

The Beauty in Product-Service Systems

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Abstract

Aesthetic appreciation affects the success of products in a number of areas, such as user satisfaction and usability. Hence, designers apply aesthetic principles to create more successful products. However, it is still unclear how such principles apply to the services and systems that products are often part of. In this paper, we explore how two aesthetic principles, which are known to influence product aesthetics, can be extended to product-service systems. These principles are Unity-in-Variety and Maximum-Effect-for-Minimum-Means. According to the former principle, aesthetic pleasure can be attained from perceiving as much variety as possible within a unified whole; according to the latter, it can be attained from perceiving efficiency. With the qualitative study here presented, we showed how the principles could also describe product-service systems in terms of their *sensory properties*, *underlying mechanism* and *human interaction*. We thereby offer a basis to further investigate and enhance the aesthetics of product-service systems.

Aesthetics; Product-Service Systems; Design Principles; User-System Interaction

The benefits of increased design aesthetics are wide-spread and have been well studied. Beauty has the potential to improve pleasure and satisfaction (Creusen & Snelders, 2002; Cyr, Head, & Ivanov, 2006), loyalty and overall preference (Schenkman & Jönsson, 2000), and perceived and actual usability (Sonderegger & Sauer, 2010; Tractinsky, Katz, & Ikar, 2000). Given the importance these factors play in the success of a design, understanding the underlying principles that influence aesthetic appreciation is vital (Bloch, 1995). A number of aesthetic principles of design have already been identified (e.g. Hekkert & Leder, 2008). Such principles are generally studied with tangible products, but not in relation to the intangible services or systems that these products may be part of.

A product-service system (PSS) can be defined as “an integrated combination of products and services” (Baines et al., 2007). It intends to deliver value in use, and much less in ownership. An example is a car sharing service like Greenwheels. Ownership of the product (a car) remains with the company, whereas users pay for the service to hire a car that is shared among many (Goedkoop, 1999; Meijkamp, 1998). Users register and book a car online or by phone, and they receive a passkey to access a car that is available on fixed locations throughout a city. Such an approach to satisfy users’ needs (e.g., transportation) has the benefit of taking the form of a dematerialized service, as the quantity of material artefacts can be reduced by sharing the material product (e.g., the car). As a result, PSSs are often mentioned as one way towards a more sustainable future (Mont, 2002; Vezzoli, 2013). However, for PSSs to be successful, consumers need to be convinced of the value of use, over that of ownership (Baines et al., 2007; Mont, 2002). Hence, increasing the acceptability and satisfaction that a PSS offers is of vital importance.

As aesthetic appeal is known to positively influence the satisfaction and preference for products, increasing a PSS’s aesthetics can play a significant role in increasing the overall appreciation of the PSS (Vezzoli et al., 2014). However, to our knowledge, the literature on aesthetic principles of PSSs is minimal to none-existent (search query: “‘Product-Service System’ Aesthetics”, on Google Scholar, 24-03-2015). The lack of accessibility to aesthetic principles in this domain is illustrated by one study reporting the use of an aesthetic measure (“aesthetic appeal”) to assess the multisensory aesthetics of a PSS in the form of a new bus interior and bus transportation service concept (Carreira, Patrício, Jorge, & Magee, 2013). There is thus a need for a better understanding of what makes a PSS beautiful to increase user satisfaction and communicate the value of a PSS to users (Vezzoli, 2013). The aim of this paper is to fill this gap in knowledge by showing how two core principles, which have been empirically proven to influence product design aesthetics, can also describe PSSs.

The principle of Unity-in-Variety (UiV) holds that the highest aesthetic appreciation is arrived at when the largest diversity of elements is still experienced as a coherent whole. UiV has traditionally been used to explain aesthetic appreciation in visual domains such as the arts (Cupchik & Gebotys, 1988), but has recently been shown to apply to product designs as well (Post, Blijlevens, & Hekkert, 2013). For products such as car interiors, lamps and espresso machines, it was shown that people aesthetically preferred those designs that combined high variety with high unity. However, the principle not only applies to the visible side of products. Gustav Fechner (1876) was one of the first to write extensively about UiV as essential to aesthetic appreciation. Fechner argued that for humans to find pleasure during the interaction with objects we need to sense a coherence and unity within the various parts and approaches towards it. While Fechner goes on to exemplify how visible properties (e.g. line, shape or color) of objects relate to sensing unity and variety, he does not limit the principle to these properties alone. Unification of the interactive experience can also exist when the different parts or approaches towards an object generate a sense of joint purpose, idea, or causal connection over time (assuming that there is a functional relationship).

