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Green Consumerism: The Influence of Product Attributes and Values on Purchasing
Intentions

Abstract

Generally, a majority of consumers support the idea of purchasing green products,. However, this is often not translated in actual behaviour. We argue that there is a trade-off between the influence of product attributes on purchasing decisions, whereby it is assumed that consumers tend to focus on egoistic product characteristics first, followed by green product characteristics. In two experimental studies ($N=100$ and $N=107$) we find support for this reasoning: if product attributes fulfil self-serving motives (low price, familiar or well-known brand) green product attributes (cruelty free and low environmental impact) influence purchasing intentions more than when self-serving motives are not fulfilled (high price, unfamiliar or unknown brand). Further, we investigated if and how values weaken or strengthen the influence of product attributes on purchasing intentions. We conclude that biospheric values steer how product attributes influence purchasing intentions stronger than egoistic values. In line with our expectations, we find that if biospheric values are weak, egoistic product attributes are more influential, whereas if biospheric values are strong green product attributes are more influential.

Key words: Values; Green Consumerism; Product Attributes; Purchasing intentions

Green Consumerism: Product Attributes, Values and Purchasing Intentions of Personal Care Products

Introduction

Nowadays, consumers can find green products in almost every shop. The rapid increase of green products goes hand in hand with the marketing of these products. To promote green products, different strategies are used with the aim to inform consumers about the (limited) impact of the product on the environment. For example, by changing the material or colour of the packaging, adding product labels or introducing ecolabels. The effect of such strategies on consumers' purchasing behaviour has extensively been researched (e.g., D'Souza and Taghian, 2007; Gulbrandsen, 2006; Leire and Thidell, 2005; Rokka and Uusitalo, 2008; Thøgersen et al., 2010).

Of course, in addition to marketing strategies that stress the (limited amount of) environmental impact of a product on the environment, other information is usually provided as well, for example information about the quality, price, brand equity, safety or health that is associated with the product. Consumers have to take all product information into account and even though a majority of consumers support the idea of purchasing green products, this often does not actually result in purchasing intentions or behaviour (Magnusson et al., 2001). This implies that other variables interfere with the importance of 'green' product attributes. Indeed, concerns regarding health, taste and price for example are often regarded as more important for the choice of organic food than environmental concerns (Hughner et al., 2007).

In a vast majority of the studies the argument is made that consumers do not purchase green products, because they focus on other than green product attributes (Hughner et al., 2007; Magnusson et al., 2001). This implies that consumers do not consider green product attributes at all, but, *instead*, focus on other attributes (such as health, quality, taste, price, brand equity). We, however, argue in this paper that consumers *do* consider green product attributes, but that they are often pushed to the

background. Hence, we propose that there is a trade-off between the evaluation of product attributes that influences purchasing decisions, whereby consumers tend to focus on egoistic product attributes first, followed by green product attributes. In order to examine this assumption, we focus in this paper on the trade-off between green and other product attributes on purchasing intentions. 'Other' product attributes in this paper are narrowed down to product characteristics that provide direct and visible positive effects for a consumer, thereby serving self-interest needs and are referred to as egoistic product attributes. Further, the extent to which green product attributes are pushed to the background most likely depends on consumers' values. Specifically, egoistic and biospheric values are likely to be important predictors for consumer's purchasing behaviour, because they steer the focus on specific product attributes. In sum, the aim of this paper is to examine our assumption that consumers tend to focus on egoistic product attributes first, followed by green product attributes and how this relationship depends on one's values.

Theoretical framework: Green Consumerism as a Social Dilemma

Green consumerism can be characterised as a social dilemma (Gupta and Ogden, 2009; Moisander, 2007), which is defined as a situation in which consumers experience a conflict between their (short-term) individual interests and (long-term) collective interests (Dawes and Messick, 2000). In a social dilemma, each consumer faces a pay-off. Each *individual* consumer will have the highest pay-off when acting in line with one's self-interest, and this is higher than acting in line with the collective interests. However, if *all* consumers follow their self-interest, *all* consumers will be worse off; and, if *all* consumers follow the collective interests, *everybody* will be better off in the long term.

In the realm of this paper, following collective interests implies becoming a green consumer, which refers to a consumption pattern that reflects social responsibility and environmental concern (Moisander, 2007). In other words, making

the 'green' choice implies buying products that are least harmful to the environment and society as a whole. In order to do so, consumers have to focus more on green product attributes than on other product attributes, such as price.

Following Magnusson et al (2003), altruistic (or 'green') and egoistic consumer motivations can be distinguished, which can be linked to product attributes. 'Green' products have two key attributes: environmental protection and cruelty free (cf., Lindeman and Väänänen, 2000). Both green attributes positively influence product evaluations and purchasing intentions of green products (e.g., Borin et al., 2011; D'Souza et al., 2006). 'Egoistic' product attributes provide direct and visible positive effects for a consumer, thereby serving self-interest needs. Two well-documented product attributes that are considered to influence purchasing intentions because of underlying self-interest motives are 'price' and 'brand equity'.

The influence of the price of a product on purchasing intentions and behaviours has been studied intensely in the last decades (Ahmetoglu, et al., 2014; Chen et al., 1998; Erickson and Johansson, 1985; Shih, 2012; Xu et al., 2012). Consumers generally prefer lower prices, simply because they will look at these products as selfish rational decision makers. However, the relationship between price and purchasing intention is not always negative. Price level can be positively related to purchasing intentions, for example when a highly priced product is associated with a higher quality or better image of the product (e.g., Shih, 2012; Swani and Yoo, 2010; Yoo et al., 2000). Although the strength and direction of the relationship between price and purchasing intentions is not straightforward, for the present study, it is important to recognise that price is a typical 'egoistic' product attribute, because consumers expect to be better off personally either by saving money, by getting a high quality product, or by gaining status and recognition when buying the product.

As the effect of price, the effect of brand equity on consumer behaviour has been studied intensely as well (e.g., Aaker, 1991; Brakus & Schmitt, 2009; Keller, 1993). We

focus particularly on customer-based brand equity, which is defined as the differential effect of brand knowledge on consumer response to the marketing of the brand, and occurs when a consumer is familiar with the brand and has favourable, strong, and unique brand associations with the brand (Keller, 1993). Consumer-based brand equity is, similar to price, an attribute that consumers mainly focus on for selfish reasons (Carrigan and Attalla, 2001). To illustrate, consumers believe that familiar or well-known brands are more reliable and of better quality than the unfamiliar or less well-known alternatives (e.g., Cobb-Walgren, et al., 1995; Penz, 2005; Strizhakova et al., 2008). Moreover, one's self-image can be communicated by choosing a specific brand (e.g., Blackwell et al., 2005; Penz, 2005), meaning consumers expect to be better off personally when buying a familiar or well-known brand. The extent to which brands are familiar or well-known to consumers has a fairly straightforward relationship with purchasing intentions. Consumers are generally more likely to buy products when they are brands that are familiar or well-known to them (i.e., high levels of brand equity) (Cobb-Walgren, et al., 1995; Penz, 2005; Strizhakova et al., 2008). Again, the main underlying driver for the influence of brand equity on purchase intentions are self-serving or 'egoistic' motivations.

