

## EXPLORING AESTHETICS IN DESIGN: IMPLICATIONS FOR HUMAN–COMPUTER INTERACTION

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**Abstract:** *In this article, I enter into a discussion of how aesthetics can be conceptualized in the context of design and related to the field of human–computer interaction (HCI). I contest the current trend in design aesthetics that primarily focuses on beauty, pleasure, and the creation of emotional appeal by means of the sensual and visual elements of the design. Conversely, I advocate for a series of concepts related to aesthetics, such as reflectivity, representation, and epistemology, as these point aesthetics beyond the immediate sensual and visual. Through these concepts, a deeper understanding of the character of the relationship between humans and design can be obtained: Design objects and HCI solutions can be more accurately described in their roles as interfaces for how humans approach the world. This broader perspective on aesthetics has implication for practice when designers set the task of creating new experiences for the users.*

**Keywords:** *aesthetics, HCI, representation, reflectivity, epistemology.*



## INTRODUCTION

In the last 30 years, design has increasingly become more technological, either as the product outcome or as a tool in the process. Many design objects contain digital technology, and the field of human–computer interaction (HCI) has developed as a response to the challenge posed by computer technology and the resulting new types of interfaces. In this context of technological design, the focus on use and function has been dominant. However, in recent years, researchers in the field of HCI have broadened their interests from function and efficiency in the interaction between users and artifacts to the larger consideration of the user’s social context and emotional responses. In brief, the “focus of HCI design has expanded from *interface to experience*” (Jung, Wiltse, Wiberg, & Stolterman, 2017, p. 26, italics in original).

Even if it may be too bold to label this as an aesthetic turn, researchers in the field have testified to have a growing interest in aesthetic value. Attention has been directed towards the nature of aesthetic experiences in relation to HCI, such as a dynamic and contextually bound “interaction aesthetics” (Xenakis & Arnellos, 2013, p. 59) or “user interest, excitement and satisfying experiences” (Sutcliffe, 2010, p. vi; see also Engholm, 2010; Lindegaard, 2007; Silvennoinen, Rousi, & Mononen, 2017). Moreover, the focus of research has been on the role of beauty in the designed interfaces and devices (e.g., Bollini, 2017; Tractinsky, 2004; Tuch, Roth, Hornbæk, Opwis, & Bargas-Avila, 2012) or on questions of visual styles in interfaces and interactive design (e.g., Buur & Stienstra, 2007; Engholm, 2008), such as website design.

The emphasis on experiences aligns with a trend in the wider field of design research to investigate how design objects may be evaluated positively by users. Beginning in the 2000s, focus has been increasingly on the pleasurable in relation to products and how emotions may play various roles in product design. In particular, Patrick Jordan’s *Designing Pleasurable Products* (2000) and Don Norman’s *Emotional Design* (2004) have been influential in describing a paradigm shift in research perspectives beyond product usability and acknowledging the various responses humans can have to products (see also Green & Jordan, 2003). In general, the recognition of the pleurability of design objects marks a desire to understand aspects of design other than functionality and, further, how these aspects affect the process of designing (Da Silva, Crilly, & Hekkert, 2016; Desmet, 2012; Hekkert, 2014; Hekkert & Leder, 2008). For example, a lemon squeezer may solve the task of providing lemon juice, but also may be a pleasure to handle. In particular, Jordan’s (2000) framework of four different pleasures, building on Lionel Tiger’s (2017, p. 276) assertion of the “moral, scientific, and political authority of pleasure,” has demonstrated the potential for understanding products through their appeal to pleasure. Pleasure not only relates to physical sensation in the interaction with products but also may relate to social well-being, psychological responses of satisfaction or of fulfilling a task, and the ideological level of feeling alignment with personal values and beliefs. To take the lemon squeezer again as an example, it could be a social status object to have in one’s kitchen and aligns with notions of identity and lifestyle. Philippe Starck’s famous lemon squeezer, Juicy Salif for Alessi (created in 1990), is designed to be such an object (Figure 1). Additionally, pleasurable appeal is at the core of the psychologically oriented Dutch project Unified Model of Aesthetics (UMA), where researchers seek to predict how “aesthetic pleasure results from a balance between two opposing forces” (UMA, 2017, line 7), for example, unity and variety or typicality and novelty.



**Figure 1.** Lemon squeezer *Juicy Salif* designed by Philippe Starck for Alessi, Italy in 1990. This lemon squeezer is probably one of the most discussed in the literature on material design (cf. Julier, 2014) and is on the cover of Don Norman’s book *Emotional Design* (2004). The lemon squeezer provokes by being on the verge of nonfunction; it invites reflection, interpretation, and debate. Image credits: Alessi S.P.A.

In this article, I propose another perspective on aesthetics in design that is valuable for the field of HCI. Thus, the article can be read as a contribution to the character and role of aesthetics within the interdisciplinary field of HCI. The central research question is this: Which concepts deriving from aesthetic theory can be relevant for understanding how HCI solutions operate as interfaces for how humans approach the world? My approach is theoretical in the sense that I explore sources of aesthetic theory and contest their relevance and application for HCI and design. The method is to revisit aesthetic concepts not normally related to HCI or design and to explore their potential for a deeper understanding of how these influence the operation of interface. The disciplinary approach is a combination of philosophical aesthetics and art-related hermeneutics. Through this approach, my scientific contribution is to expand the understanding of aesthetics in HCI by going beyond aesthetics as a concept for describing the beauty of objects or the satisfying or positive pleasurable experiences users get from them. I propose three analytical concepts that raise questions related to reflectivity, representation, and epistemology involved in the perception, apprehension, and understanding of design. Hereby, the common association of the concept of aesthetics with the concept of beauty is challenged, as much aesthetic theory deals with questions of the complexity and communicative capabilities of the aesthetic artifact rather than beauty.