Hence, a greater sense of beauty can thus be perceived if not only the immediate sensorial parts of a design, but also the separate actions and purposes, are meaningfully, functionally and temporally connected.

The principle of Maximum-Effect-for-Minimum-Means (MEMM) indicates that the highest degree of aesthetic pleasure is derived from perceiving a purpose being fulfilled in the most efficient way. In design handbooks, this principle is referred to as “efficiency” (Macnab, 2011), “economy” (Zelanski & Fisher, 1996) and “Occam’s razor” (Lidwell, Holden, & Butler, 2010). These handbooks usually focus on how MEMM can be applied to the visible properties of products; for instance, in comparing two functionally-equivalent display designs, Lidwell et al. (2010) recommend designers to implement the one with the fewest visual elements. But MEMM does not only apply to visual properties. It also describes the beauty of goal-oriented human performances that are invisible to the human eye; for example, mathematical demonstrations (Hardy, 2012) and logical argumentations (Walsh, 1979). In these cases, efficiency is appreciated in the structure, mechanism or system by which a goal is attained, with the simplest mechanism (e.g., demonstration or argumentation) leading to the highest aesthetic pleasure. Literature in design research further suggests that MEMM is related to the effort people make when interacting with a product, both mentally and physically: “... We like to invest a minimal amount of means, such as effort, resources, brain capacity, to attain the highest possible effect...” (Hekkert, 2006, p. 163). A recent conceptual study indicates that MEMM accounts for an evaluation of products that attends to the product’s sensory properties, but also to the way the product works and interacts with people (Da Silva, Crilly, & Hekkert, In Press). Thus, similarly to UiV, MEMM can be extended to non-sensory properties or aspects of a design.

On the afore-cited theoretical grounds, both UiV and MEMM can be applied to aspects beyond those usually studied in product design aesthetics. We therefore argue that both principles are able to describe the beauty of a PSS as well. In order to assess how, we conducted an explorative, qualitative study.

Study

Method

The study took the form of an assignment for master students in Industrial Design Engineering from Delft University of Technology. The assignments were part of a course on product experience. The students were asked to reflect upon the principles of UiV and MEMM in relation to a PSS of their choice and were given one week to complete the assignment in written form, supported with illustrations if desired. They were not informed about the way in which the principles might apply to a PSS. They only received the following instructions:

(1) The principle of unity-in-variety states that both unity and variety should be maximized to achieve the highest level of aesthetic appreciation. (1a) Identify the aspects of the PSS that make it unified and the aspects that make it varied. (1b) How would you increase the unity and/or the variety to maximize the unity-in-variety of your PSS?

(2) The principle of maximum-effect-for-minimum-means implies that efficiency can be aesthetically appreciated. (2a) Evaluate the PSS in terms of efficiency. Is it a minimum means leading to a maximum effect? Justify your answer. (2b) How would you make your PSS more efficient? Specify how you would minimize the means and/or maximize the effect.

Sixty one assignments were received and submitted to thematic analysis following a theory-driven approach (Braun & Clarke, 2006). The assignments were reviewed iteratively by two researchers. Analyst triangulation was used to test for consistency in the interpretation of the assignments and the identification of themes (Patton, 1999). The identification of themes was performed with attention to the participants' explicit remarks and with interest in the relevance of responses to the research question "How do the principles of UiV and MEMM apply to a PSS?", as opposed to interest in the prevalence of those responses.

The results of the analysis will be presented per principle in the following section. The results will be exemplified with the participants' verbal statements and also, occasionally, with their illustrations. Each quoted statement will be identified (at the end and between brackets) with the participant who made the statement (identified with a number from 1 to 61) and the PSS that the participant was referring to.

Results

Three recurrent themes were identified in the participants' answers to both parts (1 and 2) of the assignment (no distinction between subparts a and b was made during analysis, and so no distinction will be made when reporting on the results). The three themes were labelled: *sensory properties*, *underlying mechanism*, and *human interaction*. We will now introduce these themes in general terms, and then explain how UiV and MEMM apply to each of them based on the participants' statements.