As described above, marketing and consumer research often studies the influence of green or egoistic attributes on purchase intentions and behaviour. However, research about the interactions between the two types of product attributes is largely missing. We propose that consumers make a trade-off between green and egoistic product attributes in order to make purchase decisions, whereby they tend to focus on egoistic product characteristics first, followed by green product characteristics. The latter assumption is based on Goal Framing Theory (Lindenberg and Steg, 2007), which states that usually multiple goals are active at the same time and only the activated or focal goal is the one people act on. This explains why consumers can act more strongly on egoistic motives than on pro-social motives, even if consumers believe that collective

interests are important. However, there is no empirical support to back up this assumption. To close this gap, the present research investigates the trade-off between green and egoistic product attributes on purchasing intentions.

Applying Goal Framing Theory to green consumerism, it can be assumed that if consumers' egoistic motives are fulfilled, green product attributes are likely to further strengthen the influence of egoistic product attributes on purchasing intentions (cf. Lindenberg and Steg, 2007). From a consumers' perspective this means that only if a product affects their individual interests positively in the first place, they are likely to choose a product that scores positively on green attributes too, because that will make them feel even better about their purchase (referred to as 'the warm glow effect'; Bolderdijk et al, 2013; Kahneman and Knetsch, 1992; Nunes and Schokkaert, 2003). If a product has egoistic product attributes that do not fulfil self-serving motives, consumers will have low intentions to purchase the product regardless of the green product attributes.

Therefore, we expect an interaction effect between green and egoistic product attributes on purchasing intentions. In this case we choose two egoistic (i.e., price and brand equity) and two green product attributes (i.e., environmental impact and cruelty). Specifically we hypothesise that:

H1: a) if a product's egoistic attributes fulfil self-serving motives (i.e., low price/ familiar or well-known brand), consumers will especially purchase those products that also have green product attributes (i.e. low environmental impact/ cruelty free); (b) if a product's egoistic attributes do not fulfil self-serving motives (i.e., high price/ unfamiliar or unknown brand), consumers' purchase intentions will be lower regardless of the existence of green product attributes.

Consumers' decision making process and behaviour in a social dilemma depends on their values (Messick and McClintock, 1968; Van Lange, 1999; Van Lange et al., 2013), and as a result, values are important determinants of green consumerism (Biel et al., 2005; Kim, 2011; Thøgersen and Ölander, 2002). Values are defined as desirable trans-situational goals, varying in importance and serving as guiding principles in a person's life (Schwartz, 1992). This definition includes most of the agreed on key features of values. First, values reflect beliefs on the desirability of a certain end-state and therefore function as general predictors for attitudes, intentions and behaviour (Seligman and Katz, 1996). Second, values are abstract in nature. The abstractness of values allows for predictions in almost all behavioural contexts instead of only one specific behavioural context which is the case with behaviour-specific beliefs and attitudes (Ajzen, 1991). Third, values are relatively stable over time, whereas behaviour-specific beliefs and attitudes can change more easily (Feather, 1995).

The features above show the relevance of studying values in relation to green consumerism; knowing which values are important for a broader category of behaviour (e.g., green consumerism), can help changing different specific behaviours simultaneously (e.g., promoting the purchase of organic food, but also recycling behaviour or reductions in energy use). Hence, value research can inform us in the development of interventions. Moreover, because consumers differ in their value priorities, values can be used to segment a population into homogeneous groups that can be targeted by tailored interventions (Kamakura and Mazzon, 1991).

In research focusing on green consumerism, two values are important: egoistic and altruistic values (De Groot and Steg, 2008; Stern, 2000). People who strongly endorse egoistic values especially consider costs and benefits for them personally: when the perceived individual benefits in a social dilemma situation exceed the perceived individual costs they will cooperate and vice versa. People with strong altruistic values base their decision to cooperate or deflect on the perceived costs and benefits of this

behaviour for other people, their community, or for the ecosystem as a whole. Our research will focus on a specific type of values within the altruistic values, that is 'biospheric' values, in which costs and benefits for the environment and ecosystem are balanced (De Groot and Steg, 2008). Research provides support that individuals who strongly endorse biospheric values are more likely to have 'greener' intentions, while the opposite is true for those who strongly endorse egoistic values (e.g., Collins et al., 2007; Stern, 2000).

A social dilemma, framed in the context of green consumerism, implies that purchasing products with green attributes is 'cooperating', whereas purchasing products with egoistic attributes is 'deflecting'. As shown in value research, individuals who strongly endorse biospheric values are more likely to cooperate in social dilemmas, while people who strongly endorse egoistic values will be more likely to deflect in social dilemmas (Thøgersen, 2011). Why are egoistic people more likely to deflect than biospheric people in social dilemmas? We argue that values are the stable underlying individual constructs that directly influence the evaluation of the importance of specific product attributes.

This reasoning is in line with research showing that values seem to be especially important as indirect rather than direct predictors of behavioural intentions (Seligman and Katz, 1996). That is, values are more influential as a 'catalyst' between other variables and intentions than as a direct predictor for intentions (Feather, 1995). Fulfilling self-interest is most important for consumers with strong egoistic values, whereas being a green consumer is most important for consumers who strongly endorse biospheric values. Therefore, we hypothesise the following:

H2: purchasing intentions of consumers with strong (relatively to weak) egoist values will be (a) more influenced by attributes that

fulfil their self-serving motives (i.e., low price, familiar or well-known brand) and (b) less influenced by green product attributes (i.e., low carbon footprint, cruelty free).

H3: purchasing intentions of consumers with strong (relative to weak) biospheric values will be (a) less influenced by attributes that fulfil their self-serving motives (i.e., low price, familiar or well-known brand) and (b) more influenced by green product attributes (i.e., low carbon footprint, cruelty free).

Experiment 1

The aim of Experiment 1 is to test Hypothesis 1, 2 and 3 as described above. As a case in point, we focus on personal care products in this study, because (the lack of) green consumerism is seen as a big issue in this branch (see e.g., www.leapingbunny.org; www.ewg.org/skindeep; www.peta.org.uk). More specifically, purchasing intentions of a moisturiser was the dependent variable in Experiment 1.

Method

Participants

A questionnaire study was conducted amongst an opportunity sample ($N=100$), including participants who were recruited through a combination of the confederate's social networking sites and the university's research voluntary participation system (a participation system, where students voluntarily sign up to participate in research, in exchange for credits) ($M_{age}=23.82$, $SD=9.32$; 81% females). Participants were asked to fill in a 20 minutes questionnaire on their opinions regarding their attitudes towards personal care products, specifically moisturisers. The only criterion for participation was that participants should use a moisturiser so the scenarios would be relevant for

them. Females were overrepresented in our sample probably because women primarily use moisturisers (Wu et al., 2010).

Procedure and Questionnaire

We used a mixed subjects design, including four within-subject variables and two between-subject variables. Participants rated sixteen product scenarios that were systematically varied on the four within-subject variables. The product scenarios systematically varied on price (2 levels: high price, low price), brand equity (2 levels: well-known brand, unknown brand,), cruelty (2 levels: animal tested, not animal tested), and environmental impact (2 levels: produced with a high or low carbon footprint). The sixteen scenarios were randomized to avoid any order effects. The 16 product scenarios were laid out in the following way: 'A moisturiser costs £4.99 [low cost]/£34.99 [high cost] and is sold by a brand that *is/is not* very well known. It *has/has not* been tested on animals and the manufacturer has a *high/low* carbon footprint.' The prices of the product were based on the highest and lowest prices in the daily moisturiser market of the UK (February 2012).

