

INITIAL FINDINGS ON DESIGN AND PRODUCT CATEGORY EXPERTISE IN AESTHETIC EVALUATION

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ABSTRACT

What appeals to designers does not always appeal to consumers. Still, surprisingly few studies have set out to investigate why designers sometimes favour other designs than consumers. Through an initial study on small-sized cars, we found that the effect of design expertise on evaluations of aesthetic appeal shifted based on an individual's product category expertise. In short, when people knew little about the product category, design expertise demonstrated a positive influence on aesthetic appeal (design *experts* rating small-sized cars as more beautiful than design *novices*). However, when people knew a lot about the category, design expertise showed a negative influence on aesthetic appeal.

INTRODUCTION

When the Multipla was introduced in 1998, its novel design granted Fiat considerable attention within the design community. Among other things, the car was displayed at the Museum of Modern Art in New York during the 'Different Roads – Automobiles for the next century' exhibition where its unusual proportions and window fittings were celebrated for adding to the car's "enhanced sense of spaciousness" (MoMA, 1998). However, the unusual design of the Multiple did not appeal to everyone. Many consumers saw the design as

weird and unattractive, rather than interesting and appealing, resulting in weak sales for the product.¹

The situation facing the Multipla represents a well-known problem in design: what appeals to designers does not always appeal to consumers. Recognizing this problem, companies often make considerable investments in planning and conducting research on what consumers find aesthetically appealing (Moulson & Sproles, 2000). Car companies, for instance, reportedly change 30 percent of the colours on their products each year – involving colour consultants three to four years prior to introducing any changes (Triplett, 1995). Several studies have also set out to define what constitutes appealing and appropriate designs for consumers (for a review, see Veryzer, 2000). Still, few empirical studies investigate the underlying reasons why some designs appeal to designers but not to consumers. In this article, we contribute to this gap in the literature on design by exploring the roles of design and product category expertise in aesthetic evaluation.

In many markets, design expertise related to the appearance of new products provides companies a competitive advantage (Ravasi & Lojcono, 2005). A salient example is Apple, who holds a leading position in the computer industry, acquired by introducing products such as the iMac and iPad that through their appearances have redefined how we look at personal computers.

Given the importance of design for companies, our study on expertise is of both practical and academic interest. It is of practical interest as it helps to account for differences between designers and non-designers (consumers). This, in turn, will help designers to more effectively develop products with an appropriate design. Accounting for differences between designers and non-designers is valuable as there is often a great deal of unease among managers when it comes to targeting consumers through the appearance of new products. It is of academic interest to extend on the findings of past

¹ In 2007, Time Magazine reaffirmed the Multipla's low appeal among consumers when they rated it as the fourth ugliest car since 1990 (Time, 2007).

studies on design and category expertise by considering their joint effect on aesthetic appeal. While both design and category expertise have been shown to influence peoples' evaluations of designs, no study to date has investigated their simultaneous effects. Yet, both types of expertise seem relevant in explaining the differences that emerge between how designers and consumers evaluate the appeal of new products. Designers possess a higher degree of design expertise than consumers do. Still, some consumers can hold a high degree of design expertise (Bloch, Brunel & Arnold, 2003) – meaning that design expertise may vary over and within groups of consumers. Simultaneously, the expertise about the products in a category may vary among both designers and consumers. Some designers use their expertise within a limited domain of products whereas others extend it over different product categories. It is also common for consumers to display greater interest in some products over others, and accordingly, to vary in their expertise about products in different categories. Thus, by studying these two types of expertise simultaneously, we extend past studies on how people form evaluations of designs.

EXPERTISE AND EVALUATIONS OF AESTHETIC APPEAL

Expertise has long been advocated to influence how people evaluate objects. In the visual arts, experts (such as connoisseurs and museums directors) have been suggested to base their aesthetic evaluations on different visual qualities than novices (Minor, 1994). Goodman (1980) even suggests that experts in art see qualities in objects that are unseen by the untrained eye of the novice. A number of experimental studies also demonstrate differences between how experts and novices evaluate art (see e.g. Hekkert & van Wieringen, 1996).

