# Attribute-based design perceptions and consumer-brand relationship: Role of user expertise

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## ABSTRACT

Why do consumers love certain brands but not some others? A major reason is the design of products made by such brands and the quality of experience. By developing a measure of product design perception as well as resultant experience, this work explores how design can be a pertinent source of strong consumer–brand relationship, operationalized as consumer-based brand equity. Literature of product design, though very rich, is still anchored to the utilitarian–hedonic value derived paradigms, with little attribute-oriented design measurement efforts, a gap this work attempts to fill. Additionally, a multi-dimensional scale is developed for an exhaustive operationalization of a product's design. A rigorous scale development process reveals five design perception dimensions, namely visual, functional, kinesthetic, interface, and information. Strong relationship between design perception, user experience and brand equity is observed providing strong advisory to designers and managers to focus on innovative experiential designs for a stronger consumer-equity.

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## 1. Introduction

Products and brands represent two sides of the same coin. Great brands are adept in making great products with designs that are not only innovative but also offer great user experience. Everyday interaction of consumers with objects leads to subjective evaluation of their design (Luchs and Swan, 2011). Positive interactions driven by great designs lead to satisfying experiences, which in turn helps the brand increase its equity with the user, enhancing the strength of consumer–brand dyad (Keller, 1993). Design thinking philosophy lends credence to this sequence, with satisfaction of consumer needs and positive brand implications as important outcomes to design thinking implementation (Brown, 2008; Noble and Kumar, 2010). While the strength of consumer brand relationship is well understood in literature through consumer based brand equity and its antecedents as well as consequences, design perception, as a cause, remains largely an abstract concept, especially in marketing domain (Luchs and Swan, 2011). Marketing scholars have yet to go beyond the design-derived value paradigm to develop scales for measuring design perception, a case in point

being recent works by Homburg, Schwemmle, and Kuehnl (2015) and Kumar and Noble (2016). This work attempts to disassociate design, manifested through product attributes, from the values by developing an attribute-oriented design perception scale, with an analysis of its effects on design derived experience, operationalized through Holbrook's (2002) experiential value framework.

Extant marketing literature considers product design's importance to various consequences—as a source of strategic advantage (Jung, Kim, and Lee, 2014), affect (Seva and Helander, 2009), experience (Pullman and Gross, 2004), and an inherent quality that generates utilitarian and hedonic benefits for the user (Batra and Ahtola, 1991; Chitturi, Rajagopal, and Vijay, 2008; Sheng and Teo, 2012). Yet, there is no coherent framework that can present the consumer's perception of design, capturing the essence of all design aspects holistically and more so, how it has a conclusive effect on the brand that manufactures the product. A recent effort in form of conceptual design value framework (Noble and Kumar, 2010) which considers overall design perception as compartments made up of additive product features, and which put together shape consumer values and subsequent outcomes like loyalty and commitment, calls for more work in this domain. Further, role of individual variables, one of them expertise, is also instrumental in modulating user-experiences from product design, and hence explored

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as a moderator (Alba and Hutchinson, 2000; Zielfe, 2002). Next sections review relevant theories and literature supporting conceptualization of design perception and its consequences, followed by the framework itself, empirical analysis, discussion and implications.

## 2. Design and its consequences

Product design is a collective output of all the production processes within an organization, serving as the first interface between a product, and consequentially the brand, and a user. Specially in case of consumption contexts, few studies model effect of product design on consumption experiences (Luchs and Swan, 2011). A well-designed product creates plethora of meanings and experiences, as a user shapes specific attributes of a product as attitudes manifested through abstract perceptions (Gutman, 1982; Hekkert and Leder, 1998). These means–end chains aptly describe hierarchy of perceptions, with product features at a lower level and associated benefits and other consequences, like brand attitudes, at a higher level. Means–end theory implies that subjective interpretations of a product design help users attain values, be it a positive experience or an enhanced attachment to the brand (Graeff, 1997). Design attributes act as levers, which a design team can manipulate, in creating a product that attempts to meet design goals which range from providing superior user-performance to establishing great brands (Noble and Kumar, 2010, p. 645). Additionally, consumer based brand equity literature discusses benefits accrued through product attributes and resultant user experiences, as pre-requisites to brand image and brand associations, put together as consumer-based brand equity (Keller, 1993). Hence, there is strong theoretical support to explore the effect of product design and its perception on consumer–brand relationship, mediated by quality consumption experiences.