## **THE INTERFACE: HOW HUMANS APPROACH THE WORLD**

Aesthetic theory can describe the interface between humans and design. In this context, the term interface should be understood broadly as humans’ conditions for meeting the designed world, whether it may be through designed objects, graphic representations, or digital interfaces. Of course, digital interfaces abide by specific technological conditions (Stalder, 2016); still, the interface can be seen at a general structural level as the touching point between humans and the designed world. My reflection will relate to design in general, but, in the end, the analysis will be most beneficial for investigating various aesthetic concepts relevant for the field of HCI.

Design—in its many forms as products, interfaces, and graphics—is a central component of people’s interface with the modern world: People see, perceive, and understand contemporary culture through its design and its expressions and representations. Richard Buchanan’s (1992, p. 19) idea of “design as a liberal art of technological culture,” which has been seminal in design research, may be helpful as an entrance to this approach to design. Buchanan proposed that the technology of design exists in disciplines of systematic thinking and different modes of conceiving and planning the artificial world. He stated that design, as part of the culture of technology, “points forward to a new attitude about the appearance of products,” where the appearance “must carry a deeper, integrative argument about the nature of the artificial in human experience” (p. 20). Buchanan did not specify what this means in practice, but his approach has been carried forward by a philosophical ambition of defining design’s role in the world as a driver for the creation of artificiality and as the horizon for human experience (see also Dilnot, 2015).

Aesthetics is, however, as a concept lacking in Buchanan’s approach. Yet, what aesthetics describes in relation to design is exactly the question of how products appear and how design operates as the artificial component in human experience. In order to ground the question of the artificial in a framework of aesthetic reflection, I will discuss how aesthetics evolves in a relationship between subjects and objects. Before coming to this, I will position my approach within the field of aesthetics.

## **DIFFERENT APPROACHES TO AESTHETICS**

One approach to aesthetics derives from the disciplinary context of the philosophy of aesthetics, where researchers in recent years have shown interest to the field of design. A prime example of this can be found in the book *The Aesthetics of Design* (2013), where philosopher Jane Forsey attached the aesthetics of design to the experience of beauty in and of the functional. According to Forsey, a coffee pot may not be beautiful just because it looks or feels in a certain way but because it has a high use quality (see also Feige, 2018; Steinbrenner & Nida-Rümelin, 2010). By discussing the beauty of the functional, Forsey (2013) aimed to define the aesthetics of design between a general and broad focus on everyday life, on the one hand, and a philosophical focus on beauty with reference to Kant’s *Kritik der Urteilskraft* (1790/1995) on the other. Forsey’s philosophical point was that finding something “beautiful is a product of the form of our aesthetic judgments” (2013, p. 128), and aesthetic judgments may then adjust to the beauty of use in everyday objects, such as coffee pots. Typically, philosophical aesthetics is carried by an interest in aesthetic evaluation (i.e., how things are evaluated to be beautiful), the location of the aesthetic in an interchange of objective reality and subjective response (i.e., where to locate beauty), and the character of aesthetic experiences evoked by this process.

In a different approach, the psychologically motivated interest in aesthetics is carried by an interest in the nature of experience, especially how aesthetic experiences of beauty may be positive and lead to pleasure. This approach has led to a general interest in the nature of the aesthetic experience in its generic character of emotional and psychological responses (cf. Schaeffer, 2015). The psychological approach has been dominant within practice-oriented approaches to design and often has been led by an ambition to improve the practice of designing,

as discussed above. In accord with a recent trend within aesthetic theory to focus on the sensual matter and its effect on aesthetic experience, for instance, by Martin Seel (2000, 2007) and Gernot Böhme (2001, 2013), the focus is on how aesthetic objects may create some kind of (positive) sensual appeal and effect in look, feel, sound, and even smell.

In addition, art theory seems to be closely linked to a reflection of the aesthetic. In art theory, aesthetics is related to a conceptualization of the aesthetic medium; “aesthetics” in art theory may often simply signify a “theory of art,” as in Theodor W Adorno’s (1970) approach to aesthetic theory in his seminal posthumous work on the topic, for example. The term art is often implicitly understood as visual arts, especially when reflected in relation to design, but may in my perspective also relate to literature (as also done by Adorno). Art-related aesthetic theories have only partially been taken into consideration in relation to design and HCI because art represents something distinct from design solutions. Furthermore modern art-related aesthetic theories, to a high degree, not have had the concept of beauty as its primary topic (cf. Rebentisch 2013), while this perspective often is seen as central in design. I argue, however, that art-related aesthetic theories are relevant for conceptualizing aesthetics in design because they deal with central questions of how objects of design may create not only sensual beauty but also entail a critical reflection of the objects themselves as sites of meaning production embedded within cultural contexts. Consequently, objects may have the kind of agency whereby they point not only beyond themselves as means for use and function, but also operate as a medium for a reflection upon themselves as objects of design or a means of technology. When discussing reflectivity, I will in the remainder of the article attribute this kind of agency to the objects. The design of a lemon squeezer or a website may not only encourage pleasurable use and interaction but also points to its own being as design objects or websites. Elsewhere, I have proposed this as the conceptual–hermeneutical level of design aesthetics, in opposition to a sensual–phenomenological and a discursive–contextual levels (Folkmann, 2013).

## METHOD

My hypothesis is that a deeper understanding of aesthetics than what normally is testified to in the field of design and HCI may provide knowledge regarding how design objects and HCI solutions operate as interfaces in how humans approach the world. In terms of epistemology, HCI solutions may create structures of how humans engage with the world and, in this way, frame what human understanding and recognition may be. To engage with computers is to engage with designed artifacts and interactive interfaces that organize knowledge and perception in the human mind. By exploring aesthetic theories, many of which relate to art, the scope of aesthetic experiences may be expanded from describing single subject–object encounters, which may evoke pleasure in the subject, to a more comprehensive understanding of what experience is in relation to HCI. In conceptualizing aesthetics beyond sensual and visual appeal, my aim is to demonstrate that HCI solutions may reflect their own meaning in relation to other designs and traditions. An interactive interface not only enables interaction but also relates, directly or indirectly, to other interfaces. As a consequence, aesthetics gains in importance as a disciplinary approach to HCI and design. Aesthetics deals not only with visual styles, expressions, or, in rough, the choice of color but also provides conceptual entries for understanding the role of human creations in experiencing the world.