The dependent variable was purchasing intentions of the moisturiser and was introduced after reading each product scenario. Purchasing intentions are defined as an individual's conscious plan to make an effort to purchase a product (e.g., Spears and Singh, 2004). We measured purchasing intentions with two items. Participants evaluated the extent to which they agreed they would intend to buy the product (1) for their own consumption, and, (2) for a gift for someone else on a 6 point-scale, ranging from 1 *totally disagree* to 6 *totally agree*. The average of these two items was the dependent variable for the 16 scenarios (Cronbach's alphas ranged between .75 and .94).

After evaluating the sixteen scenarios, the two between-subject independent variables were measured. These included egoistic and biospheric values. Participants rated nine values as a guiding principle in their life on a 6-point scale ranging from 1 *not*

important to 6 very important. There were five items to measure egoistic values (being ambitious, wealth, authority, status and recognition), and four items to measure biospheric values (respecting the earth, unity with nature, preventing pollution and protecting the environment). These values were based on De Groot and Steg's (2008) value instrument. Mean scores were computed on items included in each scale. Cronbach's alpha was .80 for egoistic values ($M=3.40$, $SD=1.06$), and .94 for biospheric values ($M=4.08$, $SD=1.42$). Egoistic and biospheric values correlated negatively (Pearson's $r = -.40$).

Analysis

A mixed multi-factorial repeated-measure ANOVA was used to test the interaction effects between (1) green and egoistic product attributes (Hypothesis 1), (2) green product attributes and values (Hypothesis 2), and (3) egoistic product attributes and values (Hypothesis 3) on purchasing intentions. Results for all main effects and 2-level interaction effects of the within-subject variables for Experiment 1 are reported in Appendix A.¹

Significant interaction effects were further investigated using simple main effect analyses. For the continuous variables egoistic and biospheric values a median split was calculated to group participants. This was merely done to visually illustrate the direction of the significant interactions in figures, rather than its' size. The median for the egoistic value scale was 3.40. Participants with scores ≤ 3.40 made up the group with weak egoistic values and participants with scores > 3.40 made up the group with strong egoistic values. The median for the biospheric value scale was 4.25. So participants with scores ≤ 4.25 were included in the group with weak biospheric values, and, participants with scores > 4.25 were included in the strong biospheric values group.

Results

Interaction Effects of Product Attributes on Purchasing Intentions

Price and cruelty. There was a significant interaction effect between the price of the product and the green product attribute cruelty ($F(1, 18)=31.95, p<.001$, partial $\eta^2=.64$), see Figure 1a. Simple main effects revealed that participants had a lower intention to purchase a moisturiser that was high priced and tested on animals ($M=1.81, SD=0.86$) than a moisturiser that was high priced and not tested on animals ($M=2.46, SD=1.05; t(99)=6.17, p<.001$, Cohen's $d=0.62$). However, when the moisturiser was low priced the influence of animal testing was even stronger: participants intended less strongly to purchase the moisturiser tested on animals ($M=2.00, SD=0.93$) compared to the moisturiser not tested on animals ($M=3.38, SD=0.95; t(99)=13.82, p<.001$, Cohen's $d=1.38$).

Price and environmental impact. A similar pattern was found for the interaction between price and environmental impact ($F(1, 18)=80.16, p<.001$, partial $\eta^2=.15$), see Figure 1b. Participants were less willing to purchase a moisturiser that was high priced and produced by a manufacturer with a high carbon footprint ($M=2.00, SD=0.87$) than a moisturiser that was high priced but produced by a manufacturer with a low carbon footprint ($M=2.27, SD=0.93; t(99)=3.27, p<.01$, Cohen's $d=0.26$). However, when the moisturiser was low priced the influence of carbon footprint of the manufacturer was even stronger: participants had less strong intentions to purchase the moisturiser when the manufacturer had a high carbon footprint ($M=2.17, SD=0.86$) compared to the moisturiser produced by a manufacturer with a low carbon footprint ($M=3.21, SD=0.88; t(99)=14.68, Cohen's d=1.47$).

Brand equity and cruelty. The interaction between the egoistic product attribute brand equity and the green product attribute cruelty was marginally significant ($F(1, 18)=3.22, p=.09$, partial $\eta^2=.15$) and less strong than the interaction effect between the attributes price and cruelty. As shown in Figure 1c, participants had a less strong intention to purchase a moisturiser of a well-known brand when the product was tested on animals ($M=2.16, SD=1.11$) than a moisturiser that was well-known but

not tested on animals ($M=3.25$, $SD=0.98$; $t(99)=10.49$, $p<.001$, Cohen's $d=0.68$). The influence of cruelty was similarly important when the brand was unknown to people. Participants intended less strongly to purchase the moisturiser when the brand was unknown and it had been tested on animals ($M=1.65$, $SD=0.70$) than when it had not been tested on animals ($M=2.59$, $SD=0.88$; $t(99)=10.28$, Cohen's $d=0.68$).

Brand equity and environmental impact. Brand equity did not interact significantly with the environmental impact of the product ($F(1, 18)=1.31$, $p=.267$).

Interaction Effects Values and Product Attributes on Purchasing Intentions

Egoistic values did not significantly interact with the product attributes price ($F(1, 96)=1.25$, $p=.226$), cruelty ($F(16, 18)=1.26$, $p=.313$), and environmental impact ($F(16, 18)=0.66$, $p=.795$) on purchasing intentions of the moisturiser. However, there was a significant interaction effect between egoistic values and brand equity on purchasing intentions ($F(16, 18)=4.68$, $p<.001$, partial $\eta^2=.80$; see Figure 2a). Participants who strongly endorsed egoistic values had stronger intentions to purchase a moisturiser from a well-known brand ($M=3.03$, $SD=0.91$) than from an unknown brand ($M=2.28$, $SD=0.72$; $t(51)=6.46$, $p<.001$, Cohen's $d=0.90$). The extent to which the brand was well-known was also important for people low in egoistic values ($M_{well-known}=2.36$, $SD=0.77$ versus $M_{unknown}=1.95$, $SD=0.52$; $t(47)=5.25$, $p<.001$, Cohen's $d=0.76$), although the effect size slightly decreased compared to the participants with strong egoistic values.

Biospheric values did not significantly interact with the green product attribute environmental impact ($F(18, 18)=1.15$, $p=.383$) and the egoistic attribute price on purchasing intentions of the moisturiser ($F(18, 18)=1.48$, $p=.203$). There was however a significant interaction effect between the product attribute brand equity and biospheric values ($F(18, 18)=3.13$, $p<.01$, partial $\eta^2=.75$; see Figure 2b). Participants who strongly endorsed biospheric values were more willing to purchase the moisturiser if the brand was well-known ($M=2.34$, $SD=0.69$) instead of unknown ($M=2.03$, $SD=0.58$; $t(46)=4.02$,

$p < .001$, Cohen's $d = 0.48$). However, the extent to which the brand was well-known seemed to be more important for participants low in biospheric values ($M_{\text{well-known}} = 3.03$, $SD = 0.96$ versus $M_{\text{unknown}} = 2.19$, $SD = 0.71$; $t(52) = 7.67$, $p < .001$, Cohen's $d = 0.97$).

