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Introduction: Aesthetic Pleasure in Design

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A friend pulls up his sleeve and proudly shows you his new watch. He wants to know your opinion. From the eager look on his face, you can easily tell that he wants you to say one thing and one thing only - "it's beautiful".

The term aesthetics derives from the Ancient Greek *aisthetikos*, meaning sensory perception or knowledge derived through the senses. Only in the eighteenth century it acquired its current meaning when it was appropriated by Alexander Baumgarten, who used it to denote sensory delight and the pleasure we derive from the senses (Goldman 2001). Hence, aesthetics became tightly connected to the notion of beauty. The situation sketched out above illustrates that aesthetics do matter for product design. It hardly needs explaining that we experience sensory pleasure in reaction to products. Admittedly, a watch is a special case. As a fashionable accessory, apart from indicating the time, looking good is often considered one of its main purposes. Still, this should not be taken to imply that an aesthetic response is restricted to a particular class of 'aestheticized' products. Just think of toothbrushes and the enormous range of colours in which they come. Or, by contrast, the limited set of tones available for power tools. One will have a hard time finding a sander in bright pink. The reason is quite simple – it just would not look right.

In view of the aforementioned, though, it is rather surprising that aesthetics received scant attention in the domain of product design until quite recently. Historically, the study of aesthetics was a philosophical endeavour that focused on art in particular. For long, its goal was to establish the formal rules that apply to (good) art. This started to change when Gustav Theodor Fechner published his *Vorschule der Ästhetik* (1876), in which he argued for the use of scientific method in the study of aesthetics. He thereby initiated the so-called *empirical aesthetics*. This branch of psychology flourished from the 1960's onwards, when it was picked up by Daniel Berlyne (1971) and the many scholars following his footsteps. The focus was still very much – if not exclusively – on art. However, in trying to account for the aesthetic pleasure evoked by art, empirical aesthetics developed an interest mainly for

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artworks' *structural* features (colour, composition, complexity, …) and the way those are received, as opposed to their *symbolic* features. In doing so, it moved away quite considerably from the art historian point of view that is characterized by attention primarily for stylistic periods and artistic vision. In fact, by concentrating mainly on perceptual and cognitive processes involved in artistic encounters, by no means the insights of empirical aesthetics were applicable exclusively to art.

As a consequence, when attention started to burgeon for aesthetics in relation to product design in the 1990's, much inspiration was taken from empirical aesthetics. Concepts that had become well-established in the study of artworks (like unity, complexity, …) could fruitfully be employed to enhance the understanding of why certain products are considered beautiful. Especially the concepts of typicality and novelty turned out to be of particular salience, as they could be called upon to substantiate the design principle of Most Advanced Yet Acceptable (or MAYA in short), originally coined by American design icon Raymond Loewy (1951).

Moreover, whereas artworks are often made to gratify a single or a limited range of senses, the engagement with products – as objects of use – is almost by definition multisensory in nature. Undeniably, scholarly attention for aesthetics has traditionally focused disproportionately on the visual domain, but the other senses are no less capable of providing us with pleasurable experiences. In this vein, one might simply think of the gentle rhythm of keys being tapped on a classic IBM keyboard. Or, let us consider the use of a car. Although its visual lines may be quite striking, these are only a small part of the impression it makes on us. There is the feeling of the seats, the steering wheel, the pedals and the clutch. There is the sound of the engine purring or revving. There is the famously characteristic 'new car scent' (although, admittedly, it may lose its appeal after a while). What is more, the various actions one has to perform when driving combine into an integrated sensation that in itself may or may not be pleasurable, indicating that we may even be able to get sensory delight from interaction with products as such. This is also exemplified by the intuitive operation of smart phones or tablet computers. Given the many ways in which we engage with products and the various forms of sensory pleasure they afford, the study of design aesthetics has urged researchers to break away from an overly exclusive preoccupation with the visual domain.

The incorporation of aesthetics into the agenda of studies on design did not remain restricted to understanding the sensory pleasure evoked by products in itself either. In contrast to the arts, where the maxim 'art for art's sake' stands strong, products generally serve a practical function and need to be used. Moreover, usually they are produced to be sold on the market, so they need to attract attention from consumers. Therefore, the study of design aesthetics has extended to establish its applied relevance in domains such as ergonomics and marketing.

As a result, design aesthetics has become a vibrant, versatile and steadily expanding domain of research. The present additional theme cannot do justice to the enormous variety of the field (for example, the majority of the papers included here still focus on visual aesthetics in

particular), but it does offer an interesting selection that is indicative of the ways in which design aesthetics research progresses. There are academically oriented papers, reporting on theory-driven (experimental) research, as well as applied research and research-through-design approaches. Some of these are concerned explicitly with understanding aesthetics, others tackle aesthetics more indirectly. In the following lines, we will briefly introduce the papers to be presented.