In this article, I investigate the tradition of aesthetic theory in order to search for concepts with the potential to be reactualized within the context of HCI and design. In this regard, I posit that the understanding of aesthetics in design and HCI has too narrowly focused on beauty and sensual effects and that, as a result, much aesthetic theory has not been taken for consideration. Whereas most design and HCI research deals with positivist notions aesthetic, even to a degree where aesthetic impact becomes measurable and calculable, the kind of aesthetic theory I argue for in relation to design and HCI is more abstract and even “slippery,” as it implies a higher degree of interpretation. In my exploration for relevant concepts, I present this article as essayistic in method, which to a high degree reflects its origin as an explorative paper in the setting of the Nordcode seminar in Jyväskylä, Finland, in 2015. Also, when revisiting aesthetic concepts and relating them to the field of HCI and design, the concepts may diverge from, but remain related to, their original meaning. As Michel Foucault, the founding father of discursive archeology, already pointed out, concepts as forms of discursive knowledge are not fixed but rather are constituted as becoming, in that they are explorative (Foucault, 1969). In my conceptual approach, this article does not build on a gathering of empirical data; instead, empirical examples are employed to demonstrate the theoretical points. At the end of each subsection on the key concepts of reflectivity, representation, and epistemology, I will pose illustrative rhetorical questions to understand how design objects can be understood in relation to the proposed concepts.

By focusing on aesthetics as an entry point for investigating how humans meet the world through design objects, I take a philosophical starting point in the question of how aesthetic experience evolves as a result of the relationship between subject and object. Building on this starting point, I then ask how aesthetic meaning comes into being. By investigating how the world is met through, for example, a tablet computer, I mean to investigate how the experience of this meeting is aesthetic (not only as beautiful) and how it is constituted as such.

## THE AESTHETIC RELATIONSHIP

In its philosophical tradition, reaching back to Immanuel Kant and beyond, to Alexander Gottlieb Baumgarten, the originating father of the discipline of aesthetics, and the English empiricists, aesthetics has dealt with human experience, judgment, and appreciation of specific sensually or cognitively appealing phenomena. Consequently, a dominant discussion in aesthetic theory has been about the location of the aesthetic, specifically its site in the act of aesthetic appreciation. Kant’s seminal *Kritik der Urtheilskraft* (1790/1995) is symptomatic of this discussion. Kant spoke of value judgment and taste, that is, of matters of subjective concern, while he simultaneously presented the purpose of his thorough philosophical investigation of the field of aesthetics as a search for trans-subjective criteria for aesthetic evaluation in a *sensus communis* (Kant, 1790/1995, p. 172). In his conception, the judgment of taste is bound to the objective condition and not submitted to arbitrary subjective evaluation.

To take this reflection beyond Kant, the challenge is what kind of special *subjective* experiences does aesthetics call for: for example, coherence, harmony, and unity (Dewey, 1934/2005; Shusterman, 2000), a feeling of “pure presence” (Seel, 2007, p. 13), or “moments of intensity” (Gumbrecht, 2003, p. 204). All sorts of interfaces and objects (e.g., websites, chairs, refrigerators, tables, garden gnomes, lemon squeezers, and works of art) may serve as vehicles for

aesthetic appreciation according to idiosyncratic taste. At the same time, the question may also be raised regarding which concrete elements in design objects are capable of evoking aesthetic experiences. Objects, according to literary scholar Gérard Genette, have an “intentional aesthetic function” (Genette, 1999, p. 2) aimed at being perceived and experienced aesthetically. Genette looked at works of art.

In this conception, aesthetic meaning can be described as a relationship between a subject with an intention to see and perceive something as aesthetic, as well as to have aesthetic experiences, and an object with features that are encoded to be experienced aesthetically. The process of aesthetic meaning evolving between subjects and objects is what I understand by the aesthetic relationship. By this, aesthetics describes a theory of investigating how designed objects and solutions may be conceived and implemented in a way that elicits responses from humans perceiving and engaging with these objects. It needs to be considered, however, that not all aesthetic experiences in design and elsewhere are intentionally evoked. Aesthetic experiences may be induced simply by the aesthetic properties of the designs that were not intentionally conceived to induce aesthetic effect. For analytical purposes, however, it is valuable to focus on properties that can be said to be aesthetically coded (and thus intentional).

In addition, it is important to acknowledge differences in traditions regarding the concept of experience. The pragmatist, Anglo-American tradition has tended to promote aesthetic experiences as special moments of sensation. Dewey (1934/2005) pointed to the special character of “having an experience” that, for instance, can be facilitated by works of art. (Even though Dewey aimed at general experience, he often pointed to works of art as examples of special catalysts.) In his view, works of art may “concentrate and enlarge an immediate experience” and present a “pure experience” freed “from factors that subordinate an experience as it is directly had to something beyond itself” (Dewey, 1934/2005, pp. 285–286). In contrast, in the aftermath of Kant, philosophers of the European Continental tradition have been interested in questions of perception and epistemology regarding how experience contributes to knowledge. The German coining of the concept *ästhetische Erfahrung* (aesthetic experience) aimed at understanding the dichotomy of subject and object in which subjects—on the basis of certain objects, primarily objects of art—may be affected and thus experience the world in new ways. This then can form, for instance, a deeper or enhanced sensation of the everyday life, or even a feeling of “emancipation” (Lehmann, 2016, p. 22). In German, a difference in words exists between *Erlebnis* (being in a special moment of experience) and *Erfahrung* (pointing to the structure of experiencing), whereas this difference is blurred in English, with the single term experience designating both.

Through aesthetics—a way of describing the interface between objects and humans—it is possible to understand how the “technological culture” of design (cf. Buchanan, 1992), which creates an interface for how humans approach the world, operates on a concrete level. This approach may be applied to static design objects, such as furniture and kitchen utensils, to dynamic interfaces in HCI, and to digital design objects, which may be labeled “half-things,” as they are objects that still have the character of a material thing to be grasped but which, due to the embedded digital technology, always can perform more in function than can be detected by the eye (cf. Selle, 2014). Of course, there are variations in the degree of aesthetic coding, that is, how the design in question calls for aesthetic appreciation. This may, further, call for different concepts of aesthetics depending on the specific design.

