Can co-creation increase demand for green products?

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Paper from the 49th Annual EMAC Conference, Budapest, May 26-29, 2020.

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Abstract

When the product's green claim is believable (trusted) consumers' display higher behaviour intentions. Our study investigates circumstances whether trust in green claim of sustainable products can be enhanced. Specifically, we look at communication whether consumers were involved (or not) in innovation process, as a mechanism to increase consumer trust in the products' green claims. Our findings show that green products are preferred when consumers trust on the product's green performance. Interestingly, and against our theorizing we did not find higher consumer trust in the green claim for the co-created product. Nevertheless, consumers prefer co-created green products than company developed green products. In the case of non green products, consumers did not seem to differ in purchase intentions when learning that other consumers were involved in the development of the new (non green) product. One possible explanation is that co-creation was tested in a utilitarian and complex product. Past research has shown that utilitarian products are less likely to be influenced by a green claim (Lusch et al., 2010).

Key words: Co-creation, sustainable products, consumer behaviour

Track: Innovation Management and New Product Development

Introduction

Concerns regarding ecological issues, such as heightened resource consumption and environmental degradation are high in the social agenda (Adams, Jeanrenaud, Bessant, Denyer, & Overy, 2016). Consumers expect environmental-friendly products to save resources, have low ecological foot print and environmental damage (Zheng, 2012). Nevertheless green products have less than 3% of sales within their categories (Sheth et al., 2011), in part due to issues of trust and credibility (Moussa & Touzani, 2008). For consumers, the desire to make sustainable purchases is forestalled by what many perceive to be a lack of credibility and honesty in marketing claims in general and in environmental claims in particular (Crane, 2000; Hulm, 2010; Leire & Thidell 2005).

Stronger environmental expectations from governments, activist groups, consumers, and employees pressure companies to act more environmental friendly (Santos, Pache, & Birkholz, 2015). As a result firms are including in their business models CSR strategies or introduce green innovations (Paparoidamis et al., 2019). Consumers often report positive attitudes towards eco friendly behaviours (Trudel & Cotte, 2009), but this is not reflected at the point of purchase (Young et al., 2010). This is a challenge for marketers, companies, policy makers and non-profit organizations wanting to promote sustainable consumption. Research has looked into why there is a misalignment in behaviour with reasons focusing on the benefit (others vs self) (Bodur, Tofighi & Grohnmann, 2016), costly perceptions of green alternatives, lower quality, greater uncertainty about product functionality which may turn sustainable products at disadvantaged against their standard equivalents (Lin & Chang, 2012; Luchs et al., 2010).

Innovation management scholars show that consumer involvement in new product development influence trust in products by attenuating skepticism around firm abilities (Scherier et al., 2012; Luo & Battacharya, 2006) and as such increase product demand. This idea has been raised by innovation researchers showing that observing consumers –those that consume products but are not involved in new product development - are more willing to buy user than firm-designed products (Fuchs & Schreier, 2011). Fuchs and Schreier (2011) explain this effect through higher perceptions of customer orientation. Alternative explanations view this positive attitude as the identification that emerges with those developing new products for the firm (Dahl et al., 2014; Thompson & Malavyia, 2013).

Higher identification with the source increases the levels of trust thus increasing the odds of a consumer preference for those products.

This is particularly relevant for green claims for two reasons: green claims are often difficult or impossible to verify so to be effective these claims rely on trust. When consumers do not trust the content of the marketing claim, purchase intention decreases (Thøgersen 2002). Secondly, the skepticism towards companies' green claims, the higher prices of ecological products and difficulties in assessing the value (Sheth et al 2011; Olson 2013) have turned off consumers from adopting eco-consumption patterns. The relevance is that trust influences purchase decisions (Gefen & Straub, 2004), by acting as persuasion agent (Boush et al. 1993) that facilitates consumer decision process

Addressing consumer's trust in eco-friendly products is important since these are expected to grow in the future (Varadarajan, 2015), as they meet environmental imperatives, build competitive advantage, and propel future growth (Nidumolu et al., 2009). This paper investigates whether firms operating in the green market should communicate other consumers' involvement in the new products as a way to increase levels of trust in the product's green claim and as such overcome green product skepticism.