## 3. Dimensions of design perception

As mentioned earlier, two conceptualizations provide foundation for developing the framework for design perception: design value theory by Noble and Kumar (2008, 2010) and web design schematic by Garrett (2003). Product design, in the former, implies visual aesthetics, features, graphics and ergonomic value derived from a product's geometric form. Specifically, for interactive devices, now more ubiquitous than ever, Garrett's (2003) framework for web design provides two other facets of design besides visual, functional and kinesthetic design, in form of interface and information design (Sonderegger and Sauer, 2010). Thus, literary evidence points to five dimensions that should describe design completely by a user. The first well-discussed design aspect in literature is the outer appearance or *visual design* perception of a product. Represented as the surface of product design levels by Garrett (2003), visual design represents the first interface to overall product pre and post use perception and plays not only an important role during product purchase, but also stays relevant, though not so much, during actual consumption (Bloch, 1995; Creusen and Schoormans, 2005). Holbrook (1981) refers to visual design as an esthetic value that's serves to impart pleasure just from observing the product, without consideration of utility in a consumption set-up, also referred to as the visceral level of product design (Norman, 1991; Kumar and Noble, 2016). Next, perception of product functionality, expressed as *functional design,* finds various representations in literature in form of utilitarian benefits (Chitturi et al., 2008; Batra and Ahtola, 1991; Petruzzellis, 2010), functional quality (Kekre, Krishnan, and Srinivasan, 1995), and product features/functions (Seva, Gosiaco, Santos, and Pangilinan, 2011). All these works, though providing slightly different meanings to this concept, subscribe to the view that functional design represents hidden capabilities of a product that are useful during a consumption occasion. In the hierarchy of design dimensions, such capabilities imply hygienic requirements, as basic minimum that the product needs to offer, before a consumer seeks more (Jordan,

1998). Going ahead, representing comfort of product usage, *kinesthetic design* is studied abundantly as an important part of product design in various forms like ergonomics (e.g., Creusen and Schoormans, 2005), affordances (e.g., Norman, 1991), and human factors (e.g., Noble and Kumar, 2008). As a common theme cutting across, this work considers kinesthetic design as a set of attributes that ensures comfort, safety, and intuitiveness along with reduced cognitive and behavioral loads during usage (Creusen and Schoormans, 2005; Zielfe, 2002). Outside these three core design sub-dimensions, an interactive device has two more facets that are important during usage—*interface and information design.* User-interface as the input–output space, facilitates seamless user–device interaction and is important for usage satisfaction (Oppermann, 2002; Salmi and Sharafutdinova, 2008). Further, information design facilitates information access and flow to the user and is a strong determinant of product consumption experience (Aoki and Downes, 2003; Chau, Au, and Tam, 2000).

## 4. User experience and brand equity

Customer experience derives its meaning from the larger concept of customer value and is a customer's perception based upon interactions "involving either direct usage or distanced appreciation of goods and services" (Hansen and Christensen, 2003, p. 390). Based on Holbrook's (2002) typology, three values measuring user experience emerge — usability, social value and usage pleasure. Nielsen (1994) defines *usability* through efficiency, learnability, memorability, errors and satisfaction and represents a broader construct integrating perceived ease of use (PEOU) and perceived usefulness (PU), discussed well in literature as a measure of utilitarian value (Kumar and Noble, 2016; Sheng and Teo, 2012). Usability has always been studied for information systems with its quality as a core requisite of satisfaction from consumption experiences (Jordan, 1998). Next, representing sociability benefit (Leung and Wei, 2000), *social value* accrues to the user because of possession of a particular product (Kumar and Noble, 2016; Sheth, Newman, and Gross, 1991). Through novel designs, products portray peoples' values and personality and helps showcase users' social status (Jung et al., 2014). Ownership of fashion products is an aftermath of the motivation for seeking social identity along with socio-psychological benefits, implying importance of this value shaping overall experience (Petruzzellis, 2010). Finally, *pleasure in use* forms the third important experiential value and is referred to as soft functionality of a product representing hedonic value that defines emotional relationship of a user with a product (McDonagh-Philp and Lebbon, 2000). A product's capability to create affect for the consumer has received tremendous attention in literature, specially design literature, and has seen manifestation of emotion in various forms — experiential needs (Holbrook and Hirschman, 1982), affective responses (Derbaix and Pham, 1991), and pleasure (Jordan, 2000). Sweeney and Soutar (2001) contend that these three value dimensions don't exist independently as hedonic and utilitarian components of attitude have a two-way causal relationship. Also, Holbrook's (2002) framework is conceptualized such that different experiential values exist simultaneously and the only variation lies in the degree of existence of each. For this work, hence, user experience is conceptualized as a higher order construct reflecting usability, social value and usage pleasure.

Design is also a strategic branding tool and is imperative in improving the competitiveness of products and firms (Jung et al., 2014). Competitive advantage for brands comes greatly from product design making it pertinent for manufacturers to design products which customers find of value, so as to maximize satisfaction and beat competitors coupled with profitability. It's then clear that designers also need to achieve *brand equity* amongst its users for better bottom-lines (Brakus, Schmitt, and Zhang, 2014). Consumer based brand equity is taken forward as a unidimensional construct measuring consumer–brand relationship in this work.