## AESTHETICS BEYOND THE SENSUAL

Several reasons justify considering aesthetics in design as more than the sensually and emotionally appealing qualities of design. First, design objects are artificial constructs that may promote (or even provoke) new ways of understanding and engaging with the world. Additionally, they may reflect their own status as sites of meaning production, which can be described adequately by aesthetic theories. Second, aesthetic theories cover, as discussed above, a larger field than theories related to sensual or emotional responses. In particular, theories of art may prove fruitful because they often deal with the question of how works of art may operate as mediums for special experiences or new understandings, for instance, when the “method” of a text by Tolstoy is to let the reader see the world through the eyes of a horse (Shklovsky, 1993). In my view, these theories can contribute to a deeper understanding of the aesthetic relationship in design, especially regarding the aesthetic coding of the object in question.

Therefore, in this section I take as the starting point the theories that investigate how aesthetic artifacts may operate as vehicles for constructing meaning and patterns of understanding. I primarily concentrate on positions in the European Continental tradition because the clearest statements on this perspective can be found there. In his book *Ästhetische Erfahrung*, philosopher Rüdiger Bubner (1989) raised the question of how artworks may condition new modes of experience. In this line of thought, the aesthetic experience does not deal with pleasure as a feeling of fulfillment (Jordan, 2000) but rather as a reflective “Form des Erkennens,” where the viewer “meets herself and the world” (Ebert, 2010, p. 155). Consequently, it may be asked what the meaning of design objects is beyond their purpose, even if they are still regarded as objects of use (Ebert, 2010). It may be asked how the design object may have “content that points beyond the object” (Foraita, 2011, p. 49) in the same reflective way objects of art do.

The kind of reflective–epistemological notion of aesthetics dealt with in this section can be traced back to Kant’s *Kritik der Urteilskraft* (1790/1995), where aesthetics was conceived as a basic aspect of epistemology that bridged sensual appearance and conceptually formulated meaning. For Kant, this was transmitted through the experiences of the beautiful and the sublime (especially in nature). However, aesthetic theories in the European Continental tradition have developed subsequently into more general considerations of meaning construction in artworks with only minor association with beauty in the art-oriented aesthetic theories influenced by Kant (see, e.g., Adorno, 1970; Bubner, 1989; Menke, 1991, 2013; Seel, 2000). Thus, that tradition will be my main platform for argumentation.

I focus my discussion of aesthetic theories in relation to design by relating it to concepts of reflectivity, representation, and epistemology. Of course, these have a scope wider than being concepts related to aesthetics; however, they also can show the different dimensions of aesthetics. A central interest induced by this line of aesthetic theories has been the reflection of how the aesthetic medium (as a matter of “form” with communicative abilities) relates to its idea or meaning content, which I will deal with in the next section on reflectivity. In the section of representation, I will deal with the question how aesthetics also entails questions of relating to underlying meaning systems. Further, a key area of interest deriving from these theories relates to the extra- and trans-communicative effects of the aesthetic artifact, meaning that it is possible to convey a meaning in these artifacts that is not possible elsewhere and often not even translatable to a meaning beyond the artifacts. In particular, Adorno (1970) dealt with this matter, as demonstrated in the epistemology section below.



## REFLECTIVITY

Design objects may create not only sensual or emotional appeal but also reflect back upon themselves as media for meaning articulation in addition to their natural aesthetic status and constitution. Additionally, design objects may direct the user's attention to themselves as objects of a certain category or type of design and hereby engage the user in a reflection of what the object is about. Objects where the function is difficult to determine, such as clocks hiding their function as clocks or kitchen utensils with overt ornamentation leading astray from the function, may lead to such reflection. The effect may be a matter of pleasure, even though not in terms of an immediate sensually effective pleasure of using the object or the purposeful gain of social or ideological satisfaction, as in Jordan's (2000) notion of pleasure. Instead, it is a nonpurposeful cognitive joy of acknowledging and understanding the code of communication: The object is meant not only for a purpose but can be enjoyed as well for its ability to point to itself as a medium of communication.

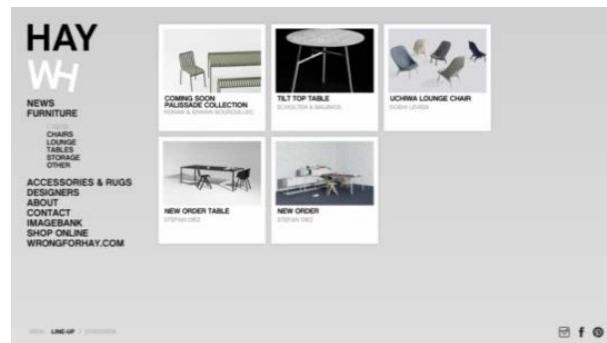
To illustrate the reflectivity concept, Philippe Starck's 1990 lemon squeezer, *Juicy Salif* for Alessi (Figure 1), provides a good example. This lemon squeezer is not only aesthetically pleasing in the common sense of being sensually appealing, and perhaps even beautiful, but invites interpretation of its function. As a device, *Juicy Salif* squeezes lemons, but it also, and perhaps even more, presents an invitation for contemplative reflection. The *Juicy Salif* is not intended for habitual, nonreflective use as a lemon squeezer but points to itself as an object, that of being a lemon squeezer. It may even be argued that it problematizes this being as it is not obvious that it functions as a lemon squeezer. Further, as an object positioned as "design" in the context of "design culture" (Julier, 2014), the *Juicy Salif* opens for a reflection about what an object of "design" is in terms of function, appearance and consumer appeal.