Literature Review

Consumer trust and message credibility are central to issues of green consumption and green product claims since these are often difficult to verify known as credence claims (Nelson 1970). Nelson (1974) provides the case of tuna cans. Consumers can easily verify claims about the cost and the quality of the tuna by checking the price and consuming it (respectively) however they cannot apprehend if the number of dolphin facilities were minimize during the fishing process when reading the "dolphin safe" label. In these instances of uncertainty, consumers have the power to trust or not trust in those signals (Atkinson & Rosenthal 2014). Trust is a positive expectation of a partner's beneficial conduct, while distrust is not just the absence of trust, but the active expectation that the other party will behave in a way that violates one's welfare and security (Cho, 2006). Thus consumers are faced with uncertainty about the marketing message, trust is a mechanism to reduce uncertainty and thus assisting consumers' decisions. Trust has been shown to be an important aspect of consumer behaviour, with established researched showing that trust is an important

antecedent of persuasion (REF). If consumers trust the brand or source of a claim, they are more likely to accept the claim as credible and honest.

When consumers mistrust marketing claims their likelihood of product adoption or purchase decreases and negative word of mouth is much likelier to spread (REF). This effect can be augmented due to green washing when companies launch false sustainability claims in order to meet the societal demand for more sustainable business without really accounting for sustainable business principles. In fact, a Nielsen (2011) survey shows that less than half of US consumers belief in companies' sustainable messages.

Private businesses seem to be at a particular disadvantage as a trustworthy source regarding environmental information. Criticism can arise from pollution generation (Darnall et al., 2012) and misleading information about businesses environmental performance (Testa et al., 2015). Often business are perceived as not telling the whole story about the environmental consequences of their products or even making false o exaggerated claims about eco friendliness of their products (Atkinson & Rosenthal, 2014; Oates et al., 2008). Such misinformation is likely to be more prevalence has societies become more concerned with environmental issues and incentives to verify such claims still lag behind. As such we proposed that:

H1: Consumers purchase intention of a green product is mediate by consumers' trust in the product's green claim.

Consumer Trust & Co-creation

Asymmetry theory argues that consumers are at informational disadvantage compared with companies (Elitzur & Gavious 2003). Consumers have to make decisions about products and services based on incomplete, imperfect or eventually misleading information. Because of this incompleteness or asymmetry of information consumers rely on signals (an informational and extrinsic cue) for particular moments of uncertainty. With those signals, consumers are able to form interpretations about the product in question (Bloom & Reve 1990).

These signals allow consumers to to make inferences about some missing links drawing conclusions about the product (Brown & Dacin, 1997; Gurhan-Canli & Batra, 2004).

Inferences are formed when consumers use specific cues (e.g., their own beliefs) to draw general conclusions about the firm or the product (Kardes, Posavac & Cronley, 2004).For example, a company name can be a signal of firm's attributes (reputation) such as quality and innovativeness or as a good corporate citizenship (Luo &Battacharya, 2006, Boulding & Kirmani 1993). Others can introduce signals through advertising (Kirmani, 1990) a tool that can increase perceived quality of the product. The degree that such signals will be effective from the firm perspective will depend on how consumers see them as useful and credible Boulding & Kirmani 1993).

Endorsement of cues in the form of consumer participation in the new product development can offer the broader market some degree of confidence in the credibility of the claim and help foster consumer trust (Hansen & Kull 1994). But such confidence largely depends on the source effects (Ohanian 1990) such as the role of source credibility, expertise, likability and similarity as persuading agents and this acceptance of messages. More credible information helps reduce purchase anxiety and build trust and confidence (Berry, 2000).

Communicating that a product was developed by or with *other* consumers can make this label a salient characteristic for consumers evaluating the product. The effect of co-creation is consistent with research on social influence (Thompson & Malavyia, 2013). Such process arises by conferring higher credibility to the source of the "message" through similar traits between the consumer and the co-creator (source attractiveness). Through identification consumers are engaging in a social mechanism in which an individual adopts a behaviour from a group (or person) because such behaviour is associated with bonding to the group. Consumer trust is built since co-creation initiates a dialogue between companies and consumers, which consequently makes brands perceived as more authentic and closer to the consumers (Randall et al., 2011).

Thus accepting identification is a way of establishing a relationship with the group while anchoring the relationship in the self-definition (Kelman, 1961 from Thompson and Malavyia, 2013).

Therefore, at the point of purchase consumers that buy the product may feel more similar to users that were empowered to develop a green product than with the firm's professionals. This similarity will in turn increase trust in the product that is transferred to the object making consumers more likely to display positive attitudes towards a product that involved users

leading to higher purchases and more likelihood of recommending the firm's products (Dahl et al., 2014). Such heighten effect will be transferred to the product

H2a: Consumers display higher levels of green trust in cocreated green products than in firm developed green products.

