focus. These I will propose as a design-specific schematization of experience and relate to the two cases.

Material Effects of Imagination

The investigation of the transition from imagination to material manifestation, from mind to matter, is a tricky business. In a reflection upon the role of imagination in the “Age of Knowledge Economy”, Peter Murphy focuses on the constructive powers of imagination where creative endeavours almost inevitably lead to new solutions. He sees imagination with the ability to evoke an “act of figuration” that with a “power of organization” may be involved in “object creation” enacted through a series of “form-generation media” and construction principles.¹⁰ In Murphy’s view, this process leads to a series of specific pattern forms such as hierarchy, balance, repetition, similarity and proportion, all related to principles of harmony, integration and order. In the end, he sees imagination as a principle of order-creation in an almost trivial formulation of how creative thinking operates and can be made instrumental in obtaining a goal, e.g. when Murphy states, that in “the first phase of creation, *divergent thinking* opens onto a near-infinite range of materials, possibilities, representations and ideas. In the second phase of creation, *convergent thinking* unites and integrates”.¹¹ This approach to creative thinking connects to the dominant diamond-shaped design process, e.g. the Dutch Wybertjes model, which in its focus on a goal can be seen as an attempt to rationally define imaginative forces, which in themselves not necessarily may be constructive and solution-oriented, but also transgressive and subversive.¹²

I will take the role of imagination in creating material meaning in another direction. My suggestion is, then, to look further beyond the Romanticists' ideological claim of the powers of imagination and explore Kant's notion of open construction of meaning through schematization. In Kant's epistemology, the scheme is proposed as a matrix for the synthesizing linking of the categories and concepts on the one hand and of the sensual and perceptually given appearances on the other hand.¹³ In Kant's view, the scheme on a fundamental level conditions our ability to construct meaning through synthesis. And here the central point comes: The scheme is itself a product of imagination; it is not given once and for all but is a structure of the human mind that is open to alteration and new configurations.

When the imagination is active in constructing meaning and creating patterns for understanding, we may speak of *schematization* as an active process of creating schemes.¹⁴ Kant's approach is also based on creating synthesis but he does not aim at specific syntheses with specific formal expressions (harmony, order) but at a founding mechanism in human cognition. In *Kritik der Urtheilskraft* (1790), Kant especially explores the kinds of judgments which operate without pre-given concepts in a search for concepts that fit the appearances at hand. He speaks of aesthetic ideas as "Vorstellung der Einbildungskraft, die viel zu denken veranlaßt, ohne daß ihr doch irgendeiner bestimmter Gedanke, d.i. *Begriff*, adäquat sein kann".¹⁵ The point is that the imagination can perform the operation of linking sensual matter with conceptual meaning in an open, non-teleological construction of the concepts involved.

In relation to design, we may ask how schematization works, that is, how constructive forces are at work in the meeting of concepts and appearances. In this context appearances are best to be understood as materiality, regardless whether as the material character of traditional products or the material touchpoints of digital design which enable the interaction. To know a concept (of e.g. usability or the purpose of the solution) and not knowing how it is to be materialized, or to have a material (e.g. wood or digital coding) and not knowing how it should meet some concept – both these challenges are part of design work. Design discourse is full of notions of designers anticipating or being directed towards some future and seeking to create the not-yet-existing,¹⁶ and to look at schematization as a constructive force of letting concepts and sensual appearances meet is a contribution to understanding this "venture into the unknown".¹⁷

In the book, *The Aesthetics of Imagination in Design* (2013), I propose three dichotomies as a basic foundation for a design-specific schematization of experience, that is, the active use of the capability of imagination to create meaningful connections of material manifestations and conceptual structures in design.¹⁸ These can be conceptualized as *mental settings* that frame a designer's perspective:

1. Amount of presupposed knowledge: known versus unknown. The amount of knowledge addresses the dynamics at play in venturing on a design process in terms of what is known and what is open and needs to be discovered. What is the starting point for the design process?
2. Imaginative perspective: whole versus detail. The imaginative perspective addresses the ability to shift between detail and overall appearance. Does the process of designing start in the whole, which typically related to an idea or a concept, or experimentally in the exploration of the materiality of details?

