



Examining the relationships between online store atmospheric color, flow experience and consumer behavior



Saïd Aboubaker Ettis

Gulf College, Faculty of Business and Management Studies, P.O. Box 885, Al Khuwair, Postal Code 133, Al Mabaila, Muscat, Sultanate of Oman

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ABSTRACT

Although atmospherics and flow experience are widely studied, the relationship between online store atmospheric cues and flow experience has received a little attention. Furthermore, there is a lack of published results about the role of atmospheric color in creating flow. Using the Stimulus – Organism – Response model and the theory of optimal experience of flow, this study investigated the impact of online store background color on the achievement of flow and its effects on online consumer behavior. In this study, an online experiment was conducted to investigate the effects of a warm hue – yellow versus a cool hue – blue of the background and used a self-administered online survey for data collection. The results underscore the important role online store color plays in creating the flow experience and revealed that blue hue induces more flow than yellow. The two dimensions of flow (perceived enjoyment and concentration) have direct and mediating effects on purchase intention and revisit intention. Concentration, but not enjoyment, has direct and mediating effects on the number of viewed pages and time spent per visit. This research enhances our understanding of the relationship between online store atmospheric color and flow and highlights the role of flow as an extension of SOR model applied online. Other theoretical and managerial implications of the results are discussed. Finally, suggestions regarding future research are presented.

1. Introduction

Research indicates that approximately 80% of what we assimilate through the senses, is visual and that about 80% of the assessment of the surroundings is based on colors (Morton, 2009). Colors form a ubiquitous part of our daily lives, affect our perceptions and transmit a considerable amount of information. Colors boost memory, engage participation, attract attention, convey messages, and create feelings (Singh, 2006).

Use color to sell a product is not a new idea. However, “how to use it?” remains an up-to-date issue (Pelet, 2014). It is important that managers understand how to use colors, not only to create brand identity and differentiate their offerings from those of competitors, but also to influence moods, attitudes, emotions, and behaviors of a target market.

Although colors are used as a marketing tool, yet academic research on color is not abundant (Bagchi and Cheema, 2013; Labrecque et al., 2013). Though, there has been some early work that focuses on topics relating to colors such as advertising (Lichtlé, 2007), atmospherics (Bellizzi and Hite, 1992; Chebat and Morrin, 2007), product or its packaging (Pantin-Sohier, 2009), and brand logo (Labrecque and Milne, 2012), little is known about how color affects consumers and the

underlying process in online purchase settings. Very few researchers have investigated the effects of websites' color (Drèze and Zufryden, 1997; Gorn et al., 2004; Hall and Hanna, 2004; Pelet, 2014; Pelet and Papadopoulou, 2012; Bagchi and Cheema, 2013). All of these investigations acknowledge that color is an important feature of websites' design that favors the users' interactions and online shopping experience.

Recognizing the substantial impact of atmospheric color inside traditional stores on consumer behavior (Bellizzi and Hite, 1992; Brengman and Geuens, 2004; Chebat and Morrin, 2007), there is a need to investigate the effects of colors as a component of the online atmosphere of websites on online consumer behavior. Managers have little enough information on how to use color to create a compelling and stimulating online shopping experience that enhances the website's ability to retain online customers and prolong the duration of each visit. More theoretically based research is needed to move beyond the unreliable subjective use of color (Labrecque and Milne, 2012).

Empirical research examining store's atmosphere (Bellizzi and Hite, 1992; Brengman and Geuens, 2004; Chebat and Morrin, 2007) use the Stimulus - Organism - Response framework (SOR) (Donovan and Rossiter, 1982; Mehrabian and Russell, 1974). More recent investigations attempt to transpose this theoretical framework in e-commerce

E-mail address: said.ettis@gmail.com.

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context (Eroglu et al., 2001, 2003; Sautter et al., 2004). By adapting the definition of Kotler (1973–1974) of atmospherics, Eroglu et al. (2001, p. 179) define atmospheric stimuli as “the sum total of all the cues that are visible and audible to the online shopper.” The online store atmospheric cues (such as text, links, animations, colors, and audio) are the “Stimulus”. The PAD (Pleasure, Arousal, and Dominance) and cognitive states are the “Organism.” The “Response” represents the outcome, the approach or avoidance behaviors of the consumer.

Overall, the results of empirical work examining specific online store atmospheric cues and their effects on shopper responses were inconclusive. According to some researchers, this is due to the shortcomings of PAD (Eroglu et al., 2001, 2003; Sautter et al., 2004). The PAD's Dominance dimension is problematic and was not included in several works on the SOR model (Sautter et al., 2004; Eroglu et al., 2001). The PAD is too narrow in scope and not capturing the range of possible variations in emotional reactions and much of the effect of site atmosphere (Eroglu et al., 2001, 2003). The online environment is interactive and immersive. Design tools such as video, sound, 3D presentation, uploading, dynamic discussion, and sharing might offer an absorbing, escaping and gratifying experience, whereby the consumer becomes totally involved within the experience and forgets the time elapsed and worries. The PAD does not encompass the range of these possible reactions. Flow - an intrinsically optimal state during which an individual is intensely engaged in an activity to the exclusion of all other thoughts - has been established as a critical determinant of online experiences such as online shopping (Hoffman and Novak, 1996; Novak et al., 2000; Koufaris, 2002; Gao and Bai, 2014). Hoffman and Novak (1996) argue that the objective of online stores should be to facilitate “flow opportunities” in which consumers are entirely engaged during the shopping experience. A convenient, interactive, and compelling online store atmosphere provides rewarding “flow opportunities” enhancing the hedonic and utilitarian value of consumers' online shopping experience that people appreciate and attempt to replicate (Sénécal et al., 2002). Thus, an important online extension of the SOR might integrate the flow experience.