Sensory properties refers to those aspects of the PSS that can be immediately perceived through any of the senses. In vision, these are properties like colour, shape, material, font and composition. These properties can also apply to other senses such as auditory.

Underlying mechanism entails comprehension of the PSS beyond that of its sensory properties. It involves an understanding of the PSS' function, and of the mechanism by which this function is fulfilled (a mechanism made of physical or non-physical parts).

Human interaction refers to the actions the user has to perform to use the PSS. These actions are as diverse as clicking with a computer mouse or pushing a card into a slot.

Unity-in-Variety

Sensory Properties

Participants found a PSS varied on sensorial properties when differences could be perceived between basic layout aspects of a design such as color or shape. Whereas a PSS was considered to be unified when similarity, order and coherence was found between such aspects. The following statements from participants illustrate this.

“Because Spotify is a music service it showcases album covers designed by others. They used this variety of visual styles in their advantage by ensuring unity with the use of a grid. Certain elements of this grid are consistent among the different screens, others are varied. The Spotify colour scheme also helps in creating visual unity throughout the service.” (Participant 31, Spotify).

“Checking in and out both uses a bleep sound. All the touch points uses a bit of pink, mostly due to the OV chip card logo. A lot of machines uses yellow as main colour. However, the shapes of the different machines are different.” (Participant 59, OV-Chip).

“The unity can be found in the same colour red that is always used and in the same way (...). When choosing a user, the square buttons have different colours and can have different icons. However, there is unity in this variety: the icons have a similar style and are placed in the same square boxes. Maximizing Unity-in-Variety between the devices [e.g. smartphone or laptop used to navigate the service], can be done by using the same colours.” (Participant 60, Netflix).

Similarity and symmetry, which are Gestalt Laws of perceptual grouping well known to unify designs, were generally identified in physical and non-physical interfaces. For instance, in the following statement.

“The aspects that makes the Random Reader as a product unified: Similarity: First the buttons on the Random Reader show similarity. The buttons are neatly organized and arranged, this ensures unity. Symmetry: The Random Reader consist of symmetry. The buttons are mirrored along the vertical axis, it makes the design coherent and orderly.” (Participant 3, Rabobank Online Banking, Figure 1).



Figure 1: Rabobank Random Reader

Especially symmetry and similarity were repeatedly and explicitly mentioned. Similarity was present “*among elements*” (Participant 19, Paper 53); “*in font type*” (Participant 52, Dutch Railroads Travel App); “*in form*” (Participant 33, Google Drive) and “*in colour*” (Participant 13, Blackboard). Symmetry was often related to compositional aspects such as symmetry “*of the frame*” (Participant 14, Spotify); “*of text boxes*” (Participant 33, Magnet.me); and “*in the layout*” (Participant 27, Pinterest).

Underlying Mechanism

Participants also noticed how different parts of a PSS could be related in a meaningful way. If unified, the various parts of the PSS make clear an underlying structure, relationship or intended use, as the following statements indicate.

“The main function of Evernote, collecting and structuring notes, is a good example of unity-in-variety. You can have hundreds of notes, with different content (text, photo, scan), lay-out, subject and goal (variety), but you can structure them and make it possible to have an overview (unity). All notes look the same in essence (title, tags, date and content). You can place notes with the same subject in the same folder (unity). But what I think illustrates the aesthetics of Evernote in unity-in-variety is the fact that besides the notebooks you can give your notes tags. By giving each individual note a tag, you have a second layer of structure where you can endlessly create groups and order your notes depending on what you want to use them for.” (Participant 12, Evernote).

As the previous statement suggest, the underlying mechanism of a PSS can be inferred from its sensory properties. Sensory properties help users understand and perceive the unity within a variety of intangible organizations and structures within the PSS. This is more obvious in the following statements.

“...the different weights and even colours of the texts denote a varied aspect, as they indicate the importance of the text through hierarchy. A title of an album is coloured

black, whereas the artist name has a greyscale for its colour, and is also slightly smaller in size.” (Participant 42, Google Play Music).

“Different icons for a variety of files: Each format of a file has an unique icon, which makes the format of the file clear in one glance.” (Participant 33, Google Drive).

“Different transporters use different colours.” (Participant 59, OV-Chip).