3. Degree of focus: focusing versus defocusing. This aspect addresses the problem and the possible solutions generated through ideation and the viability of these solutions when they are tested. How clear (or perhaps consciously unclear) is the conceptual setting stated during the design process? How sharp is the focus, and is defocussing consciously employed as a strategy of letting concepts be open, to let the linking of sensual matter happen in an open construction of the concepts involved?

Compiled, the three settings are part of a flexible framework looking into constructive factors of imagination producing the conditions for developing design solutions. They offer a structured way of asking how an object of design is resulting from specific mental settings with regard to knowledge, perspective and focus.

In the next two sections I will take a starting point in two different designs, a physical and a digital product and analyse how they bear traces of a process of schematization in the light of the proposed framework. In the end, my aim is to discuss how the material media of design in different ways conditions the process of schematization, that is, the construction of a meeting of concepts and material. All design is always material in its touching points with the user; the question is just how different kinds of materiality set the frame of the design in different ways.

The Role of the Material

My first example is the portable music device Beolit 12 designed by the Danish designer Cecilie Manz and manufactured by the electronics manufacturer Bang & Olufsen. Beolit was marketed in 2012 and functions as a combined amplifier and loudspeaker with a wireless connection to mobile devices. In its inner technology, not in outer expression, later, updated versions have been marked, Beolit 15 (2015) and Beolit 17 (2017). Through its name, it refers to a line of transistor radios manufactured by B&O, reaching back, among others, to the (not portable) Beolit 39 (1939) and the compact Beolit 400 (1970). The Beolit 12 is a part of B&O Play, a sub-brand of Bang & Olufsen targeting younger consumers.

[Figure 1]

Beolit 12 can be seen a meeting of a known conceptual meaning (that the product is to be a portable music device), and sensual appearance which, in its final expression, is not known in advance. This relation is paradigmatic for most product design but has a clear expression in Manz' use and combination of materials. Manz, originally trained as a furniture designer, shows in her work a careful attention to the sensual qualities of the materials she uses. In Manz' design, tactile material qualities of especially leather and aluminium frame the process of schematizing imagination with regard to especially whole versus detail.

In the imaginative starting point for the design process, many constituent elements were known at the beginning and a part of the design brief for the designer. These can be seen as abstract elements for which the product should find a material expression. The Beolit 12 was attempted to relate to the original and more traditional brand of B&O while at the same time have the "younger" expression of the sub-brand B&O Play.

At the same time, the more experimental process of a furniture designer renowned for having a high material sensibility is visible as well. In terms of the materials employed, the Beolit 12 can be seen as meeting of various materials with different qualities and cultural connotations which, then, are built up from touching the materials and combined in the final product. First, plastic has been used to keep the product lightweight, mobile and affordable. Next, the more expensive material aluminium is used on the front signifying the company's signature design idiom.¹⁹ Last, the Beolit 12 has a leather strap which carries different meanings. Not only is it a material that the designer has brought into the design of consumer electronics from her original field as a furniture designer, that is the use of leather is an intra-designer reference to Manz's own work and sensual aesthetics. This can be seen as part of a trend in design where known designers create products with a large imprint of the designer's identity and previous work. Also, the use of the leather strap offers a material reference to the design history of portable devices, e.g. the portable transistor radio/phonograph TP1 (1969) designed by Dieter Rams for Braun, which features a leather strap. The materials carry their own meanings.