H2b: Consumers higher levels of green trust in cocreated green products will explain consumers' preference for co-created green products over firm developed green products.

The role of product nature

Hedonic and utilitarian product dimensions can be linked to "*wants*" and "*should*" in consumers' choices. "*Wants*" represent a more emotive, affective and impulsive reaction (hedonic), whereas "*should*" provide a more rational and cognitive reaction (utilitarian) (Bazerman, Tenbrunsel and Wade-Benzoni, 1998). Research has showed that consumers tend to attribute more value to the hedonic dimension (Okada, 2005; Dhar and Wertenbroch, 2000), but when faced with the choice between a hedonic or a utilitarian product, the need to justify the pleasure choices makes consumers opt for the more rational alternative - utilitarian (Okada, 2005). Co-created and sustainability can provide consumers a good justification for a peslurable (hedonic) consumption. In fact research as shoe that the effect of sustainable claim in product preference is subject to the nature of the product (Luch et al, 2012; Paparoidamos et al., 2019) with consumers preferring green aspects in hedonic products than in highly functional ones (Luchs et al., 2010). Thus, we expect

H3: Consumers display higher purchase intention for co-created green products in hedonic consumption than then in utilitarian consumption

Study 1: Five hundred fifty six M Turk participants took part in the study (49% male; Mage= 34). The study followed a 2 (green claim: sustainable vs non sustainable) x 2 (product nature: shampoo vs hand sanitizer). Study 1 goal is to investigate the role of green trust in products presented with a green claim.

Method: First, participants are asked to imagine they were at the supermarket searching for a product (order randomized). Then, randomly participants were assigned to one of two firms (one with a high sustainable claim and another with no sustainable clam). After participants answered questions about perceived greenness and trust in the green claim of the product. Next, participants were shown a picture of the new product and reported about their

purchase intentions. The next section respondents answer the same questions on a new shampoo if they were first exposed to a hand sanitizer or the other way round. Before leaving respondents answered questions about their demographics.

Measures: All measures used a 7 point Likert scale. Green trust scale was adapted from Chen (2013) measured with 5 items. Trust in product functionality was adapted from Homburg and, Schwemmle, & Kuehnl (2015) and it was measured in three items. Purchase intention was adapted from Mohr and Webb (2005) with three distinct items

Results: Participants perceived the intended differences in terms of green claim ($M_{Non-Green}$ = 3.86, $M_{Green.}$ = 6.20; $F(2, 555) = 448.87$, $p < .000$).

To understand the influence of trust in the product affects consumers' purchase intention(H1) we run a two way analysis of variance on purchase intention and trust (green and functional). First, purchase intentions is affected by the presence of a green claim (M_{Green} = 5.3; $M_{Non-Green}$ = 4.7, $p < .00$). The effect of green claim is stronger for the shampoos category than the hand sanitizers' category, although both are still significant.

Regression analyzes shows significant effects of green claim ($\beta = -.4$; $p < .00$); green trust ($\beta = .6$, $p < .00$); functionality trust ($\beta = .3$, $p < .00$) on consumers' purchase intention. Further analysis shows that a green claim does not impact the trust in the products functionality ($\beta = .09$: $p > .05$). A bootstrapping analysis on green trust (Process Model 4; Hayes, 2013) show a mediation effect of trust on the link between a sustainable product and purchase intentions C.I. 95% purchase intention [.068; 1.09].

The results indicate that consumers purchase intentions rely on trust, both at the level of product performance (functionality) and the green claim communicated by the firm.

Methodology and Results

Study 2: Study 2 provides the first overview about the implications of communicating consumer participation in NPD (co-creation) on observer consumers' attitudes towards the green claim in products. Two hundred and fourteen participants took part in the study (48% male, mean age = 23). This study followed a 2 x (design mode: co-creation vs professionals) x 2 (green claim: sustainable vs non sustainable) between subjects group design experiment.

Method: We followed the same procedure as in study 1 adding information about a new range of green cleaning[1] products created by a firm. The participants in the co-creation

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[1] A pilot study with 35 participants assisted in choosing the product stimuli. The participants were asked to select, between three products about the one more likely to be co-created. We tested cosmetics, household cleaning products and

condition read about the close collaboration between the online community and the firm to develop the new product. The participants in the professional condition read that professionals were developing the new product. After reading and seeing an image of the new product, participants completed the manipulation check for design mode and the procedure was the same as study 1. All measures were the same as study 1.