A statement such as *“The screen in which you can choose your seat looks like the actual cinema hall”* (Participant 36, Pathé App) further suggests that the underlying mechanism can be perceived through a visual metaphor, as the metaphor unifies the sensory properties (layout of a cinema) with the intended use of the PSS (buy cinema tickets online).

However, a sense of unity does not necessarily need to directly originate from sensory properties. As mentioned in the following statement, grouping of abstract relationships (such as a music genre) can also be achieved by using conceptual structures like a playlist.

“Spotify has a big diversity of genres, artists, albums, and songs giving a big variety sense to it, but still the playlist groups songs which have a connection between them. Whether it is the feeling they create, the year they were released or many other characteristics. By doing this [grouping through playlists] they generate the feeling of unity.” (Participant 48, Spotify).

Human Interaction

For human interactions, unity and variety were perceived as more directly opposing one-another than in the two other themes. Participants regarded differences or irregularities in interaction possibilities, location or manner (e.g. in time, movement or technique), as increasing variety, whereas they regarded similarity in these aspects as unifying. This is indicated by the following statements.

“The way to place your OV card is different by checking in and out at different touch points. Sometimes there is one fast connection and sometimes you have to hold the card for several seconds against the small machine. There are also different systems for charging the OV card, sometimes you only have to hold it against a point and sometimes you have to place it in the machine.” (Participant 59, OV-Chip).

“Variety in interaction possibilities (...) and in different ways to send messages (voice, text, photo, video).” (Participant 7, WhatsApp Messenger).

“Operationally the unifying aspect is the action of checking in/out by placing the card in front of a scanner. Varying are the locations of the check-in/out points and whether you check-in/out inside the means of transport (like in the bus) or outside (on the train station).” (Participant 32, OV-Chip).

“The variety comes when we take the Product Service System together. To transfer money you’ll not only need the Random Reader but as well the website, your debit card, bank account numbers and a working internet connection. While banking you need to push buttons of the Random Reader but also on the internet, it’s really complex and you have to practice a few times before you’ll understand it and do it flawless. All this different parts makes it varied.” (Participant 3, Rabobank Online Banking).

Maximum-Effect-for-Minimum-Means

In answers to the second part of the assignment, the PSS was assumed to be the means to perform a certain function or attain a given effect. The participants generally assumed this effect to be fixed, so in assessing (2a) and increasing (2b) the efficiency of the PSS, they judged and minimized the PSS as a means rather than judged and maximized its function. The themes *sensory properties*, *underlying mechanism* and *human interaction* thus describe the PSS as a means.

Sensory Properties

The participants found a PSS efficient when it fulfilled its function with the least possible amount of properties such as color, text, buttons, icons and columns. Statements such as the following support this idea.

“The main page is minimally composed with crucial functions such as a map, route, and music, and start exercise button. For color, it only uses two main colors, white and blue, and exceptionally orange, only for the start button, and it effectively emphasis [emphasises] it.” (Participant 54, Map My Fitness).

“The website uses a lot of white space and very reduced graphics. Every category is explained by one or two sentences. The layout is very minimalistic and I would say that these means are leading [to] the effect of optimal overview and highly understandable data organization.” (Participant 20, Dropbox).

“I think the essence of Evernote can generate a very strong effect, but now the application has too much [many] options and buttons (...) I would make less functions visible at a time. Only the ones you really need. Besides I would use clearer icons and less icons.” (Participant 12, Evernote).

“To achieve ‘minimum’ means, I would remove some of the icons on the top right corner of the page which are not usually used and keep the most important ones.” (Participant 33, Google Drive).

“The home page is made with lots of columns which make the page very unclear. It is not a minimum means leading to a maximum effect. It is totally the opposite. The page is filled with everything and you will get lost in it.” (Participant 18, Facebook).

Although less predominantly, non-visual properties were also taken into account in the evaluation of the PSS as a means. For instance, when assessing the feedback provided by the card reader of a transport system, a participant stated: *“Together with the feedback in form of sound, it is tried to communicate whether or not the check-in/check-out was successful (...) A more efficient way to communicate these two variables could be to only use sound”* (Participant 2, OV-Chip). The efficiency of a PSS can thus be described by a wide range of sensory properties, sound included.