Further, the Beolit 12 is a closed material entity, which may appear enigmatic in its formal expression as a block whose function may be hard to detect at first glance, yet the employment of digital technology allows for a versatility of functions. With the words of the German design theorist Gert Selle, we can label this kind of design objects "Hall-Dinge", half-things, objects that still have the character of a material thing to be grasped, but in a lower degree than non-digital products can be comprehended in the richness of its optional functions;²⁰ we cannot read or detect all the possible functions on the surface of the product. On the one hand, we can see the Beolit 12 as the product of a design process entailing a rather focused imagination knowing the kind of end-result (a portable music player). On the other hand, the multiple uses (all different kinds of music in all different kinds of places) create an open-ended product with a rather unfocussed extension.

In this product, it may be difficult to talk of defocussing as part of the design process and on behalf of the designer, that is, as a strategy of letting concepts be openly defined along the process. Instead, the design object lets it be open for the user to construct the meaning of it. When use and use situations can be seen as an integral part of the design, because they are open-endedly designed as a space of possibilities in the design object, the user takes part of the imaginative process in creating the product.²¹ In the case of Beolit 12, though, an opposition is at stake between the material imagination of the designer, which results in the enigmatic block of combined materials, and the imaginative engagement of the user: while the user in the end creates the product in the sense of its dynamic function, the role of the designer in creating the product is almost only related to the static material form of the product.

Digital Materiality

Whereas the material character of the Beolit 12 creates a well-defined entity framing the users' engagement with the product, the digital design solution of the next case is open-structured in its material constitution. The two cases testify different types of material constitution in correlation to digital technology and user engagement.

Since 1998, the Danish experimental multimedia design group Oncotype has explored the possibilities of new, digital media in interplay with filmic settings and storylines and settings in actual spaces, which foremost have been museums. A main working strategy of the group is to let possibilities for interaction and user-response influence the normally fixed settings in films and spaces and, vice versa let the tactility of spaces and scene setting with actors influence the digital media. Since the seminal project, *Tilbygningen.dk* (2006), a price-winning virtual “extension” (“*Tilbygningen*” means “the extension” in Danish) to Thorvaldsen Museum in Copenhagen, Oncotype has specialized in projects letting the space of the museum, filmic approaches, and digital interactivity cross-fertilize.²²

In some of the digital design solutions of Oncotype, the whole is designed in a way where it has a structure of limited, even if high, number of possibilities but without complete overview of the structure. You have to explore the structure and find your own way, and for each new possibility opened, you realize that others close. The principle of interaction is laid open for the user. This reflective approach to interaction can be found in *Tilbygningen.dk* and in the interactive experience design “A Day in the Factory” (2008) for Brede Værk, a part of The National Museum of Denmark which focuses on early industrialism and everyday culture in Denmark.²³ In this project, the visitor chooses one of six characters working in a textile factory and can then watch small films in different places in the museum where the character (e.g. “the weaver master”) interacts with one of the other characters (e.g. “the managing director”).

[Figure 2]

The didactical point is to get a deeper view into the everyday life and social structure of a textile factory in Denmark in 1930s.²⁴ But besides offering a solution for museum communication *in situ*, this kind of approach can also be seen as an exploration of constructive elements of imagination. Oncotype works with schematization in the way that the meaning of the museum solutions is continuously constructed as the meeting of the wholeness of the abstract structure and the independent nature of the concrete details. In “A Day in the Factory”, the overall structure consists of 48 films, including introduction films and extras. To use films in a digitally coded structure is a specific working method of Oncotype and, importantly, the films are a component in the overall digital design whose interface is embedded *in situ* at the museum. This interface is what the user experiences as the design. Whereas the possible combinations of films in the overall structure is comprehensible for the viewer, the details in forms of the small films are often unpredictable and have an own concrete texture because they are acted by real actors in a sort of role-play. Oncotype may create a rather fixed interaction in a setting such as this one (and the possibilities for combining the characters are limited), but offers a concreteness in the material texture of the interaction which lets the singular details be sensual appearances in their own right. Seen as a structure of schematization, the concept of the structure is known but expanded from within by the sensual elements of the details which, then, create independent meaning entities.