We also found a significant interaction between biospheric values and cruelty ($F(18, 18) = 3.08$, $p < .05$, partial $\eta^2 = .75$; see Figure 2c). Simple main effects showed that participants who strongly endorsed biospheric values were more willing to purchase moisturiser that was not tested on animals ($M = 2.89$, $SD = 0.90$) than tested on animals ($M = 1.48$, $SD = 0.48$; $t(46) = 11.13$, $p < .001$, Cohen's $d = 1.62$). The extent to which the moisturiser was tested on animals was also important for participants with low biospheric values, but these differences were less strong ($M_{\text{not animal tested}} = 2.94$, $SD = 0.77$ versus $M_{\text{animal tested}} = 2.28$, $SD = 0.91$; $t(52) = 6.02$, $p < .001$, Cohen's $d = 0.83$).

Conclusion Experiment 1

Hypothesis 1 is partly confirmed: green product attributes are indeed important for purchasing intentions when self-serving motives are fulfilled (i.e., low price and well-known brand; Hypothesis 1a), also when self-serving motives are not fulfilled (i.e. high price and unknown brand). We found that green product attributes also influenced purchasing decisions when a product was high priced and unknown, i.e., when self-serving motives were not fulfilled. However, in this case the influence of green product attributes on consumers' purchase intentions was less strong than when their self-serving motives were fulfilled (high prices and a well-known brand) (Hypothesis 1b). Although there seems to be a general trend that green product attributes are important determinants of purchasing behaviour over and above egoistic product attributes, there is one exception to this finding: we found no significant interaction between brand equity and environmental impact on purchasing intentions.

Egoistic values did not significantly interact with the two green product attributes (environmental impact and cruelty) and they only significantly interacted with one egoistic product attribute (price) on purchasing intentions of a moisturiser.

The only significant interaction effect was found between egoistic values and brand equity: the brand equity was more important for purchase intention of the moisturiser for consumers with strong egoistic values than for consumers with weak egoistic values. Therefore, we conclude that there is little evidence to support Hypothesis 2: egoistic values generally do not seem to strengthen or weaken the influence of product attributes on purchasing behaviour.

There is more support for Hypothesis 3 than for Hypothesis 2: Biospheric values did interact significantly with one green product attribute (cruelty) and one egoistic product attribute (brand equity). However, a similar effect was expected for the environmental impact and price, but that was not confirmed. It seems that overall biospheric values seem to have more impact on how people use product attributes for their purchases than egoistic attributes. However, this conclusion cannot be drawn on the basis on Experiment 1 only. Therefore, we conducted a second study, including the same product attributes and values to validate these results.

Experiment 2

The main aim of Experiment 2 is to replicate and validate the findings of Experiment 1. Replication is a valuable and necessary tool to validate research findings. The current debate about codes of conduct and replications in social sciences stresses once more this importance (e.g., Pashler and Wagenmakers, 2012; Simons, 2014; Yong, 2012). There are however some differences between Experiment 1 and 2.

Firstly, in Experiment 1, we measured purchase intention of a moisturiser, which is a day care product that is typically used by women, and is relatively expensive. Therefore, in Experiment 2, we choose to focus on a product that used by men and women, is usually purchased on a frequent basis and is relatively cheap: a bottle of shampoo. Secondly, the interaction in Experiment 1 between egoistic and green product attributes was especially robust for price, which is in line with an eco-labelling

intervention showing that carbon footprint labels resulted in the highest sales for the lowest priced products, and in a much weaker response for more higher priced products (Vanclay et al., 2011). To test if this relationship is linear, we included 3 price levels instead of 2 in Experiment 2. Finally, the measurements of the dependent variable purchase intention included one extra item and the product attribute brand equity described to what extent the product was familiar instead of well-known to the participant.

Method

Participants

A questionnaire study was conducted among the general public of an average sized city in the United Kingdom. To gather a varied sample, questionnaires were distributed around different public places in sub areas of the town (67%). Thirty-three per cent of the participants included students from a university in the same city, who were recruited via the same university's voluntary participation system as was used for Experiment 1. In total, 107 participants filled out the questionnaire, of which 31% males with a mean age of 28.7 ($SD=12.1$).

Procedure and Questionnaire

The experimental design included four independent within-subject variables and two between-subject variables. Participants rated 24 product scenarios that were systematically varied on the four within-subject variables. These included price (high, medium or low price), brand equity (familiar or unfamiliar brand), cruelty (animal tested or not tested on animals), and environmental impact (high or low carbon footprint). The product that participants evaluated was a bottle of shampoo (250 ml).

The product scenarios were laid out in the following way: 'A shampoo costs £1.99 [low]/£5.99 [medium]/£10.99 [high] and *has/has not been tested on animals*. The brand is *familiar / unfamiliar* and has a *low carbon footprint of 150g of CO₂ per bottle/high carbon footprint of 250g of CO₂ per bottle*. The price levels were based on

shampoo advertisements of typical low, medium and high prices for the product (September 2012). The figures indicating carbon footprint were distracted from a website with information about the average carbon footprints of different personal care products (<http://www.co2list.org/files/carbon.htm>).

The dependent variable was purchasing intentions and was introduced after reading each product scenario. As in Experiment 1, participants evaluated how likely they believed that they would buy the product (1) for their own consumption and (2) for someone else. In addition, they evaluated how likely they believed that they would buy each product (3) at least every two months, in order to capture their conscious plan to make an effort to purchase a product better (cf., Spears and Singh, 2004). All three items were measured on a 6 point-scale, ranging from 1 *very unlikely* to 6 *very likely*. The average of these three items was the dependent variable for each of the 24 scenarios (Cronbach's alphas ranged between .82 and .94).

After evaluating the 24 scenarios, the egoistic and biospheric values were introduced. These values were measured in the same way as in Experiment 1, only now the rating scale was a 7-point rating scale. Again, mean scores and Cronbach's alphas were computed on items included in each scale. Cronbach's alpha was .77 for the egoistic values ($M=3.86$, $SD=1.13$) and .81 for the biospheric value scale ($M=4.70$, $SD=1.07$). The between-subjects were included in a mixed multi-factorial repeated-measure ANOVA, and the participants were divided into groups of strong and weak egoistic and biospheric values variables by means of a median split procedure enabling us to visually show the directions of significant interactions in figures. Participants with scores ≤ 3.80 made up the group with weak egoistic values and participants with scores > 3.80 made up the group with strong egoistic values. The median for the biospheric value scale was 4.50; participants with scores ≤ 4.50 were included in the group with weak biospheric values, and, participants with scores > 4.50 were included in the strong biospheric values group.

Analysis

We used the same analysis as in Experiment 1. Results for the main effects and 2-level interaction effects for Experiment 2 are included in Appendix B.¹

Results

Interaction Effects of Product Attributes on Purchasing Intentions

Price and cruelty. There was an interaction effect between the egoistic product attribute price and the green product attribute cruelty ($F(2, 14)=26.74, p<.001$, partial $\eta^2=.73$; see Figure 3a). Simple main effects revealed that participants were less intended to purchase shampoo high in price when this product was tested on animals ($M=1.40, SD=0.70$) than when this product was not tested on animals ($M=1.78, SD=0.99$; $t(106)=4.90, p<.001$, Cohen's $d=0.47$). However, when the shampoo was medium priced ($M_{animal\ tested}=1.92, SD=0.85$ versus $M_{not\ animal\ tested}=2.80, SD=1.06$; $t(106)=8.55, p<.001$, Cohen's $d=0.83$), and especially when it was low priced ($M_{animal\ tested}=2.72, SD=1.34$ versus $M_{not\ animal\ tested}=4.10, SD=1.07$; $t(106)=10.80, p<.001$, Cohen's $d=1.05$) the influence of animal testing on purchasing intentions was even stronger. In other words, participants seemed to have especially a strong intention to purchase shampoo that was medium or low priced but was also not tested on animals than in any of the other conditions.