Underlying Mechanism

The participants found a PSS efficient when it managed to fulfill its function through a mechanism comprising the least possible amount of “parts”, such as a card reader and an internet connection. As the following statements reveal, they proposed removing all unnecessary “parts”. For one participant, this involved replacing several platform-specific internet connections with a single cross-platform one; for another, removing a card reader from a personal banking system.

“In terms of means I think lies little room for improvement other than the fact that all players need the same Wi-Fi connection, or have the same operating system when there’s no Wi-Fi available in order to enable a Bluetooth connection. A cross-platform Bluetooth connection for example would enhance it in terms of simplifying setting up a game.” (Participant 49, Spaceteam).

“To make the PSS more efficient I would definitely eliminate the Random Reader (...) If you’re not at home and you want to transfer money you need this device. But because it’s such a little thing which you only use for banking, most of the time you forget it (...) you’ll only need your phone and an internet connection to transfer money or to check your balance overview.” (Participant 3, Rabobank Online Banking).

One participant further argued that applications operated with hand gestures directly made on a touch screen were generally more efficient than those operated with gestures mediated by a computer mouse. For the participant, a mouse is a “part” a PSS can work without.

“The workflow of an app is already more intuitive and efficient than that of a computer with a mouse, since the gestures you make with your hands are directly converted into actions on a touch screen, whereas on a computer a mouse is used to ‘interpret’ these gestures that are converted into movements with which the functions can be accessed.” (Participant 8, Marktplaats).

Human Interaction

The participants found the PSS efficient when it performed its function through an interaction requiring the least possible amount of actions or efforts from people, be these efforts physical or mental. The following statements illustrate this idea.

“The effect you seek when using Steam is you want to play or buy games and game with other people or your friends. Most of these effects can be achieved with one or two mouse clicks. I think the service delivers high output for minimal effort.”
(Participant 6, Steam).

“An example of something Pinterest does to maximize the effect for minimum efforts is suggesting search terms. When typing a search word in the search bar the result of this search pops up. On the top side of the screen, suggestions for additional search terms pop up. This is something that helps the users to minimize the efforts that he/she needs to put in, to find the optional results.” (Participant 38, Pinterest).

“Instagram has put a lot of focus into maximizing its efficiency (...) Within 5 simple actions the user can share a picture with his/her follows (...) filters give the sense that the picture is extensively enhanced for an aesthetic effect, even though it only requires one click.” (Participant 24, Instagram).

Several statements referred to how efficient it was to reach a given effect with just one or two clicks, a simple tap or swipe. Some examples are: *“With one click statuses can be liked, shared and commented upon”* (Participant 27, Facebook); *“If you like something, you can pin it on your page with just one click”* (Participant 46, Pinterest); *“The amount of functions that are available with the tap of a finger, or two, is incredible”* (Participant 8, Marktplaats); *“You only need two clicks to watch a movie”* (Participant 34, Popcorn Time); *“By a single swipe to the right you, in theory, can find the love of your life”* (Participant 43, Tinder).

While such statements mentioned the manual effort of actions such as clicking, some others clarified that a PSS also requires a cognitive kind of effort from users. For example, in the following one, a participant explained that people are forced to make an effort to understand, i.e., to read and interpret text, when receiving written feedback:

“Using text as user feedback, in my opinion, is almost never maximum-effect-for-minimum-means, in terms of the effort the user has to make to understand what is communicated.” (Participant 2, OV-Chip).

In connection to this, another participant suggested transforming written instructions into visual instructions in order to make the PSS more efficient:

“I would make the Random Reader instructions visual (...) indicating the order of buttons to push. This means it is also directly understandable where to push.”
(Participant 25, Rabobank Online Banking).

Implicit in the last two statements is the idea that a PSS is efficient if it manages to be used intuitively, without conscious cognitive effort. In statements such as the following one, this relationship between efficiency and intuitive interaction became explicit.

“In terms of efficiency the interface of the Jawbone UP is very intuitive to use. It utilizes the maximum of the gesture interface of the smartphone to minimize the use of

menus and buttons, which creates a very clear and efficient interface.” (Participant 40, Jawbone UP 24).

Although human interaction has been presented as a theme independent of the others, it is crucial to note that none of these aspects are unrelated when it comes to the assessment of a PSS as a means. For instance, the way a bank card is shaped (sensory property) can affect the way people interact with the overall banking system (human interaction). This example is taken from the following statement, in which a participant suggested changing a card’s shape to reduce the mental effort people have to make to properly insert the card in the reader and, consequently, make the overall paying process more efficient.