[Figure 3]

Also, Oncotype’s works consciously with the imaginative interface of what is known and what is not known. What is known is what is present and what we can comprehend in terms of grasping the structure. But as the group also openly reflects that every new opening of opportunities is the closing of others, there will always be something which is left in the dark of the unknown. For Oncotype, design is not only to materially make present what was not there before, but also to make un-present what

was there just before, to posit things in the "position of absence or inexistence", to use the words of Sartre. Interacting with this kind of reflective design, the user may not only co-create the meaning of the design (and, hence, learn something about the textile industry in the 1930s), but in addition be reflectively aware of her or his own position and active role in this co-creation of meaning.

The Technological Imagination in Design

In design, conceptual settings and material matter meet in various ways. Taking Richard Buchanan's account of design as "a liberal art of technological culture" affecting "the artificial in human experience" seriously, it is important to investigate design with regard to its material and imaginative constitution.

For an immediate glance, design is an interface between us and the world; we meet the world through physical objects such as furniture, tools, utensils, smartphones and other technical devices which in their material constitution set the physical frame for our being-in-world. But design objects are also objects of imaginative settings which in different ways stage how materiality and concept meet and, consequently, how they propose an engagement with both materiality and concept. Design objects may in various degrees be open or closed in their extension and in their ways of proposing to the users how *we* should engage imaginatively with them.

In the two cases, the material constitution of the objects has different effects. In the case of Beolit 12, the concrete materials of plastic, aluminium and leather do not just fulfil the pre-given concept but operate as a meaning foundation for the product. At the same time, the strong reference to the design idiom of its designer lets the product appear as a rather fixed, form-oriented frame for the users' further dynamic interaction. In Oncotype's projects, the overall structure stands in a tension to the independent details which may have their own life. The users are encouraged not only to engage in and immerse into the interaction but also to reflect upon it and, hence, reflect upon its imaginative construction. The designs are material entities *and* they can be seen as examples of the kind of technological imagination which has to do with proposing new modes for design to be an interface for interaction and engagement.

Most design objects enter our everyday life without us noticing it. Still, all design objects are the results of and offers schematization of meaning through letting concepts and sensual appearances meet or clash in different constellations and to make present what otherwise was non-existing. As the scheme itself is a matrix for the productive human imagination, it opens up design's dynamic framing of our being in the world. Material imagination in design configures our experience in and of the world.

Writer Profile/Bio

Mads Nygaard Folkmann is an Associate Professor of design theory, design culture and design history at the University of Southern Denmark, Department of Design and Communication. His publications include *The Aesthetics of Imagination in Design* (MIT Press, 2013), *Designkultur. Teoretiske perspektiver på design* [Design Culture: Theoretical Perspectives on Design; in Danish] (Samfundslitteratur, 2016) and articles in *Design and Culture*, *Design Issues*, and *The Design Journal*.

Image captions

Figure 1:

Beolit 12. B&O Play. Design: Cecilie Manz.

Figure 2:

Presentation of the characters in the interface of museum project “A Day in the Factory” (2008).

Figure 3:

Still from the film with “the weaver master” and “the mill girl”: The scene is not only subsumed in the overall exhibition structure where the characters interact with each other, but takes on an independent meaning by being acted out by real actors.

¹ Richard Kearney, *Wake of the Imagination*, London: Routledge, 1994. See also James Engell, *Creative Imagination*, Cambridge: Harvard University Press, 1980: p. 3 & 6: “Enlightenment created the idea of imagination”; it was, however in Romanticism that imagination was proclaimed and charged with aspirations of being an active and dynamic “force, an energy, not a state of being”.

² Samuel Taylor Coleridge, *Biographia Literaria*, Princeton: Princeton UP, 1984, p. 304.

³ Translated: “the secret way is going inward”, Novalis (Friedrich von Hardenberg), *Schriften 2: Das philosophische Werk I*, Stuttgart: Verlag Kohlhammer, p. 17.