In a more mundane application, that is, website design, the potential for reflective meaning also can be found. From a historical perspective (Engholm, 2008), much website design of the in the late 1990s experimentally explored the communicative potential of websites. Two different generations of websites from the Danish furniture company HAY may illustrate a development in website design in terms of how they relate to and reflect the code of communication. In the year 2000 version (Figure 2), the appearance is dense and opaque. Structure and readability are put to the test on a canvas in constant motion, where the user does not have an overview but must try to see what is clickable. This design is representative of many websites of that era and cannot be captured in a static shot. In contrast, the 2016 version (Figure 3) is functional in appearance and easy to decode. As a static picture, the 2000 version may seem as just a confusing structure; seen from the perspective of interaction, the website had the character of an exploration of how to interact with it. This version was not just a transparent medium for the goal of information about HAY, but a central part of the communication of how HAY saw itself as an experimenting company.

Many images in contemporary media culture may prove to be transparent and, hence, easily comprehensible vehicles for communicating some meaning. They also may display and explore the code of communication, that is, how the images convey meaning and thus not only communicate a message but also convey what the images are about (Sturken & Cartwright, 2009).



**Figure 2.** HAY Website, 2000. The early version of [www.hay.dk](http://www.hay.dk) is an example of deconstructive graphic expression, where the surface elements of the website do not create an immediate access to the information about the company. Instead of directly transmitting the content of the website, which is to be found beneath the surface, the dense graphic appearance points to the aesthetic code of communication on the website.



**Figure 3.** HAY Website, 2016. In the later version of the company website, the basic principle is transparency of content: The navigation menu is easy to read and access, and the website displays its structural organization. Although the website still presents information in a formal expression, it is in opposition to the 2000 version (Fig. 2) and relates directly to the content.

To take another example from HAY, the company presents media ads that stage its furniture items not only as sensually appealing design objects but also position them in an image that clearly reflects their constitution as an image (Figure 4). In other words, as a form of metacomposition, HAY's ad designers overtly played with the idea of a two-dimensional image with three-dimensional products as components, or building blocks, of this image. The furniture and its representation are no longer only about function and demonstrated potential use but also about a self-conscious creation of style. Objects and image are engaged in reflexive dialogue, rendering both as interdependent—as form that contributes to image and image mediating and verifying form. This thereby destroys the illusionary effect of the image yet creates a new kind of aesthetic experience by engaging the viewer with the reflectivity of the image.

Within the context of formalism and linguistics, this kind of reflectivity has been described as metacommunication. This is a way for language to reflect its own constitution as a vehicle of meaning that does not point beyond itself to a message. This was formulated in terms of an “aesthetic function” in the 1930s, for example, in Jan Mukarovsky's (1979) early writings. Mukarovsky belonged to the so-called Prague School of Aesthetics. Later, famously, linguist



**Figure 4.** Reflective presentation of furniture by HAY, 2016. In its furniture catalogues, the company HAY presented the furniture in a setting that breaks the illusion of the image as immediate access to the objects depicted on the image. In doing this, the catalogue designers present an image that both informs and provides a means for viewers’ reflective meaning construction. Photo used with permission.

Roman Jakobson (1960) labeled this the “poetic function” of language. Even if originally attached to language, this aspect of making the code of communication visible in the act of communicating can be transferred to other media.

In the context of design, I point to two distinct types of reflective strategies. First, design solutions explicitly reflecting their own status as sites of meaning construction (and not just being transparent vehicles for different kinds of experiences) may be found in experimental design on the verge of being art. Examples of this can be found in deconstructive graphics and website design, the 1960s Italian Radical Design movement, and the Critical Design movement of the 2000s (cf. Dunne & Raby, 2013). These examples demonstrate a reflection of design as a phenomenon of contemporary culture rather than being only a means for a purpose. On an implicit level, the mode of reflection in design may be seen as a relationship between the physical manifestation and the inherent idea of the design (cf. Folkmann, 2013). This relationship may be direct, immediate, and unproblematic, where the physical manifestation points directly to the idea (as in much design of everyday life), or be indirect and mediate in the sense of the design solution having an intricate relationship between physical manifestation and idea (such as the both the 2000 version of the HAY Website and *Juicy Salif* have). In these two latter examples, the idea of not being directly purposeful is foregrounded in the design.

This aspect of reflection has been a topic of modern aesthetic theory through the question of how a work of art is constituted through a specific form that may or may not reveal its meaning or resists or challenges understanding (Adorno, 1970; Bubner, 1989). I have elsewhere called this element of aesthetic communication “aesthetic coding” (Folkmann, 2013, p. 44). This concept allows for examining how design solutions can attract attention and appeal to the senses while being constituted in a way where they demand or even command a specific order of alignment or mode of understanding what the design is about. Further, reflectivity in design plays a role in the cultural–historical process of aestheticization, where more and more design is created and positioned as aesthetic and as having a consciously constructed and reflected meaning content. The HAY commercial image (Figure 4) testifies to this tendency.

Generally, the question can be raised about how HCI solutions and design objects evoke a reflection about their being as solutions with a specific function. In a purely functional understanding, smartphones and tablet computers may be conceived of as a means for the purpose of useful interaction. Thus, the physical manifestation of the phone or the computer should convey the idea of their function. In actual use, these objects may be treated differently, when, for instance, smartphones are covered in colorful covers that sometimes may contain nonpurposeful elements such as fur or ears. This kind of treatment may indicate that the idea of smartphones is not just to be purposeful in interaction but, on this ground, also be an object that is being reflected as special in the actual appropriation by the user. As a direction for future design, this kind of aesthetic appropriation by the user may be reflected in the technology design, as opposed to related purchases. In addition, the question can be raised regarding whether the design is positioned as aesthetic and how it testifies to being so. When a smartphone is constructed with a high focus on materials, such as glass or aluminum, the idea of this feature may to encourage a reflection about the object as special in the product category.

## REPRESENTATION

Raising the question of representation here implies questioning what design solutions mean for the user and how they represent meaning. In brief, design is not just a physical manifestation but also medium of representation. As researchers within the culturally oriented theoretical discourse on design have pointed out, design is always embedded within cultural and social contexts (cf. du Gay, Hall, Janes, & Mackay, 1997; Julier, 2014). Beyond being physical manifestations (which can take many shapes and even be intangible, as in service solutions), design always has effect as signifying entities for a symbolic meaning equally ascribed to the solutions and referring to meaning complexes beyond themselves. Thus, humans encounter designs as both material and culturally influenced entities, which can impact the meanings ascribed to the object.

