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How perceived cognitive needs fulfillment affect consumer attitudes toward the customized product: The moderating role of consumer knowledge

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ABSTRACT

Voluntary participation in adaptive customization (AC) entails consumers' own mental engagement that evokes perceptions of cognitive needs fulfillment (CNF). This study examined the effect of CNF perceived during the process of AC services on felt emotions and consumer attitudes toward the customized product, and the moderation role of consumer knowledge. A total of 327 Americans participated in an online survey after experiencing AC services at 3 actual retail websites. The results revealed the following: (a) Perceived CNF (competence and autonomy) increased positive felt emotions (pleasure and arousal); (b) out of the two emotions, felt pleasure (not arousal) significantly contributed to positive consumer attitudes toward the customized product; (c) subjective levels of consumer knowledge showed a partial moderating effect in the relationships between CNF and felt emotions, (d) but did not do so in the relationships between felt emotions and consumer attitudes toward the customized product.

Adaptive customization (hereafter AC) refers to a user-driven system of product alteration that provides consumers with an opportunity for constrained creativity in co-created designs (Mathwick, Wagner, & Unni, 2010). Forward-looking web-based retail companies as well as leading brands like Adidas (http://www.adidas.com/us/customize) and Nike (http://store.nike.com/us/en_us/pw/mens-nikeid-shoes/1k9Z7puZbrk) have already employed AC services on their websites, responding to consumer demands for an interactive and self-expressive consumption experience online (Bolton & Saxena-lyer, 2009; Saarijärvi, Kannan, and Kuusela, H 2013; Simonson, 2005; Verhoef, Lemon, Parasuraman, Roggeveen, Tsiros, and Schlesinger, 2009). From the consumers' perspective, both the process (i.e., the customizing steps) and output (i.e., the customized product) of AC services are unique and thus may yield some specific psychological value (Franke, Schreier, & Kaiser, 2010; Simonson, 2005; Verhoef et al., 2009). However, while most research on AC services has focused on the benefits of the customized product,[1] few researchers have discussed the possible benefits of AC services that may derive from its process (Franke et al., 2010). This research takes a preliminary step in filling the research gap by exploring the consumer-perceived benefits in the process of AC services.

Specifically, the purpose of this study is to examine the effects of consumer-perceived cognitive needs fulfillment (hereafter CNF, Ryan & Deci, 2000) during the process of AC services, on felt emotions and consumer attitudes toward the customized product (hereafter ACP). Services of AC are actualized through a design configuration toolkit, which consists of multiple choice-making steps, where consumers select their preferred design elements to build the customized product. The process of AC is highly unique compared to the process of an ordinary shopping experience (Bolton & Saxena-lyer, 2009; Franke et al., 2010; White, Zahay, Thorbjørnsen, & Shavitt, 2008), as it entails consumers' voluntary mental engagement in the co-creation that evokes CNF. CNF refers to the extent to which an individual perceives that the mental task meets one's cognitive demands. It is a crucial cognitive reaction to individuals' mental engagement in creative consumption (Dahl & Moreau, 2007). Significant impacts of CNF on consumers' felt emotion and overall evaluation of the task have been demonstrated in the literature on behavioral and motivational psychology (e.g., Bandura, Adams, & Beyer, 1977; Cavanaugh, Bettman, Luce, & Payne, 2007; Lerner, Gonzalez, Small, & Fischhoff, 2003; Spreng, MacKenzie, & Olshavsky, 1996; Wood and Bandura, 1989) or

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[1] The studies highlighted greater consumer satisfaction with the customized (versus standardized) product, explaining that the customized product better fits individual preferences for design or function (e.g., Lian & Yen, 2013).

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consumer behavior (Heitmann, Lehmann, & Herrmann, 2007; Luce, Bettman, & Payne, 2001). Despite the predicted impact of CNF on consumers in AC, little research exists on the topic.

Furthermore, the current study explores the moderating role of consumers' subjective levels of knowledge on the product category within the dynamics of CNF affecting consumers' responses toward the customized product of AC services. Individual characteristics are crucial moderators in the cognitive dynamics of mental engagement (Franke, Peter, & Christoph, 2009). Specifically, consumer knowledge was chosen for the current study, because the variable has been indicated to be highly relevant to consumers' reactions toward new technology (e.g.,Dagger & O'Brien, 2010), situations of choice (e.g., Alba & Hutchinson, 1987; Selnes & Troye, 1989), and web-based services (e.g., Dahl & Moreau, 2007; Mathwick et al., 2010). Therefore, levels of consumer knowledge are expected to perform a significant moderating role in the CNF dynamics affecting felt emotions and ACP. In total, given the increasing interest in an advanced AC and the evolution of relevant technology (Lian & Yen, 2013; Saarijärvi et al., 2013; Verhoef et al., 2009), the results of this study will benefit managers and researchers who aim at a more comprehensive understanding of the consumer-oriented value of AC services.