Differences in the evaluation of experts and novices have also been shown for the design of products. Specifically, two distinct forms of product expertise are found in the literature: *design expertise* and *category expertise*. Design expertise (or acumen) refers to an individual's general ability to recognize and evaluate (high-quality) designs (Bloch, Brunel & Arnold, 2003). Extending Csikszentmihalyi's and Robinson's (1990) work on art to the field of design, Bloch and colleagues (Bloch, 1995; Bloch, Brunel & Arnold, 2003) argue that design experts hold more sophisticated preferences regarding the aesthetics of products than design novices. They also suggest that design experts favour visual over verbal processing and, because of this, place greater emphasis on appearance when evaluating products. In partial support for such claims, Wolter, Bacon, Duhan and Wilson (1989) show that designers' evaluations of a product's colour, size and roughness sometimes differ from those of consumers.

Next to design expertise, an individual's category expertise is suggested to influence how people evaluate products. Category expertise refers to an individual's

level of knowledge regarding products in a category (Cordell, 1997). Extending work on art to the field of design, Hekkert, Snelders and van Wieringen (2003) proposed that product category experts place greater importance on novelty in evaluating the aesthetic appeal of products than novices. However, in subsequent experiments, they were unable to demonstrate such a difference. Instead, they found that experts used novelty and typicality as two separate (instead of opposite) criteria in evaluating the aesthetic appeal of products.

While design expertise potentially extends over product categories – inducing a general effect on what is found aesthetically appealing – category expertise may, in theory, moderate this effect. We ground this idea in the finding that an individual's category expertise influence on what grounds products are evaluated (Alba & Hutchinson, 1987). Based on this, we propose the following: when people know little about a product, we expect high design expertise to positively influence the aesthetic appeal of products as it allows the expert to appreciate qualities that are 'unseen' by the layman. For high category expertise, the relation is however uncertain as experts may have different interests and, accordingly, appreciate different aspects of a design. Thus, we tentatively hypothesize that:

H₁: The effect of design expertise on aesthetic evaluation is moderated by an individual's degree of category expertise.

METHOD

To test our hypothesis, we performed an experiment where design and non-design students evaluated the aesthetic appeal of small-sized cars quantitatively, based on photo stimuli. This methodological choice is similar to earlier studies on expertise and aesthetic appeal (see e.g. Hekkert, Snelders and van Wieringen, 2003), and allowed us to (1) study potential cause-and-effect relationships between expertise and aesthetic appeal and (2) do this study practically feasible.

Cars were chosen as stimulus material as car experts can be found among both designers and non-designers (consumers) – allowing us to study the two forms of expertise simultaneously. Similar to Hekkert, Snelders and van Wieringen (2003), we limited the study to a single type of car to reduce the influence of differences in functionality and/or price on the students' evaluations. Further, as the aesthetic appeal of products can be highly fashion-sensitive (Sproles, 1981), we limited ourselves to cars currently sold on the Swedish market.

PARTICIPANTS

105 students at a technical university in Sweden volunteered to participate in what was described as a product evaluation study. 42 design students were recruited from a course in design management. 63 students (following other programs) were recruited at study centres and cafes at the university campus. As an

incentive to participate in the study, two mp3-players were raffled out among the participating students.

The age of the students ranged from 18 to 38 with a mean age of 23. The sample included both female (33 percent) and male (67 percent) students. Further, both Swedish (80 percent) and foreign (20 percent) students volunteered to participate in the study.

STIMULI

Four A5 booklets, incorporating photos of 12 small-sized car in different order, were used as stimuli. The photos were selected so that the front and the side of the cars were simultaneously visible. We digitally removed product names and logos from the cars. Further, as colour can have a prominent effect on how products are evaluated (Grossman & Wisenblit, 1999), we provided all the cars with grey metallic paint to minimize this effect. Grey was chosen as manufacturers typically incorporate it as a standard colour. Thus, by providing the cars with a grey paint, we controlled for the potential effect of colour on the students' evaluations. Further, the grey colour helped in reducing the potential influence of a colour-brand mismatch.

PROCEDURE

Each student received a booklet and was asked to go over it and look at each car individually for a few seconds before evaluating the appearance of each car. The purpose of this procedure was to familiarize them with the complete stimulus set prior to the evaluations of each individual car. The students rated the aesthetic appeal of each car on a five-item scale adopted from Hirschman (1986). Their design expertise was measured on a four-item self-report scale adopted from Bloch, Brunel and Arnold (2003). Category expertise is preferably assessed objectively (Cordell, 1997). We therefore assessed the students' category expertise through a knowledge test where the brand name of each car in the booklet should be given.