Despite the importance of the flow state in online environments, and its links to the atmospherics and consumer behavior (Hoffman and Novak, 1996), little is currently known about the configurations of online atmospheric cues that optimize the flow experience for the consumer (Gao and Bai, 2014). This research attempts to contribute to this area by focusing on one specific cue: the color of the website's background that consumers are exposed to in the online shopping experience.

Therefore, the objective of this research is to analyze the role of color in achieving a state of flow and to determine if the flow experience enhances behavioral outcomes during shopping in online stores. The results of this research aid understanding the impact of colors in the online shopping experience. Moreover, the results of this research can help e-commerce and m-commerce managers develop tactics that engage users and enhance the total online experience by using colors. Outcomes might consist of extended time on the site, increased site visits and increased site activity.

In this paper, we begin by describing the concepts of color, flow, and approach behavior. Next, we present our research model and provide supporting literature to specify a range of testable hypotheses involving the relationship of model constructs. We present the methodology, discuss the results and provide theoretical and managerial implications. Finally, we conclude with a description of the research limitations and suggestions for future research.

2. Overview of conceptual framework

2.1. Background to color: dimensions and typologies

Color derives from the light carried on wavelengths that the brain converts into six distinct colors categories: red, orange, yellow, green,

blue, and violet (Singh, 2006). Colors are represented by three dimensions (Munsell, 1966): hue, saturation, and brightness. A color's hue (gradation or tonality) is the pigment of the color which perceived in categories (e.g., blue, yellow, red) (Gorn et al., 2004). Short wavelengths are associated with colors such as violet and blue. Long wavelengths are associated with colors such as red and orange (Babin et al., 2003). Saturation (or chroma) refers to the intensity or amount of pigment in a color. Saturation is a continuous dimension that ranges from high to low chroma. Higher chroma colors are more vivid and stand out more than lower chroma colors (Gorn et al., 2004). A color's brightness (or value) refers to its lightness or darkness. It corresponds to the extent to which a surface illuminated by a source seems to emit more or less light (Pelet and Papadopoulou, 2012). Brightness is a continuous dimension. Colors with low brightness have a blackish quality, whereas colors with high brightness have a whitish or pastel quality (Gorn et al., 2004). The current research emphasizes on the hue dimension, which has been the focus of in-store atmospheric color research (Bellizzi et al., 1983; Bellizzi and Hite, 1992). We estimate that the hue dimension is more directly related to the online atmosphere and more powerful to elicit the entire experience of flow in this context. However, the two other dimensions of color, saturation, and brightness, need to receive more attention in forthcoming work (see Pelet (2014) and Pelet and Papadopoulou (2012)).

Most of the research focusing on the psychological effects of color on consumers contrasts the effects of warm colors with those of cool colors. Warm colors are high wavelengths such as reds, oranges, and yellows. Cool colors are low wavelengths such as blues, greens, and whites. The present study adopts this typology. Past work shows that cool and warm colors have differential and strong effects on consumer response (Bellizzi et al., 1983; Bellizzi and Hite, 1992; Chebat and Morrin, 2007; Gorn et al., 2004). The cool – warm interpretation of colors seems to have permitted to capture efficiently the differences in terms of emotions (stimulation, pleasure, anxiety, etc.) and behavior (impulsive buying, purchase intentions, and time perception) in these researches. A warm hue is more vivid and exciting than a cool hue, and a cool hue is more pleasant, soothing, relaxing, calm, peaceful, restful, happy and induces leisure and contemplation (Crowley, 1993; Babin et al., 2003; Bellizzi et al., 1983; Bellizzi and Hite, 1992). Therefore, this scheme appears suitable to explore whether warm and cool color impacts the flow experience in an e-commerce environment. Massel (2016) gives examples of e-commerce websites using cool/warm hues (such as <http://helbak.com> for cool hues and <https://www.oipolloi.com> for warm hues). It should be pointed out that even though the aforementioned research has shown that cool hues such as blue are seen as calming and relaxing whereas warm hues such as red are seen as exciting and stimulating, a cool colored website does not exclude that the user might be excited and experiences socialization. It is the whole website's content and interactive features that will be decisive.

Besides, in the empirical phase of this research, we compare blue with yellow for the following reasons. First, as we discussed previously, blue is a cool color and yellow is a warm color. Having an opposite chromatic tonality, blue and yellow might elicit contrasting feeling states (Bellizzi et al., 1983; Bellizzi and Hite, 1992; Chebat and Morrin, 2007; Gorn et al., 2004). Second, in the context of online browsing, Gorn et al. (2004) test the links between color and feelings of relaxation and between feelings of relaxation and time perception. The authors predict that the background screen color influences how quickly a page is perceived to download and that feelings of relaxation mediate this influence. Also, their findings reveal that color affects users' evaluations of the website and their likelihood of recommending it to others. Gorn et al. (2004) use blue and yellow to test the effects of colors on an emotional variable (relaxed feeling state) and cognitive variable (evaluations of the website), as we should do in our study since flow encompass two dimensions: enjoyment (emotional dimension) and concentration (cognitive dimension).

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