1. Literature review

1.1. Cognitive needs fulfillment (CNF)

Consumers' active participation in the customizing process of AC stimulates consumer-perceived CNF. Within the context of AC services, CNF should positively influence how consumers evaluate the services. Whereas much research on consumer behavior previously has noted the consumer's mental engagement as a negative factor that decreases their satisfaction, some motivation studies indicate that it may perform as a *positive* motivation for individuals to voluntarily participate in a task, as long as the cognitive load involved in the task is within acceptable boundaries (Dahl & Moreau, 2007; Mathwick et al., 2010). According to the Self Determination Theory, for instance, humans have an innate desire for self-growth and optimal functioning in their own environments to retain their mental balance (Ryan & Deci, 2000; Spreng et al., 1996). This is why humans constantly seek out and initiate certain situations entailing their own physical or mental engagement – to fulfill their innate need to prove abilities involving retention of their mental balance and control of the environment. As such, CNF functions as a strong positive motivation for individuals to initiate and/or continue mental engagement (Franke et al., 2009; Spreng et al., 1996).

Two cognitive needs are expected to perform a significant role in consumers' responses toward AC; they are: (i) the need for competence, or the individual's desire to interact effectively with his or her environment (Kowal & Fortier, 1999), and (ii) the need for autonomy, or the desire to be the originator of one's own behavior (De Charms, 1968). Research found that these two cognitive needs are most essential as to how well and for how long individuals can endure the cognitive load for a given task. When a cognitively loaded activity can fulfill such innate needs, the activity becomes something that people enjoy and want to continue with to maintain their positive mental states (Schwartz, Ward, Monterosso, Lyubomirsky, White, and Lehman, 2002). Consumer behavior researchers (e.g., Bettman, Luce, & Payne, 1998) documented that the two cognitive needs are the key psychological mechanisms underlying a problem-focused coping strategy adopted in consumption situations involving mental tasks. Adapting the theory into a context of do-it-yourself consumption, Dahl and Moreau (2007) found that fulfillment of the two needs is very important in gaining high-level enjoyment during the assembly process. The process of AC inevitably entails individuals' mental engagement in this activity, stimulating CNF of the two innate needs. Perceived need for control, which is similar to the need for autonomy, significantly affects consumers' intention to participate in AC services (Franke et al., 2009; Mathwick et al., 2010). Therefore, within the process of AC, whether the two innate desires are fulfilled should affect subsequent consumer emotions.

1.2. Felt emotions

Cognitive responses during mental engagement lead to emotional responses. Felt emotion refers to a person's state of feeling in the sense of affect within the context (Kotler & Armstrong, 2015). A cognitive challenge positively stimulates mental states and enhances self-fulfilling perceptions as long as it entails affordable levels of mental involvement that retains individuals' interest in and excitement about the task (Lazarus, 1991). Humans may feel content and happy just by putting own effort and mental engagement into an activity and this positive experience of felt emotions relates to self-fulfilling perceptions (Ladhari, 2007; Lazarus, 1991). In consumer behavior settings, emotional states are considered subsequent to cognitive responses to engagement being taken into account. For instance, Lepper and Greene (1978) found that self-intriguing mental activity enhances perceived enjoyment, a moderately positive emotional state in which the individual is interested, contented, and to some degree happy with their circumstances as a human being. Intrinsic motivation results in increased time spent on tasks and, therefore, a higher quality output (Starbuck & Webster, 1991). Indeed, in other motivation studies (e.g., Larson, 1989; Thompson & Spacan, 1991), perceptions of control were shown to elicit positive mental states, such as a sense of activeness or alertness.

During the process of AC services, perceptions of CNF positively contribute to consumers' felt emotions. Research of retail atmospherics largely supports the crucial role of two positive felt emotions—felt pleasure and arousal. Felt *pleasure* is an emotional state that is a composite of emotions, such as happiness, contentment, and satisfaction (Mehrabian & Russell, 1974). Comparatively, felt *arousal* is a measure of how "awake" the organism is (Berlyne, 1971). While no direct relationship has been found between CNF and positive moods, the positive effect of positive cognitive responses on positive emotional responses has been widely shown in the extant literature in the context of consumer responses toward retail environments. For example, Yadav and Varadarajan (2005) showed that perceived control within a store setting leads to a greater sense of arousal and indulgence, and Mathwick and Rigdon (2004) found that mentally intriguing web-based activities, like information searching, can be transformed into a positive emotional state. Others found that consumers' needs for cognitive fulfillment in various choice-making situations significantly elicited their positive emotional states (Fagan, 2008; Gardner, 1985; George & Zhou, 2007). Fagan (2008) found that intrinsically motivated individuals use a new technology for the positive emotional states they find in the activity, and because they enjoy the process, they may tend to underestimate its difficulty and find it easy to use. Based on the literature, it is expected that the perceived CNF should have a positive impact on consumers' felt emotions in AC services. Accordingly, the following is hypothesized:

H1. Perceived competence in the process of AC services increases (a) felt pleasure and (b) felt arousal.

H2. Perceived autonomy in the process of AC services increases (a) felt pleasure and (b) felt arousal.