The concept of representation is well established in aesthetic theory as a question of how aesthetic media, that is, artificial constructs such as works of art, may be articulated in accord with various codes, for example, beauty, the sublime, the comic, or the uncanny (Schweppenhäuser, 2007). By this, representation points to ways of coded expression, that is, of “how phenomena of mimesis and expression unfold through modes of interpretation” (Schweppenhäuser, 2007, p. 8). Thus, representation, in this context, should not be understood as a reflection of some kind of reality in a specific medium but rather as a question of meaning systems lying behind the aesthetic media that may impact both meaning content (i.e., what the message of a medium is) and formal constitution (i.e., how the message is conveyed). In design, this can be seen in objects carrying with them specific coded meaning systems, such as being kitsch or claiming to be beautiful. In kitsch objects, for instance a pair of sneakers carrying US President Obama’s portrait (Volkers & Flagmeier, 2013, p. 148), the meaning of the objects do not derive only from the specific design in form, material, and texture but also from the cultural–contextual status of being kitsch.

Traditionally, researchers exploring aesthetic theory have been interested in many different forms of representation. An example is Jean Paul’s work *Vorschule der Ästhetik* (1804/1990), which dealt with, for instance, the comic and ironic in the arts. Futher, Karl

Rosenkranz' (1853/2015) important work *Ästhetik des Häßlichen* testified an interest in all possible expressions of the sheer opposite of beauty, that is, the ugly, the grotesque, the un- and deformed. Rosenkranz (1853/2015) was a dialectical thinker in the tradition of G.W.F. Hegel (and a student of his) and was only interested in the ugly as a reversal of beauty whereby he stated, in accord with his time, that beauty is absolute whereas *das Häßliche*, the ugly and nasty, is relative to beauty. Further, the interest in the many different expressions of aesthetic media and their possible meaning systems is a continuous line in aesthetic theory. In this way, the interest in aesthetics has broadened into popular phenomena, such as film and music (Carroll, 1999; Menke & Küpper, 2003)

By looking at design solutions not only as objects of sensual appeal but also as media of representation, designs can be viewed at their cultural coding and symbolic meaning, and questions can be raised about how design objects may be related to different conventions and traditions in aesthetics. Lemon squeezers and smartphones are not just specific objects; they also are objects implicitly relating to other objects of the same category and to the previous traditions leading up to the actual design. The previous design history of smartphones encompasses mobile phones and landline phones. Moreover, even if smartphones, in their constitution as a black screen carried within a handheld casing, have significantly diverged from the traditional uses and formal conventions of previous phones, the basic designs and uses still currently form the foundation for smartphones.

Beauty may play a role and is often considered as part of a modernist convention of simplicity and balanced clarity in the expression of form and function, as was reflected in the architecture and furniture designs of the 1930s to the 1950s. Today, alternative aesthetic value systems have taken over. Thus, cultural theorist Sianne Ngai stated that “aesthetic experience has been transformed by the hypercommodified, information-saturated, performance-driven conditions of late capitalism,” whereby new aesthetic categories and, thus, reference systems, have developed (Ngai, 2012, p. 1). Society has changed and so has, in her analysis, the character of aesthetical experiences. In Ngai's analysis, the major aesthetic categories of the late 18th century, such as beauty and the sublime, are in part replaced with the new, minor, and more trivial categories of the cute, the zany, and the interesting. Actually, she did away with the approbation of beauty that has been regarded as bound to the aesthetic discussions of the 18th and 19th century, although she considered that the sublime still has relevance. Ngai did not, however, relate her analysis to the developments in digital design or HCI but rather to avant-garde art. Nevertheless, her questioning of traditional aesthetic categories may lead to the proposal of new categories, such as interactive openness and the modern enigmatic, as can be the case with digital design objects that play out the digital magic of being more than meets the eye. Some wireless loudspeakers serve as examples. Their designs encourage interaction but disguise the interface for interaction, thus appearing as enigmatic boxes not directly displaying their function and interactive potential (Folkmann, 2015). Furthermore, when aesthetics as a discipline no longer embodies a specific domain of objects—for example, art—but is experienced generally, such as dispersed by the recent trend in “everyday aesthetics” (Leddy, 2012; Oldemeyer, 2008; Saito, 2010), the categories for contemporary aesthetics are open for contestation.

In relation to design, the question of representation reveals how design solutions may operate with multiple aesthetic meaning systems, perhaps simultaneously, in relation to traditions and conventions. Which aesthetic conventions and codes are in play? What does it convey for the meaning of a calculator app on a contemporary smartphone to imitate the design of the Braun

calculator of the 1970s? Or what is the effect of installing a rotary dial app on the smartphone as a way of letting representations of previous technologies be a part of the interaction? Present and past and innovation and tradition intersect in the creation of new experiences.

## EPISTEMOLOGY

As interfaces for how humans approach the world, design objects may provide new conditions for experiencing the world. In this context, the concept of epistemology may be employed to conceptualize how the relationships humans have with the world is co-organized by aesthetic media because these provide the frames for humans' access to and interpretation of the world. This current path into aesthetic theory was initiated by Immanuel Kant in his work *Kritik der Urtheilskraft* (1790/1995). This generative work can be viewed primarily as an exploration of epistemology, that is, how humans deal with and understand sensual phenomena that point to the ungraspable or incomprehensible dimensions of meaning. Kant designated this as *Vernunftideen*.

Kant (1790/1995) dealt with beauty and the sublime, but he approached them foremost as vehicles in a larger mechanism of epistemology: How can something beautiful or sublime frame one's experience of something that could not otherwise be comprehended? Through the notion of reflective judgment, Kant demonstrated how aesthetic judgment operates according to a kind of conceptual reflection that starts from the sensual material but does not from the outset has a concept to fit it that would make the sensual material understandable. Philosophers from Schelling and Hegel to Adorno have attached this kind of reflection to the work of art and asked how art could be a medium for a representation of an otherwise impossible cognition.