Price and environmental impact. A similar pattern was found for the interaction between price and environmental impact ($F(2, 14)=15.95, p<.001$, partial $\eta^2=.69$; see also Figure 3b). Participants were less intended to purchase shampoo high in price when this product had a high carbon footprint ($M=1.47, SD=0.73$) compared to a low carbon footprint ($M=1.71, SD=0.86$; $t(106)=5.04, p<.001$, Cohen's $d=0.49$). When the shampoo was medium priced ($M_{high\ CO2}=2.15, SD=0.79$ versus $M_{low\ CO2}=2.57, SD=0.91$; $t(106)=7.35, p<.001$, Cohen's $d=0.71$), and low priced ($M_{high\ CO2}=3.08, SD=1.15$ versus $M_{low\ CO2}=3.74, SD=1.02$; $t(105)=9.16, p<.001$, Cohen's $d=0.89$) the difference in

purchasing intentions increased, implying that the influence of environmental impact of the product increased with a decrease in price.

Brand equity and cruelty. The interaction between the egoistic product attribute brand equity reached significance with the green product attribute cruelty ($F(1, 15)=28.13, p<.001, \text{partial } \eta^2=.65$; see Figure 3c). Participants had less intentions to purchase a shampoo that was unfamiliar and tested on animals ($M=1.87, SD=0.78$) than the same product that was not tested on animals ($M=2.63, SD=0.78; t(106)=8.27, p<.001, \text{Cohen's } d=0.80$). However, when the shampoo was familiar the influence of animal testing on purchasing intentions was stronger: participants were less intended to purchase the shampoo when it was tested on animals ($M=2.22, SD=0.83$) than when it was not tested on animals ($M=3.39, SD=0.74; t(105)=11.12, \text{Cohen's } d=1.08$).

Brand equity and environmental impact. As in Experiment 1, brand equity did not significantly interact with the environmental impact of the product ($F(1, 15)=0.11, p=.737$).

Interaction Effects Values and Product Attributes on Purchasing Intentions

There were no significant interactions between egoistic values and the product attributes price ($F(50, 30)=0.75, p=.810$), brand equity ($F(25, 15)=0.48, p=.949$), cruelty ($F(16, 18)=1.26, p=.313$), and environmental impact ($F(16, 18)=0.66, p=.795$) on purchasing intentions of the shampoo.

Biospheric values and the product attributes price ($F(40, 30)=0.63, p=.913$), brand equity ($F(20, 15)=1.02, p=.490$), and environmental impact ($F(20, 15)=1.67, p=.155$) did not significantly interact on purchasing intentions. The only significant interaction effect that was found between values and product attributes on purchasing intentions was between biospheric values and cruelty ($F(20, 15)=2.60, p<.05, \text{partial } \eta^2=.77$; see Figure 4). When participants strongly endorsed biospheric values, they had stronger intentions to purchase the shampoo that was not tested on animals ($M=2.93, SD=0.86$) than tested on animals ($M=1.86, SD=0.70; t(53)=8.43, p<.001, \text{Cohen's } d$

=1.15). Although the extent to which the product was tested on animals was also important for participants low in biospheric values, these differences were less strong ($M_{not\ animal\ tested}=2.87, SD=0.53$ versus $M_{animal\ tested}=2.18, SD=0.73$; $t(51) = 5.40, p < .001$, Cohen's $d = 0.75$).

Conclusion Experiment 2

The interaction effects of green and egoistic product attributes are similar to the outcomes in Experiment 1: there is overall support that green product attributes are important determinants for purchasing intentions of shampoo. Moreover, the influence of green product attributes is less strong when consumers' self-interest motives are not fulfilled, that is when prices are high and a brand is unfamiliar. As in Experiment 1, we found no significant interaction effect between the product attributes brand equity and environmental impact.

Egoistic values did not interact with the four product characteristics (Hypothesis 2), thereby providing more support for the preliminary conclusion of Experiment 1 that egoistic values do not strengthen or weaken the influence of product attributes on purchasing behaviour. Biospheric values, on the other hand, interact with some product attributes. Hence, there is some support for Hypothesis 3 suggesting that, in contrast to egoistic values, biospheric values do influence how product attributes determine on purchasing behaviour. We will elaborate on this in the general discussion.

General Discussion and Conclusion

In this paper, we examined the influence of product attributes and values on green consumerism. We defined green consumerism as a social dilemma in which individual and societal or environmental interests are at odds (Gupta and Ogden, 2009; Moisaner, 2007). Although generally a majority of consumers support the idea of purchasing green products, we argued, based on a social dilemma framework (Dawes and Messick, 2000), that there is a trade-off in how product attributes are used to make

purchase decisions. That is, we expected that the extent to which egoistic product attributes fulfil one's self-serving motives influences the importance of 'green' product attributes on purchasing intentions.

Our findings generally support our suggestion that there is a trade-off in how product attributes influence purchasing intentions. As expected, 'green' product attributes were particularly important for purchasing intentions when the egoistic product attributes fulfilled consumers' self interests (i.e., low price, familiar brand), thereby confirming Hypothesis 1a. However, in contrast to our expectations, also when consumers' self interests were not fulfilled (i.e., high price, unfamiliar brand), 'green' product attributes influenced purchasing intentions (Hypothesis 1b), albeit to a lesser extent. This implies that green attributes generally play a role in consumers' purchasing intentions, but that their influence is much stronger when a consumers' product is satisfactory on an individual level. This is in line with other studies that showed that considering collective needs influences people's behaviour and attitudes *in addition to* their individual needs (e.g. Huijts et al., 2014; Stern, 2000).

The interaction effect between egoistic and green product attributes was especially robust for price: green product attributes drive purchasing intentions when the price is low. This is in line with an eco-labelling intervention that showed that carbon footprint labels had the highest sales for the lowest priced products, and in a much weaker response for more expensive products (Vanclay et al., 2011). This finding has consequences for the pricing of green products. Our results suggest that lowering prices for green products is likely to increase the purchases of these products not just because prices are reduced, but also because consumers take green attributes of products more into account. Although we find that green product attributes also influence purchase intentions if prices are high, their influence is much weaker. Therefore, instead of charging premium prices for green products, reducing the price difference between regular and green products is likely to increase the sales of green products.

Of course, one can argue if product attributes are purely egoistic or green. Of the characteristics that were included in our paper, the qualification of brand equity is probably the most debatable product attribute. In some cases, a brand only represents green products, therefore being familiar with this brand is likely to be seen to a certain extent as a green product attribute. Participants in our study might have visualised a green shampoo or moisturiser in our study, which could have influenced the results. This caveat should be taken into account when interpreting the results in this paper.

We expected that the influence of egoistic and green product attributes on purchasing intentions was strengthened or weakened depending on one's values. However, egoistic values were hardly found to have an influence, therefore we found little support for Hypothesis 2. Biospheric values on the other hand, seemed to strengthen the influence of product attributes on purchasing intentions more than egoistic values. Past studies have also shown that in general biospheric values are stronger predictors for pro-environmental intentions than are egoistic values (e.g., De Groot et al., 2013; Steg et al., 2011; Thøgersen, 2011). Hence, our results suggest that green consumerism is largely based on feelings of morality to buy green products (Thøgersen and Ölander, 2003). This conclusion is consistent with the assumption that people are more likely to act on egoistic motives than on prosocial motives in general (Lindenberg and Steg, 2007), but combined with the assumption that if these motives are acted upon, people may further improve their positive feelings by acting on morality (referred to as the 'warm-glow effect'; Bolderdijk et al., 2013; Kahneman and Knetsch, 1992; Nunes and Schokkaert, 2003).