In 'The beauty of balance – an empirical integration of the unified model of aesthetics for product design' we elaborate on the Unified Model of Aesthetics as introduced by Hekkert (2014). Throughout a large-scale international project (project UMA), this model was developed to integrate various insights from empirical aesthetics into a coherent theoretical framework with reference to design. As its point of departure, it posits that aesthetic pleasure derives from the way our senses have evolved to accommodate the conflicting needs for safety and accomplishment. As a consequence, we experience beauty when a balance is struck between conflicting tendencies – unity and variety, typicality and novelty and connectedness and autonomy. Although these balances have been substantiated individually in the course of project UMA, in the present contribution we study their combined effect. Hence, as project UMA is coming to a close, we tie the model together.

In 'Measuring design typicality – a comparison of objective and subjective approaches' Stefan Mayer and Jan Landwehr focus on typicality in particular, but present a novel take on the subject. As typicality is commonly studied through subjective ratings, they set out to develop a series of objective measures, based on the idea that a typical design can be conceived of as the average of various designs belonging to a certain product category – cars in their study. Using inventive procedures, they come up with four ways to establish a particular car's resemblance to the visual average of the cars in their sample. They then compare these measures to subjective typicality ratings, but also study the extent to which these measures can account for aesthetic liking and car sales. In doing so, they skilfully illustrate the relevance of aesthetics (and its determinants) for businesses, but also they provide designers with a straightforward means to establish a design's typicality, without the need for time and money consuming marketing research.

As the counterpart of typicality, novelty is at stake in 'Most Advanced Yet Acceptable – a case of referential form-driven meaning innovation'. Using a research-through-design procedure, Seong Geun Lee, James Self and Ekatarina Andrietc study in which ways a product's shape may be innovated within the bounds of acceptability. For this purpose, they study how people react when a bowl is altered with or without respect to some of the archetypal forms of that product category. Although the study is explorative, these findings give way to the insight that some formal features are more decisive for a product's typicality and that these should be left intact by form innovations in order to remain acceptable.

Ana Cadavid, Stefany Ruiz-Córdoba and Jorge Maya also present a research-through-design approach, but their project is quite ambitious indeed. In 'Extracting design aesthetic heuristics from scientific literature' they try to develop a method to provide designers with hands-on guidelines to aesthetically improve product designs, which they exemplify for the

aesthetic principles of peak shift and unexpectedness. Although their suggested approach is arguably not yet fully mature, their message is unmistakably pertinent. They recognize that it is sheer impossible for designers to be aware of the many aesthetic principles that have been documented in the literature and that much can be gained from increased awareness. In that way, the authors remind us that the goal of research on design aesthetics is ultimately to improve the aesthetic quality of product design.

Laura Graf and Jan Landwehr go beyond the aesthetic effects of a design itself and also take into account the context in which it is presented. In 'Putting product design in context: consumer responses to design fluency as a function of presentation context' they experimentally study the aesthetic appreciation of designs in usual as compared to unusual contexts. By relating this to the fluency with which a design can be processed, they develop a highly nuanced perspective on the liking of products. The implications of this are important – the way a product should be introduced to the market depends on its design features.

Both Li-Chen Ou and Peiyou Cheng and Ruth Mugge move away from overarching aesthetic principles to address the effects of particular design features. In 'A comparison between colour preference and colour harmony – taking athletic shoe design as an example' Ou looks at participants' ratings of liking and harmony for an enormous number of experimentally manipulated colour combinations in two types of trainers. In doing so, he introduces a promising method to study use of colour on realistic stimuli, rather than colour patches, which is arguably of great value in the domain of design, where the effect of particular characteristics depends heavily on the type of product and user.

From their part, Cheng and Mugge focus on another product feature. In 'The value of transparency for designing product innovations' they study why and how to use transparent materials in products. For this purpose, the authors qualitatively compare experienced designers' views on the intended effects of transparency to the way it is perceived by users. They thus illustrate that functional considerations need not stand in the way of pleasant product experiences.

The final two papers take a broader approach towards aesthetics, both using research-through-design. Thomas Van Rompay and Geke Ludden recognize the beneficial effects of nature on people's feelings of well-being and in 'Creating novel encounters with nature: approaches and design explorations' they present three ways to apply natural themes to designed artefacts. Interestingly, they do not merely consider literal applications, but also more abstracted references to nature.

As packaging can have a substantial impact on how a product is received, Markus Joutsela and Virpi Roto look at how it can be developed to have certain intended experiential effects on users in 'Introducing experience goals into packaging design'. In particular, by focusing on how design teams interpret and put into practice design briefs, Joutsela and Roto trace the process from the company that commissions a package design to the way it is experienced by likely customers.

As will be clear by now, the papers in this additional theme represent a considerable range in topics and methods. We are confident that this will provide a view on the domain of design aesthetics that is not only varied, but also inspiring, thereby furthering the interest in Aesthetic Pleasure in Design.

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