A method for exploring similarities and visual references to brand in the appearance of mature mass-market products

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Product appearance and in particular its association with branding has been shown to play an increasingly important role in the commercial success of mature mass-market products. This paper presents a novel approach to analyse product appearance and explore similarities between products. The approach is applied to two contemporary industrial examples, smartphones and vehicles, and the outcome used to explore the strategic use of visual references to brand in product appearance. Results from the method's application validate the method in providing insights in terms of specific similarities in appearance. Further interpretation is then used to recommend possible design strategies with respect to the use of visual references to brand.
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Appearance or styling has been shown to significantly influence consumer perception of products and subsequently their success in the market (Bloch, 1995; Crilly, Moultrie, & Clarkson, 2004, 2009; Person, Snelders, Karjalainen, & Schoormans, 2007). This is particularly the case in relatively mature mass-market products where there are a large number of competing products, with similar prices, functionality and performance (Van Breemen & Sudijono, 1999; Warell, 2004). Examples of this type of product where there is also particular emphasis placed on appearance include: consumer electronics such as mobile phones, computers, televisions; home appliances, such as vacuum cleaners, kettles, toasters; and transportation such as, motorcars, motorbikes, caravans and yachts.

For the aforementioned class of products, branding is a major factor in the design of appearance or styling (Bloch, 1995; Schmitt & Simonson, 1997; Warell, Stridsman-Dahlström, & Fjellner, 2006). As such there is significant emphasis placed on branding and its management within the styling process (Mccormack, Cagan, & Vogel, 2004; Moulson & Sproles, 2000; Person et al., 2007; Person, Schoormans, Snelders, & Karjalainen, 2008). Karjalainen

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(Karjalainen, 2003a, 2003b; Karjalainen & Snelders, 2010) introduces the use of symbolic cues in design which are drawn on by designers to provide strategic visual references to brand for consumers. Examples of such features include the 'waisted' bottle shape adopted by Coca Cola or the 'kidney-grille' seen on every BMW car (Beyer & Mcdermott, 2002; Ind & Watt, 2006; Karjalainen & Snelders, 2010). These features have been shown to come under particular scrutiny in the styling process and are becoming increasingly important aspects of registered designs and trade dress (BBC, 2012; Fanning, 2011; Warman, 2011). Companies may now protect particular aspects of features which they deem to be particularly symbolic in reference to their brand (Mcelhinny, Jacobs, Lee Taylor, & Bartlett, 2011; W.I.P.O., 2012).

While the importance of product appearance and the strategic use of visual references to branding is demonstrated, there exists little support for designers in the evaluation of appearance and objective reasoning with respect to factors such as brand, trade dress, infringement of registered designs and novelty (Karjalainen, 2003a; Person et al., 2007, 2008; Warell et al., 2006). Presently designers rely on previous experience and intuition in evaluating appearance. This in turn can lead to difficulty in communicating rationale behind styling decisions to other stakeholders in the design development process such as marketing and engineering departments (Warell et al., 2006).

It is this lack of supportive methods concerning the use of references to visual brand in mature mass-market products that is the focus of this paper. In particular, the reported research investigates methods to assist designers in the objective evaluation of appearance. The paper begins by defining the precise aim of the reported research (Section 1). Section 2 addresses the literature surrounding the topic of evaluation of appearance and similar studies. A method to assess product appearance and similarity is proposed in Section 3, and its applications to smartphones and to vehicle fascias are presented in Sections 4 and 5 respectively. Conclusions from the application of the proposed method are drawn in Section 6 which also reflects upon the limitation of the proposed method.

1 Aims and objectives

The aim of the research reported in this paper is to create a method to facilitate objective evaluation of the degree of similarity in appearance for mature mass-market products in terms of feature geometry. This in turn enables more informed evaluation and decision making during styling design and in particular the use of strategic visual references to brand.

The first step in achieving this aim is to create a set of analyses that may be applied to investigate different aspects of feature geometry. Following the creation of analyses, a method is proposed to evaluate the degree of similarity between features. To complete the method a framework is presented to facilitate