The basis of values for green consumerism was supported by the interaction between biospheric values and product attributes. Although biospheric values did not significantly interact with all product attributes, some trends were found, hereby providing partial support for Hypothesis 3. For those with weak biospheric values, brand equity was more important for purchasing a moisturiser than for those with strong

biospheric values; while this was not found with respect to purchasing intentions of a bottle of shampoo. This difference in interaction could be explained by the difference in products. That is, brand equity is evaluated as more important than price with products that are more expensive and bought less frequently (moisturiser) than products that are less expensive but are bought more frequently (shampoo). And, the opposite may hold true for price. Main effects were consistent with this assumption: brand equity was more important than price for the intention to purchase a moisturiser, while price was more important than brand equity for the intention to purchase a bottle of shampoo (see appendices).

Also, biospheric values did significantly interact with the green product attribute cruelty and not with environmental impact. It could be that in the case of day care products animal welfare is seen as a more relevant attribute than the environmental impact of the product (cf., Wheale and Hinton, 2007). Therefore, the environmental impact of the moisturiser and shampoo may not have been strengthened by biospheric values. Hence, stressing the animal welfare in day care products may particularly stimulate consumers to purchase products in this category. Of course, this cannot be generalised to product categories. A possible direction of future research is to look into potential conflicts between the evaluation of different green attributes.

Our findings provide a potential explanation of why values do not always explain green consumerism strongly. For example, Gupta and Ogden (2009) found that green and regular consumers could not be distinguished based on their values. How are these results in line with our findings? Our results suggest that values strengthen/ weaken the influence of product attributes rather than they are a direct predictor of purchase intentions (see Appendix A and B). Values do not distinguish green consumers as a whole, but are more likely to set off a reaction in which consumers will weigh the costs and benefits of green products differently. Thus, our findings provide a theoretical explanation of why values are not a strong direct predictor of purchase intentions.

Although our results support this conclusion, the results remain tentative, as some interactions showed clear effects and others did not. Hence, future research is needed to elaborate on this research topic in the future.

Another limitation of our studies is the rather complicated designs that we used. All respondents had to evaluate 16 (Experiment 1) or 24 (Experiment 2) scenarios. Even though the scenarios were presented in random order, some biases may have occurred. For example, respondents may have guessed the aim of the study and consequently give socially desirable answers. We cannot be sure that this has not influenced our results. However, given the complicated matrix of 4 attributes with 2 or 3 levels each, we do not expect that this has had a large effect on the results.

Our findings are important from a marketing perspective for the promotion of green consumerism. Egoistic product attributes are important for one's decision to go green, and marketing strategies often focus on these aspects for the promotion of any product. However, if the main aim is to promote green consumerism rather than consumerism in general, it is important that marketing strategies are able to (1) communicate that the greener alternative of a product already fulfils one's egoistic motives, or, (2) activate biospheric values in their communication. Examples of how to activate biospheric values, for example by priming or framing messages, can be found throughout the literature (e.g., Evans et al., 2013; Verplanken and Holland, 2002).

A disadvantage of the first strategy is that structural features of the product must be met (e.g., the green option needs to be equally priced compared to the non-green option) which is not always possible. Therefore, the second strategy seems a more cost-effective strategy to promote green consumerism. For example, rather than focusing on specific green product attributes only, campaigns should focus on how to activate biospheric which will remind people of the importance of these green attributes over the self-serving attributes when buying green. The activation of biospheric values, makes the customer refocus their attention to their underlying values of why one would

like to buy green in the first place, which will ultimately help in the promotion of green consumerism.

Notes

¹ Please contact the first author for the complete results of the full-factorial repeated measures ANOVA.

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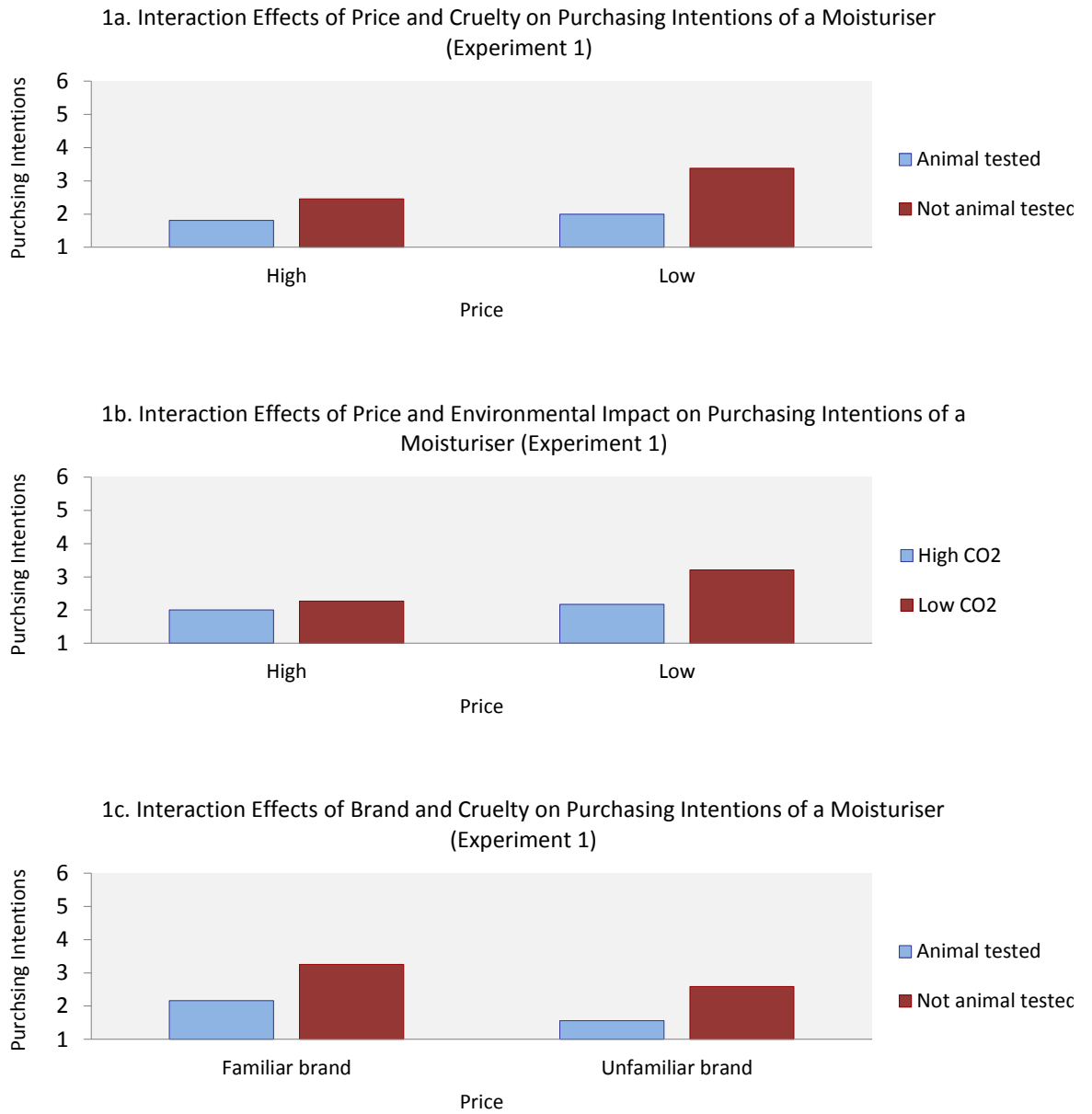