“I [would] make the VISA debit card into an arrow shape. The shape of the card itself indicates which direction you have to insert it, so without checking the direction, people will know how to put it in the chip-card reader at the moment he/she takes out the card. This [would] make the paying process more efficient.” (Participant 15, VISA, Figure 2).



Figure 2: Suggested improvement of VISA card

Discussion

In this paper, we reported on a qualitative study exploring how the aesthetic principles of UiV and MEMM can apply to PSSs. With this study, we identified three themes that can be interpreted as different levels of user experience: *sensory properties*, *underlying mechanism* and *human interaction*. We further identified how each of the principles can be applied to each of these levels to enhance aesthetic appreciation of a PSS. A PSS is considered to adhere to the UiV principle if the different sensorial, functional or interactive parts of the PSS are meaningfully related into a unified whole. With regards to MEMM, a PSS is perceived to be a minimum means when it fulfills its function with the least possible amount of sensory properties, the least possible amount of parts, and the least possible amount of actions or efforts from users. Our study thus revealed that UiV and MEMM can be applied to multiple aspects of PSSs. As such, it provides a platform to further develop knowledge into PSS aesthetics, and suggests directions for design practice.

Our findings serve as a tool to identify the aspects of a PSS that can be modified to make the PSS more beautiful and valuable overall. As an illustration, we can think of the car sharing service mentioned in the introduction. This PSS could satisfy the MEMM principle by, for

instance, (1) creating an easy-to-grasp interface to rent a car, (2) minimize the number of things needed to utilize it (e.g., only needing a phone to rent and open the car), and (3) having a car in close proximity so it can be quickly and effortlessly accessed. At the same time, the PSS can take into account the UiV principle on the same levels by, for instance, (1) making the rental interface perceptually organized, (2) stocking a variety of cars that can still be identified as belonging to the same service (e.g. through use of similar colors), and (3) create consistency in the way these different cars are operated (e.g. using similar brands of cars). While this example only shows some of the ways designers could make a PSS more aesthetically pleasing, it serves as an illustration of how these two principles, which are usually applied to products, can also be applied in the domain of PSSs.

While our findings provide knowledge of the aesthetics of PSSs, which was previously lacking, there are several topics that could be further investigated. For instance, we have not explored how the different levels interact with one another, nor have we explored how the principles interact with each other on each of these levels. It is possible that, for example, both the comprehension of the underlying mechanism and the human interaction are grounded in the sensory properties of the PSS. Also, the optimization of one of the principles at a certain level could deter the maximization of the other at that same level. It is therefore important to examine these issues to optimally apply the principles to a PSS in order to elicit the most aesthetically pleasing user experience possible. Moreover, principles of design aesthetics other than UiV and MEMM could also be studied to determine their applicability to PSSs. Lastly, the findings we have presented in this paper have been derived from an explorative qualitative study. Experimental and controlled testing of the principles, and the aforementioned issues, could extend or challenge our findings and further develop the aesthetics of PSSs.

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Author biographies

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Ruben Post is a doctoral researcher in Design Aesthetics at the Industrial Design department of the Delft University of Technology, The Netherlands. His research involves studying visual and tactile aesthetic appreciation of product designs. He is trained as an interdisciplinary researcher with a background in cognitive neuroscience and perceptual psychology.

Odette da Silva

Odette da Silva is a doctoral researcher in Design Aesthetics at Delft University of Technology, The Netherlands. She combines conceptual and experimental approaches to studying how people appreciate products aesthetically when they take into account the designers' intentions. Odette has a background in Art and Philosophy, subjects she has lectured at the Central University of Venezuela and Åbo Akademi University, Finland.

Paul Hekkert

Paul Hekkert (PhD) is full professor of form theory, and head of the Industrial Design department, Delft University of Technology. Paul conducts research on the ways products impact human experience and behavior, and leads the international project UMA (Unified Model of Aesthetics). Paul has published articles dealing with product experience and aesthetics in major international journals and is co-editor of *Product experience* (2008). He also published *Vision in Design: A guidebook for innovators* (2011), a book that describes an approach to design and innovation. Paul is co-founder and chairman of the Design and Emotion society and chairman of the executive board of CRISP, a national collaborative research initiative for and with the Dutch creative industries.