⁴ Mads Nygaard Folkmann, ‘Inversive Transfiguration. Imagination und Imaginäres bei Stagnelius’, in: Annegret Heitmann & Hanne Laursen (eds.), *Romantik im Norden*, Würzburg: Königshausen & Neumann, pp. 49-72; Philippe Lacoue-Labarthe & Jean-Luc Nancy, *L’absolu littéraire*, Paris: Éditions du seuil, 1978.

⁵ Translated: “as a nothing”, in a “position of absence or inexistence”, Jean-Paul Sartre, *L’imaginaire*, Paris: Gallimard, 1940, p. 30.

⁶ Peter Murphy, Michael A. Peters & Simon Marginson, *Imagination: Three Models of Imagination in the Age of the Knowledge Economy*, New York: Peter Lang, 2010, p. 28.

⁷ See also Mads Nygaard Folkmann, *The Aesthetics of Imagination in Design*, Cambridge, MA: MIT Press, 2013, pp. 3-7.

⁸ Richard Buchanan, ‘Wicked Problems in Design Thinking’ in: *Design Issues* 8:2 (1992), pp. 5-21; pp. 19-20.

⁹ Jane Forsey, *The Aesthetics of Design*, Oxford: Oxford UP, 2013, p. 68.

¹⁰ Murphy 2010, pp. 26-29.

¹¹ Murphy 2010, p. 106.

¹² As stated by the Romanticists, e.g. by Friedrich Schlegel who speaks of a “steten Wechsel von Selbstschöpfung und Selbstvernichtung”, a “continuous alternation of self-creation and self-annihilation”.

F. Schlegel, *Kritische Schriften und Fragmente 2*, Paderborn: Ferdinand Schöningh, 1988, p. 109.

¹³ Immanuel Kant, *Kritik der reinen Vernunft*, Hamburg: Felix Meiner, 1990, p. B177.

¹⁴ See also Sabine Wettig, *Imagination im Erkenntnisprozess. Chancen und Herausforderungen im Zeitalter der Bildmedien*, Bielefeld: transcript Verlag, 2009.

¹⁵ Translated: “apprehension of the imagination that entails much to think at, without some definite thought, that is, *concept*, can be adequate to it”, Immanuel Kant, *Kritik der Urtheilskraft*, Köln: Könenmann, 1995, p. 198.

¹⁶ “Designers [...] are forever bound to treat as real that which exists only in an imagined *future*”, John Christopher Jones, *Design Methods: Seeds of Human Futures*, New York: John Wiley, 1980, pp. 10-11.

¹⁷ John Dewey, *Art as Experience*, New York: Penguin, 2005, p. 284.

¹⁸ Folkmann 2013, pp. 110-138. See also M.N. Folkmann, ‘Unknown Positions of Imagination in Design’ in: *Design Issues* 30:1 (2014), pp 6-19.

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- ¹⁹ Marie Kaufholz: 'Made For Use: Meet Cecilie Manz', 2014.
<http://journal.beoplay.com/index.php/2013/12/made-for-use-meet-cecilie-manz> (accessed 15-04-30).
- ²⁰ Gert Selle, 'Ding, Halb-Ding, Nicht-Ding, In-Ding, Über-Ding', In: Jörg H. Gleiter (ed.), *Symptom Design*, Bielefeld: transcript verlag, 2014, pp. 39-67.
- ²¹ Katharina Bredies, *Gebrauch als Design*, Bielefeld: transcript verlag, 2014.
- ²² Ida Engholm 2016, 'Web design, self-imposed obstacles and icons', in: Lars Dybdahl: *101 Danish Design Icons*, Copenhagen: Strandberg Publishing, 2016, pp. 410-413.
- ²³ See <https://vimeo.com/59142918> (accessed 17-08-29).
- ²⁴ See <http://oncotype.dk/cases/national-museet> (accessed 17-08-29).