Figure 1. Interaction Effects of Green and Egoistic Product Attributes on Purchasing Intentions of a Moisturiser (Experiment 1)

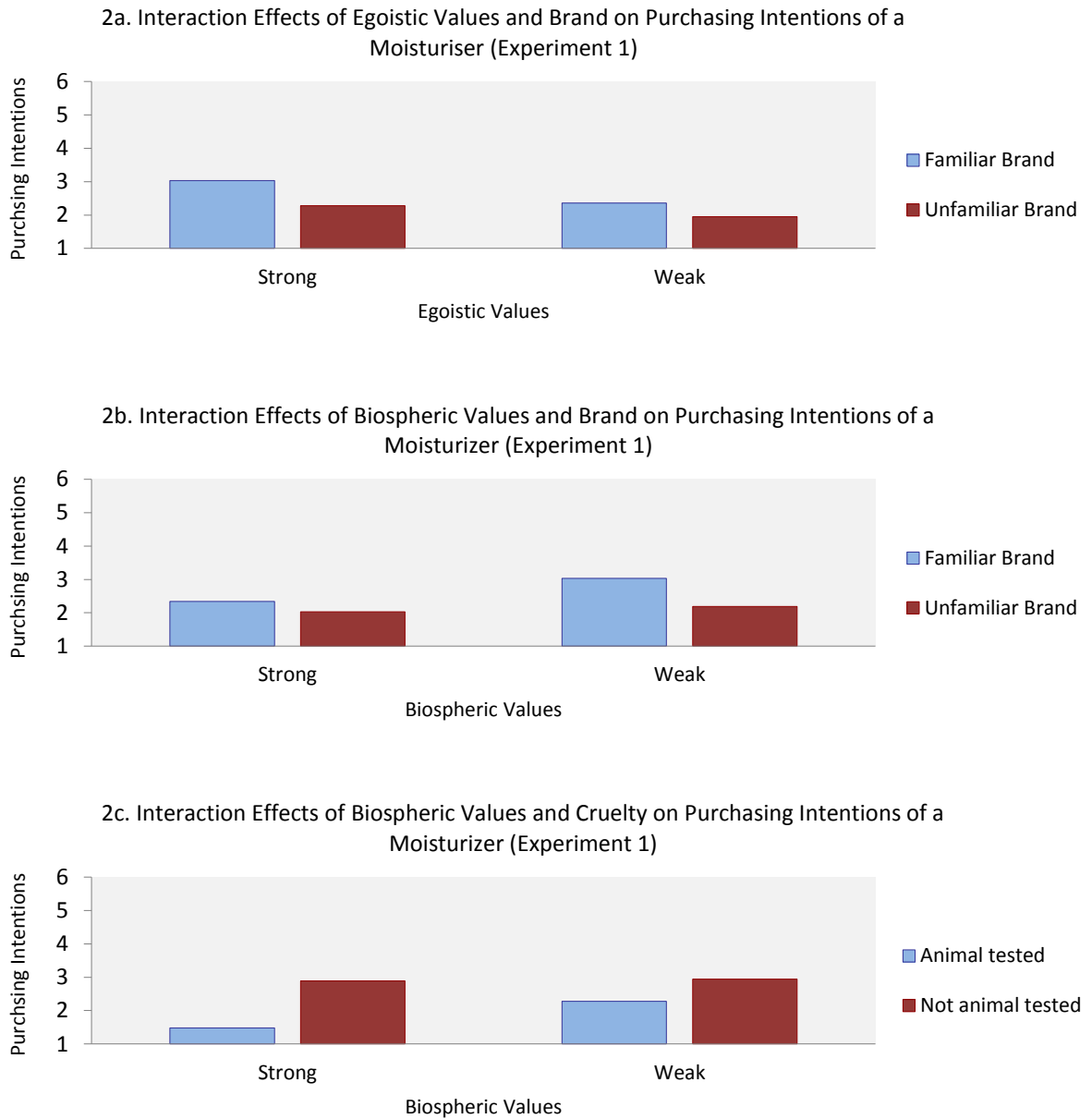


Figure 2. Interaction Effects of Values and Product Attributes on Purchasing Intentions of a Moisturiser (Experiment 1)