DATA ANALYSIS

We estimated an ordinary least squares regression model to investigate the effects of design and category expertise on the students' evaluation of aesthetic appeal. Prior to estimating the model, we assessed the reliability of the multi-item scales. Alpha coefficients for the aesthetic appeal and design expertise scales were .96 and .74 respectively. We standardized the design and category expertise scales to make their interaction term interpretable (Jaccard, Wan & Turrisi, 1990).

Prior to estimating the model, we also checked for the independency of the two predictors (design expertise and category expertise). There was no correlation between the predictors ($r(103) = -.01, p < .01$). Further, as aesthetic appeal can vary over cultures (Bloch, 1995), we controlled for the students cultural background. A t-test revealed a statistically significant difference between the mean aesthetic evaluation of the Swedish ($M=3.24, SD=1.39$) and foreign ($M=4.01, SD=1.69$)

students. We therefore focused our analysis on the Swedish students in estimating our model.

The different cars were entered into the regression model as dummy variables. A significant effect for 11 out of the 12 cars was found. The estimated model explained 29% of the variance in how the respondents evaluated the aesthetic appeal of the cars.

RESULTS

We present the main and interaction effects of design and category expertise on the students' evaluation of aesthetic appeal in Table 1.

Table 1: Main results of estimated regression model (N=1007).

	Aesthetic appeal	
	Coefficient (β-value)	Standardized coefficient
Design expertise	-.02 (-.49)	-.01
Category expertise	-.02 (-.61)	-.02
Design expertise x category expertise	-.18 (-3.93)**	-.11**

** $p < .01$

As can be expected, the model incorporates no significant main effects of design and category expertise on aesthetic appeal; expertise makes people favour different things – cancelling out the main effects in the students' evaluations. However, consistent with H₁, we find a significant negative interaction effect between design and category expertise on the evaluation aesthetic appeal.² In Figure 1, we illustrate this interaction effect using simple slope analysis.

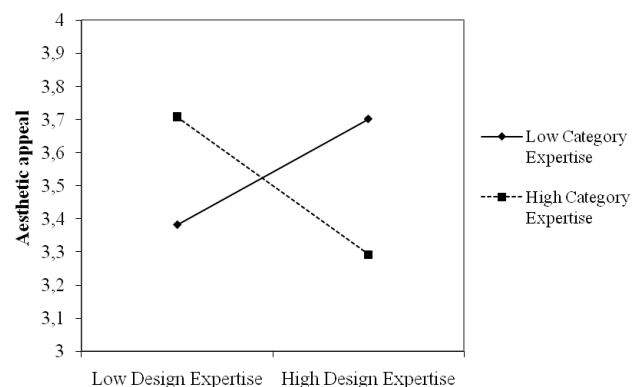


Figure 1: Simple slope analysis of the significant interaction effect for aesthetic appeal (n=1007)

The simple slope analysis shows that low (high) category expertise is positively related to aesthetic appeal, for consumers high (low) in design expertise. Put differently, individuals with high category expertise

² In estimating separate regression models, the negative interaction effect persists across all 12 cars – being significant for three cars and marginally significant for an additional two.

report lower aesthetic appeal for the cars in the case they hold high design expertise in comparison to if they have low design expertise. In contrast, low category expertise demonstrates higher aesthetic appeal in the case if an individual has high design expertise in comparison to if he/she has low design expertise.

DISCUSSION

In this paper, we have sought an explanation for why designers and consumers (non-designers) sometimes differ in their evaluation of products. In an experimental study using photos of small-sized car, we found that some differences may be due to their expertise about products. Specifically, we found that product category expertise moderated the effect of design expertise on evaluations of aesthetic appeal.

Photos of products are commonly used as stimuli in consumer studies on design as they provide stricter control over extraneous influences. This said, viewing photos does not necessarily mimic the full aesthetic experience in use. Future studies may therefore address how expertise influences the aesthetic appeal of objects in a more ecologically valid setting. In studying objects in use, both qualitative and quantitative research methods may provide interesting insights to our phenomena of interest. Further, researchers could explore the effects of expertise on product evaluations using a different sample and/or by studying different types of products for which the product category expertise vary for designers and consumers. In addition, researchers could explore if product category expertise in one area influences an individual's evaluations in other areas. As many companies depend on external designers, such studies could provide valuable information for design managers in selecting which designer to contract for different types of products. With these recommendations in mind, we hope our initial findings will stimulate further research on the role of expertise in design – capitalizing on the benefits of both qualitative and quantitative research methods.

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