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Green attributes converged within multifunctional technology products



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ABSTRACT

This article analyzes the way in which the convergence of green attributes in multifunctional technological products influences consumers' purchase intentions. Due to the recent growth in convergent products, technology users and consumers must choose among numerous different applications that can be perceived as either utilitarian or hedonic. This article suggests that new products launched on the market include attributes that are connected to sustainability and provide added value to consumers in their process of decision making. The primary question addressed in this article concerns whether an increase or decrease in consumer intention is based on the perception of the product's utility, and the consumer's prior experience and attitude toward green products. A $2 \times 2 \times 2$ experiment was conducted to evaluate utilitarian or hedonic convergence, green attribute integration, and predisposition for (involvement with) green products. We propose that consumer value increases for those consumers with a high perception of green integration connected to a high predisposition for green devices, which increases the utilitarian value of the product or justifies the hedonic purchase of technological equipment.

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1. Introduction

The past decade has seen significant advances in the telecommunications and IT sectors, which is reflected in the present range of mobile communication devices and services available on the market (Gerpott et al., 2013). All-in-one devices (Nunes et al., 2000), which have been developed over many years, and continue to experience technological advances, allow consumers not only to communicate by voice, text, and video, but also to listen to music, manage schedules and calendars, and synchronize documents from multiple sources. Such devices enable users to organize their entire personal and professional lives.

These technology products have become increasingly popular, not only due to the innovation that is available in the market, but also because of the social/hedonic values that are integrated into each attribute of the device; such social/hedonic values are perceived by technology users who consume based on a desire to differentiate themselves from others, or, on the contrary, to become part of a group of consumers who use innovative products. Therefore, in this research, defining a product as utilitarian or hedonic is related to determining which added attribute provides the most value to the device itself (Gill, 2008; Han et al., 2009).

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Katz and Sugiyama (2006) suggest that mobile users perceive devices as fashion accessories, although they also consider their devices to be important elements in their daily lives. The purchase of expensive products for primarily hedonic motives causes a sense of guilt for consumers (Okada, 2005); in this context, it is helpful to investigate the value to technology users of added green features.

For example, could a hedonic product increase in value when there is also a convergence of green attributes connected to sustainability? If the product is perceived as being more utilitarian than hedonic, could the high social value (responsibility) of “green” features increase consumers’ intentions to buy the product? These answers could define which types of attributes increase consumers’ value and thus guarantee their consumption, which is highly important to the technology industry.

Although including green attributes creates a new environment that can increase or decrease consumers’ intentions, this perception of benefits or value is related to consumers’ prior experiences with green products. These experiences can be positive or negative, and can depend on ideological factors and/or a sense of responsibility toward the environment (Kozinets, 2008).

Many studies have analyzed consumers’ experiences with hedonic and utilitarian attributes (Lee et al., 2013; Arruda Filho, 2012; Botti and McGill, 2011; Gill, 2008; Han et al., 2009) concerning how users decide and what motivates them according products’ profile, values, and perceived benefits. In the same way, many other studies have described and discussed consumers’ decisions, consciousness, and preference regarding green purchases (Hahnel et al., 2014; Schuitema and de Groot, 2015; Olson, 2013; Schlegelmilch et al., 1996); however, the relation between the perceived benefit of the green attributes converged within technology and the technology itself has only been discussed according to the green technology portfolio from the perspective of environmental strategy (Vachon, 2007; Li et al., 2010), which is not related to consumers’ rational or emotional decisions.

There is also a research gap in terms of how green attributes are perceived when converged in technology devices that already have utilitarian and/or hedonic attributes. Understanding how consumers, according their profile, are influenced or motivated is important in order to predict which kinds of products and for which kinds of consumers industries have to produce new devices. Thus, the need to study technology is also strategically related to new products and tendencies of the market, including devices that offer new characteristics to increase consumers’ purchase intentions according the category of product (Vuori and Huy, 2016; Carrillo et al., 2015).

Green attributes could even negatively influence consumer choice (Bhate and Lawler, 1997) if consumers perceive the hedonic use of the device to have a reverse relationship with the utilitarian characteristics of the green converged product (Gill, 2008). Thus, it is important to understand the profile of consumers who desire or accept such attributes in determining whether IT and telecommunications companies can identify how a new product design relates to social responsibility (that is, perceptions of green attributes adding value to the device).

Although consumer preference for converged or bundled products has previously been studied (Arruda Filho, 2012; Han et al., 2009; Harris and Blair, 2006; Sarin et al., 2003), this article suggests that the intention to purchase advanced technology in this new environment is related to consumers who are oriented toward hedonistic or utilitarian values when integrating green attributes.

Firstly, this article presents the theoretical environment related to technological convergence and demonstrates several applications regarding the communication benefits perceived by users. Secondly, the theory for each factor involved in the scenario is analyzed, and the definition of consumer intention related to each attribute’s value is formulated. The following two types of green-acceptance users are proposed: high utilitarian (low hedonic) consumers, who perceive significant social value in green products; and low utilitarian (high hedonic) consumers, who experience a significant sense of guilt regarding hedonism and accept green products to justify their purchase (Schlegelmilch et al., 1996; Li et al., 2010; Choi, 2012; Lin and Chang, 2012).

Thirdly, the experiment design is discussed, and the procedure, variables, manipulations, and validations are proposed to test the hypotheses regarding consumer intention. Finally, the results are presented and interpreted, and the implications for technology consumers based on technology intention of use, values, and preferences are discussed. The paper concludes by identifying potential future lines of research and new product development.

2. Convergence supporting incremental usage

Convergence has created a new environment in terms of contemporary technological products (Han et al., 2009). Modern technology enables connectivity with different types of software and computer programs, since integrated products contain numerous tools within the same device (e.g., mobile phone + MP3 player + digital camera + Internet connectivity, among others) (Nunes et al., 2000). This tendency is reflected in the present generation of smartphones, the benefits of which are related to the numerous functions and services that these devices provide, at least in consumers’ minds (Jokela, 2004).

Related to this environment, the current market tendency is seen as an innovative scenario that provides opportunities for new technologies (Carrillo et al., 2015). The convergence (Gill, 2008) in new products (i.e. smartphones, tablets, and mobile devices) is embedded in different characteristics that increase consumers’ purchase intention according to the perceived benefits with the multi-functionality of the device (Sela and Berger, 2012) – a trend that is set to continue in future.

Converged products offer multiple benefits compared with single products (Han et al., 2009), which enables additional mobility and a more enjoyable experience (Khan and Dhar, 2010). In this way, several features that have converged in

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