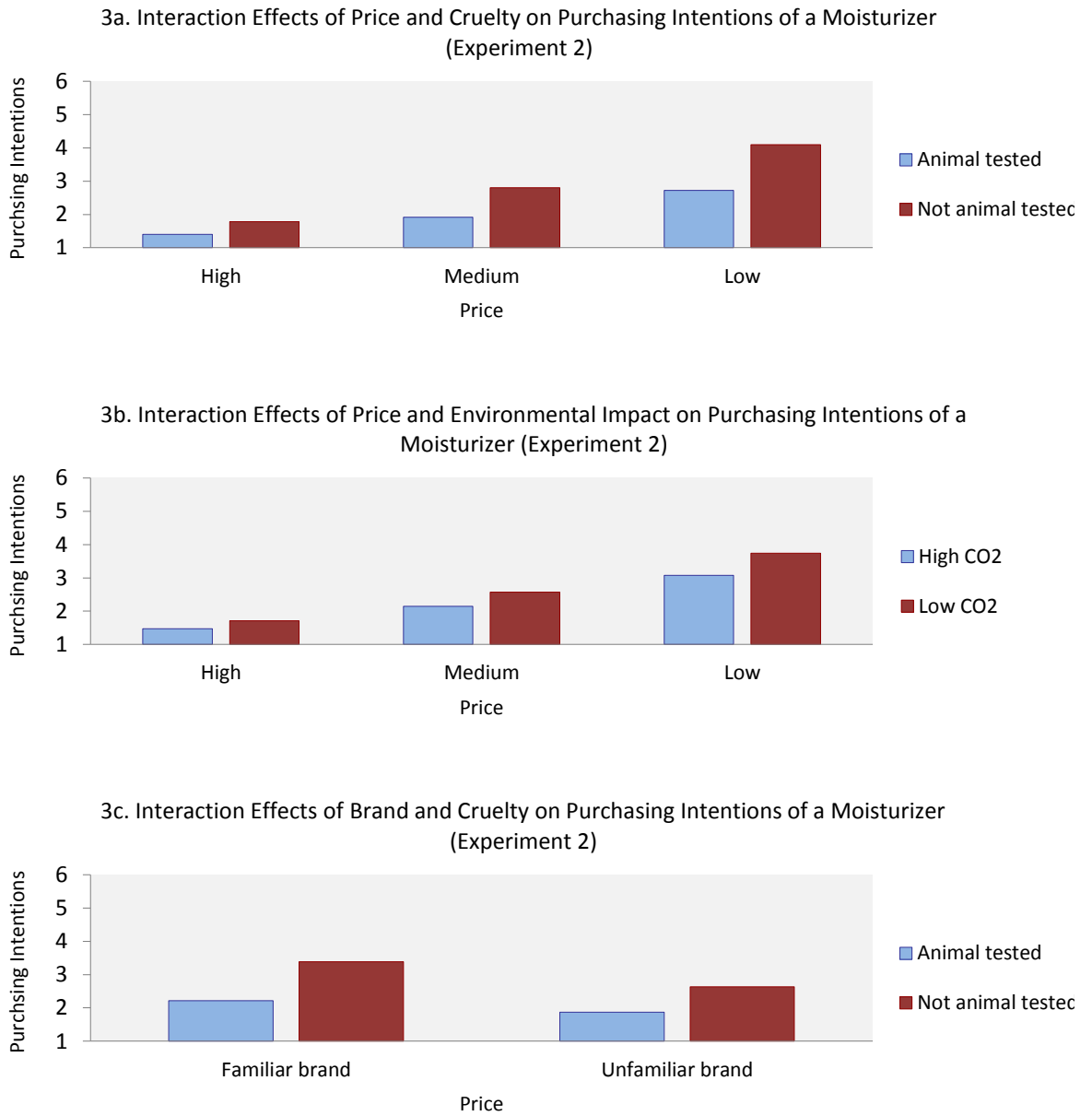


Figure 3. Interaction Effects of Green and Egoistic Product Attributes on Purchasing Intentions of a Moisturiser (Experiment 2)

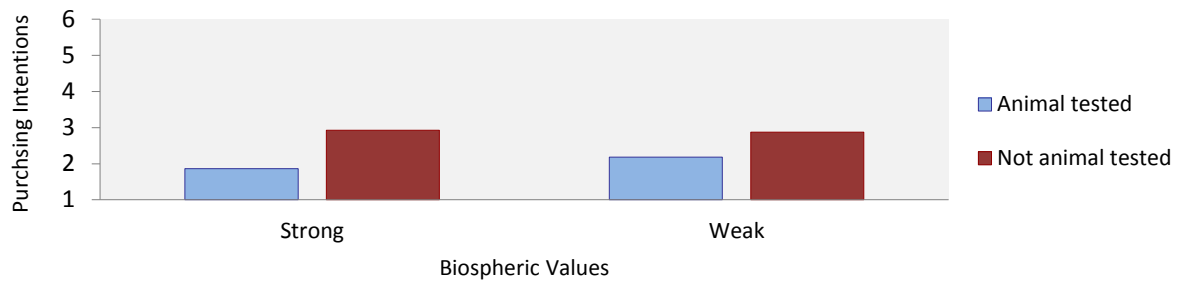


Figure 4. Interaction Effects of Biospheric Values and Cruelty on Purchasing Intentions of a Moisturiser (Experiment 2)

Appendix A

Main and 2nd Level-Interaction Effects of Within-Subject Variables (Product Attributes) and Between-Subjects Variables (Values) on Purchasing Intention of a Moisturiser (Experiment 1)

		<i>M</i> (SE)	<i>F</i> (<i>df1</i> , <i>df2</i>)	<i>p</i>	Partial η^2
Main effects					
Price	<i>High</i>	2.12 (.08)	39.85 (1, 18)	<.001	.68
	<i>Low</i>	2.66 (.07)			
Brand equity	<i>well-known</i>	2.67 (.08)	204.94 (1, 18)	<.001	.91
	<i>Unknown</i>	2.11 (.06)			
Cruelty	<i>Animal tested</i>	1.86 (.07)	133.47 (1, 18)	<.001	.88
	<i>Not animal tested</i>	2.92 (.08)			
Env. Impact	<i>CO₂ High</i>	2.05 (.07)	50.59 (1, 18)	<.001	.73
	<i>CO₂ Low</i>	2.73 (.08)			
Egoistic values ¹	<i>High</i>	2.65 (.09)	.91 (16, 18)	.565	.44
	<i>Low</i>	2.15 (.08)			
Biospheric values ¹	<i>High</i>	2.18 (.08)	.68 (18, 18)	.789	.40
	<i>Low</i>	2.62 (.10)			
2-way interactions					
Price * Brand equity			0.10 (1, 18)	.754	.00
Price * Cruelty			31.95 (1, 18)	<.001	.64
Price * Env. Impact			80.16 (1, 18)	<.001	.81
Brand equity * Cruelty			3.22 (1, 18)	.090	.15
Brand equity * Env. impact			1.31 (1, 18)	.267	.06
Cruelty * Env. Impact			50.37 (1, 18)	<.001	.73
Ego * Price			1.09 (16, 18)	.421	.49
Ego * Brand equity			4.68 (16, 18)	.001	.80
Ego * Cruelty			1.26 (16, 18)	.313	.52
Ego * Env. impact			0.66 (16, 18)	.795	.37
Bio * Price			1.48 (18, 18)	.203	.59
Bio * Brand equity			3.13 (18, 18)	.010	.75
Bio * Cruelty			3.08 (18, 18))	.011	.75
Bio * Env. impact			1.15 (18, 18)	.383	.53

¹ Mean scores and Standard Errors based on Median Split

Appendix B

Main and 2nd Level-Interaction Effects of Within-Subject Variables (Product Attributes) and Between-Subjects Variables (Values) on Purchasing Intention of Shampoo (Experiment 2).

Main effects					
		<i>M (SE)</i>	<i>F (df1, df2)</i>	<i>p</i>	<i>Partial η²</i>
Price	<i>High</i>	1.58 (.07)	50.87 (2, 14)	<.001	.88
	<i>Medium</i>	2.35 (.08)			
	<i>Low</i>	3.43 (.10)			
Brand equity	<i>Familiar</i>	2.69 (.06)	51.79 (1, 15)	<.001	.77
	<i>Unfamiliar</i>	2.22 (.06)			
Cruelty	<i>Animal tested</i>	2.02 (.07)	136.62 (1, 15)	<.001	.90
	<i>Not animal tested</i>	2.89 (.07)			
Env. Impact	<i>CO₂ High</i>	2.23 (.06)	56.35 (1, 15)	<.001	.79
	<i>CO₂ Low</i>	2.68 (.06)			
Egoistic values ¹	<i>High</i>	2.52 (.08)	1.19 (25, 15)	.366	.66
	<i>Low</i>	2.36 (.07)			
Biospheric values ¹	<i>High</i>	2.37 (.08)	1.44 (44, 15)	.234	.65
	<i>Low</i>	2.52 (.06)			
2-way interactions					
Price * Brand equity			20.29 (2, 14)	<.001	.74
Price * Cruelty			26.74 (2, 14)	<.001	.73
Price * Env. Impact			15.95 (2, 14)	<.001	.69
Brand equity * Cruelty			28.13 (1, 15)	<.001	.65
Brand equity * Env. impact			0.11 (1, 15)	.737	.00
Cruelty * Env. Impact			5.15 (1, 15)	.038	.25
Ego * Price			0.75 (50, 30)	.810	.55
Ego * Brand equity			0.48 (25, 15)	.949	.44
Ego * Cruelty			1.20 (25, 15)	.359	.66
Ego * Env. impact			0.82 (25, 15)	.671	.58
Bio * Price			0.63 (40, 30)	.913	.45
Bio * Brand equity			1.02 (20, 15)	.490	.57
Bio * Cruelty			2.60 (20, 15)	.032	.77
Bio * Env. impact			1.67 (20, 15)	.155	.69

¹ Mean scores and Standard Errors based on Median Split