I point to two different possible HCI- and design-relevant actualizations of this epistemological approach to aesthetic theory. First, the concept of the sublime may be relevant in this context as a process of engagement that may lead to a new mode of experiencing. The sublime (*das Erhabene*, in German) is a concept that, in its modern definition, derives from the empiricist discussions of the 18th century and was formulated by Kant to describe a feeling of an abyss or being overwhelmed by something immensely large that cannot immediately be comprehended. Sublimity is normally not something to be expected when sitting on a sofa or handling a smartphone and may not seem to apply to the prevalent functionalism of design and the context of design in use. Nevertheless, the concept describes a specific variant of the human-object relationship, and the question is how design objects may evoke a feeling of the sublime.

For Kant, the beautiful evokes pleasure (*Wohlgefallen*, in German), whereas the sublime evokes a feeling of awe (*Achtung*; Kant, 1790/1995, p. 125), where the subject, in meeting something immensely large, experiences an "expansion of imagination" (p. 116). Kant spoke foremost of the sublime being evoked by experiences in nature. The analytical question in the aftermath of Kant that has been raised by, among others, Jean-François Lyotard (1994), has been how works of art may point to kinds of experiences where the limit of the comprehensible is challenged in general. These experiences do not necessarily point to otherwise ungraspable *Vernunftsideen*, as in Kant, but operate as a challenge of the mode and habitual coordinates of experiencing and understanding. Examples of design challenging given modes of understanding can be found in encapsulating interior designs with strong colors and unexpected forms and textures (such as the designs by Verner Panton in the 1960s and 1970s) aimed at dissolving normal perception. A similar effect of challenging normal

perception can also be seen in HCI environments of virtual reality or augmented reality, where the virtual layer of reality imposed on the physical reality provides new dimensions of this reality and, hence, reflects what “reality” is.

Second, philosopher Martin Seel (2000) spoke of how human creations may establish new frames of understanding that serve as media for comprehending and meeting the world. For instance, works of art and literature may provide new perspectives on how the world is seen, as when the reader of Tolstoy’s text sees world through the eyes of a horse. In this way, Seel was interested in the function of human perception in the process of confronting something “other,” claiming that works of art may “bring forward otherwise unrepresentable circumstances” (Seel, 2000, p. 184). In his understanding, works of art have to do with

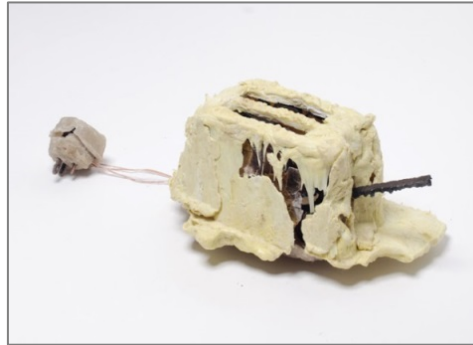
ways of human commitment in the real or the unreal, in conditions of the world in the past, the present, or the future. Ways of *meeting the world* [Weltbegegnung] are put forward, whereby ways of *meeting the meeting of the world* [Begegnung mit Weltbegegnung] will be possible. (Seel, 2000, p. 184, italics in original)

Thus, when Seel talks of meeting the world and also of meeting this meeting of the world, works of art do not present only experiences but also metaexperience, that is, the experience about what “experience” is.

HCI and design solutions, however, often do not visibly contain the potential for being self-reflective or operating as creators of meeting points between humans and the world, nor do they frequently create sensations of sublimity where humans’ ordinary coordinates in experiencing the world are challenged. Nevertheless, these kinds of human creations can be seen in the light of how they are conceived and operate as meeting points (reflective or not) between humans and the world in the same manner that the experimental 2000 version of the HAY website (see Figure 2) framed an approach to and engagement with the interface when meeting and exploring it. Indeed, the website may have a sensual appeal, but the attention is led to the epistemological consequence of this appeal and how the site created new ways of engaging with the interfaces humans meet and, ultimately, of humans’ being in the world.

The interest may be directed, then, towards design intended at creating a sublime feeling or challenging perception and understanding as is the case of experimental design. For instance, designers in the Critical Design movement have explored how digital technology has affected the interaction between products and humans (Dunne, 1999; Malpass, 2017). The sublime feeling of meeting the limits of experience also may be evoked, even if just marginally, when one’s encounter with design solutions creates surprise or astonishment. Examples of this approach to design can be found in the context of Critical Design, where Anthony Dunne and Fiona Raby, in the 2007 project *Technological Dream Series* (cf. Dunne & Raby, 2013), explored how robots may not only be passive servants of humans but may be demanding or even needy in their requirement for interaction. Another example of a marketed product operating with a slight surprise in its interaction is the Cube Click Clock, a simple alarm clock that reveals its function only when touched; otherwise, it appears as a simple block with an artificial wood finish.

Often, however, nonpurposeful, experimental design objects most clearly demonstrate how design objects may operate as interfaces for humans’ meeting with the world. A concrete example of this is Thomas Thwaites’ art school project *Do-It-Yourself (DIY) Toaster* that was an attempt to investigate whether the creation of ordinary design objects was possible without



**Figure 5.** *Do-It-Yourself (DIY) Toaster*, designed by Thomas Thwaites, 2008-2009. The DIY toaster was a school project, affiliated with the Critical Design movement, at the Royal College of Art in London. The project aimed to create a toaster from scratch by finding the necessary fundamental, core materials, for instance, from a mine. By this, the toaster is not a design object made for a functional purpose but for an investigation of what it takes to create a simple, everyday object. Photo credit: Daniel Alexander & Thomas Thwaites. Photo used with permission.

the prerequisites of civilization (Thwaites, 2011; Figure 5). Thwaites tried to build a toaster from scratch, including finding the raw material for the various components. Thus, the process of designing the toaster displayed the complexity of modern production, as it became clear that a seemingly simple product comprised a large number of complex materials. According to Thwaites, the project showed that even a simple product like a toaster is impossible to design without taking a whole series of cultural prerequisites into account. These regard, for example, the history of refining materials and technology (Thwaites, 2011). In my interpretation, the DIY toaster functions as a reflection of what design objects are made of and how they come into being as objects that humans engage with. The DIY toaster does not function as a toaster (Thwaites reported that its electrical cord burned out 5 seconds after being plugged into an electrical socket), but rather operates as a vehicle for reflecting upon design as a part of civilization.