Results: Analysis of the manipulation check indicated that the participants perceived the intended differences both in terms of sustainability claim ($M_{Non-Green}$ = 3.21, $M_{Green.}$ = 5.63 ; $F(2, 212) = 200.15$, $p < .000$) and who was responsible for coming up with the new product (M_{Cc} = 3.35, $M_{Prof.}$ = 4.73; $F(2, 212) = 104.94$, $p < .000$).

A two way analysis of variance on purchase intention and trust revealed that purchase intentions were not affected by the presence of a green claim (M_{Green} = 4.51; $M_{Non-Green}$ = 4.46, p > .05). Similarly, consumers in the co-created new product scenario reported the same purchase intention as participants in the firm developed scenario (M_{CC} = 4.52; $M_{Prof.}$ = 4.44, p > .05).

Mediation analysis. A bootstrapping analysis was performed for the single mediator (Hayes, 2013). The results show a full mediation effect of green trust on the link between a sustainable product and purchase intentions. (β = .64, p < .00) C.I. 95% purchase intention [.08; .45].

Moderating role of co-creation. To further investigate how the green claim is affect by the way new products are developed we run a univariate analyses to understand the moderation effect of leaning about the firm innovation strategy. We found a strong moderation effect (F (3, 213) = 6.63; p < .05) accordingly to the source of design. In the case of product claiming a green differentiation consumers report higher purchase intentions when developed with other consumers (M_{CC} = 4.77) than when developed by firm's professionals ($M_{Prof.}$ = 4.25). Conversely, the non-sustainable condition show that although products developed by firm's professionals ($M_{Prof.}$ = 4.69) have higher mean this is not statistically different from the purchase intentions of consumers in the co-creation scenario (M_{CC} = 4.31), t(105) = 1.621, p >.05).

Moderated role of cocreation on green trust: We expected that the mediating effect of environmental trust on the relationship of sustainable products and purchase intentions will be stronger when products are co-created. A bootstrapping analysis was performed for the single mediator (Process Model 7; Hayes, 2013). Surprisingly, in this product category and against

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ice-cream. These products were used because they are usually associated with environmental concerns or scandals such as air and water pollution, animal cruelty/exploration or inorganic materials and because, in these three categories, brands use sustainability as a basis for differentiation. We retained the product with higher percentage of responses.

our predictions trust was not influenced by how products are developed, i.e. consumers levels of green product performance was not affected by learning that other consumers were involved. It showed no significant difference from learning that the development was the full responsibility of the firms' professionals C.I 95% [-.15; .54]. In fact, consumers were trusting firm professionals more than a product co-created with other consumers (M_{Cc}= 4.87 M_{Prof} = 5.11, p < .10) Our results do not support H2.

Direct gains of engaging consumers in new product development are well established. At the same, a burgeoning segment of consumers are rewarding businesses that address environmental concerns through their business practices (Winston, 2019). The result of our preliminary studies demonstrated that consumer involvement strengthens preference for green products but in the case of home care products (functional products) this effects is not gained with higher trust in the green claim.

Discussion

The current study has examined an often ignored outcome of consumer driven innovation: trust. Although the innovation literature has pointed to the benefits of involving consumers in all stages of product development - enhanced feeling of customer orientation (Fuchs et al., 2011), company identification (Dahl et al., 2014), perceived corporate abilities (Luo & Battacharya, 2006) – the role of trust has been neglected or mainly investigated through an individual level trait (Zhang & Hanks, 2017). Our study looks at the social effect that emerges from exposing consumer to social norms (consumer innovation strategy). As such our study contributes to the understanding of how innovation mechanisms (the crowd vs the firm) can influence consumer behaviour particularly by influencing the level of trust involved in the marketing message.

The results of our studies have clear implications for marketers and managers. The findings of this work show that companies that launch green products in the market need to be trusted as consumers are willing to buy more green products when trusted. More intricate is the relationship between higher perceive trust and a co-creation label. Our study shows that in the case of functional products communicating co-creation matters, but the effect is not explained through higher levels of trust in the green claim. Further research needs to understand different product categories such as personal care products as consumers are more likely to value a green claim from a trustworthy source than in functional (home care) products.

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