The DIY toaster is by no means a pleasurable product but one that creates a disruption in the state of things that may let new ways of meeting the world and new modes of the state-of-the-given evolve. The nonusable toaster presented a cultural reflection of the conditions of design and what design means in the modern world.

Adorno (1970) offered a radical notion of the capability of the aesthetic media to criticize the ontology of the given and surfaced other versions of the world or an all-encompassing reversal of things. In this way, he discussed art as a medium that is bound inevitably to the reality of the given while, at the same time, offering the potential to transcend the given and point to new meaning that may ultimately prove subversive or utopian. This transcendence is, of course, a paradox, as it cannot, in its constitution, transcend the conditions of the given. Put another way, in Adorno's view, art often must be critical of the status quo and propose alternative interpretations of the world even as it is bound by the status quo and the world.

In this way, Adorno (1970, p. 258) stated that "fantasy" cannot be "that cheap ability to escape being in proposing a non-being as if it existed"; instead it can transform "what the works of art always absorbed from being" and remake this material "into constellations, through which they become the other of being, if only through the specific negation of being." What Adorno aimed at, therefore, was to describe a work of art as a location for something impossible, that is, the opposition of the existing condition in society, even if it only takes place in the limited sphere of



the work of art. For Adorno, the ability to be in opposition to society is a general, constitutive feature of works of art. Consequently, for Adorno, a work of art is not to be seen as a means of representing something, as this would confirm the existing social condition as it is, but rather as an “apparition” (1970, p. 130), which in itself creates momentary traces of that which is not existing or not yet existing and is yet to come.

Much (commercial) design, however, affirms the existing reality and does not contain or evoke this kind of radical otherness or disruption. Some design is, however, conceived to have the potential to break with existing patterns of meaning and to be disruptive, as does design within the movements of Critical Design or Design Activism (see Markussen, 2013). Thwaites’ DIY toaster may be disruptive in provoking a reflection upon humans’ dependency on developments of civilization. Other types of design may be disruptive through engaging the users to new types of interaction, such as how the introduction of a graphical user interface (with computer interaction via visual icons instead of computer code) by Apple in the 1980s “changed forever the way people think of computers” (Atkinson, 2014, p. 89).

As design of all sorts engages with possibilities and with humans’ engagement with the world, the question is how the design, from traditional product design to HCI and digital design, creates possibilities and stages ways of meeting and engaging with the world. Regarding the epistemological reflection on design in relation to aesthetics, the questions are many. How can design solutions be seen as media for meeting the world in perhaps new and reflective ways, where new kinds of experience and forms of experiencing are evoked? How do digital interfaces, for instance, create new ways of meeting the world? The cue from the avant-garde of design, such as Thomas Thwaites’ DIY toaster and its discussion of the prerequisites of civilization necessary for modern design, can be related to ordinary design. How does design, as a medium of aesthetic meaning articulation, encourage reflection, and how does it relate to the existing reality? Does it mirror it, criticize it, try to overcome it in a disruption or propose alternative or thought-provoking, innovative approaches to it? These questions are relevant—and perhaps even essential—to pose because design, seen through this kind of aesthetics, always stages a meeting with the world. When designers devise an interface, they design for an experience where they, knowingly or not, also contribute to the metaexperience of reflecting what experiences are.

## **CONCLUSION**

This article serves a corrective to a broad trend in contemporary design aesthetics and HCI to relate aesthetics solely to the sensually and emotionally appealing aspects of design solutions. Aesthetics does not need to be only about positive looking or feeling objects; aesthetics equally deals with experiences that reflect the world and identify new possibilities. The ambition is not, however, to abandon the kinds of aesthetic theories aimed at sensual–emotional appeal and pleasure because they certainly are a part of the broader picture. Instead, my claim is that it is fruitful, necessary even, to relate design to concepts such as reflectivity, representation, and epistemology within a framework of aesthetics. These concepts describe a deeper engagement between humans and the world—particularly experienced through various types of technology—that may be facilitated by design. Through engaging these concepts, the nature of aesthetic relationships may be investigated more deeply regarding their implications for human experience.

The broader view on the various aspects of aesthetics in design also enables a reflection upon how to understand HCI and design as a matter of the human world and as a part of the technology employed when engaging with and relating to the world. When design is taken seriously as a medium for a human reflection on the interface between humans and the world, an exploration of the aesthetics in design is needed in order to reflect the different ways design operates as this interface.

## IMPLICATIONS FOR THEORY AND APPLICATION

As a consequence of this article, aesthetic theories need to be acknowledged as an asset for product development in a way that extends beyond consideration of beauty and sensual appeal. Fundamentally, aesthetics deals with the question of how design objects operate as artificial interfaces for how humans approach the world. In the broad conception of aesthetics proposed in the article, aesthetics provides concepts (i.e., reflectivity, representation, and epistemology) for investigating and understanding how this artificial interface in design is constituted. Acknowledgement and conscious instrumentalization of the concepts presented in this article enable designers, artists, and others to gain a deeper understanding of the character of the relationship between humans and design.

The proposed areas of reflection, representation, and epistemology are important to consider in design processes as well as in philosophical considerations of design because they elaborate how aesthetics is not just about superficial form but also about structures of experience. In HCI, the relation between humans and artificial creations is directly at stake as the interface and as an object for design. Accordingly, the field of HCI will gain from acknowledging that design solutions not only create sensually appealing surfaces for how to engage with the world but also are sites of reflective meaning construction and may, on the most general level of reflection, structure the access to and understanding of the world. This insight may be beneficial in the process of designing, especially for products and interfaces aimed at creating experiences for the users that may evoke reflection or even disruption.

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