The Greenconsumption Effect: How Using Green Products Improves Consumption Experience

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In many situations, consumers use green products without a deliberate choice to use or purchase the product. This research explores how using a green product (e.g., a pair of headphones made from recycled materials) influences the enjoyment of the accompanying consumption experience (e.g., listening to music), even if consumers have not deliberately chosen or purchased the product. Five experiments in actual consumption settings revealed that using a green (vs. conventional) product enhances the enjoyment of the accompanying consumption experience, referred to as the *greenconsumption effect*. Merely using a green product makes consumers perceive an increase in the extent to which they are valued as individuals by society, which leads to warm glow feelings, and consequently enhances the enjoyment of the accompanying consumption experience. When consumers experience low social worth, the positive effect of using green products on the accompanying consumption experience is amplified. The greenconsumption effect disappears when the negative environmental impact of the green product attribute is low. From a managerial standpoint, the current research identifies instances where brands can benefit from going green and encourages marketers, especially service providers, to promote green products that are instrumental in consumption experiences.

Keywords: green products, sustainability, consumption experience, warm glow, green consumption, social worth

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Imagine a consumer going to a movie theater to watch a 3D movie. As she enters the movie theater, she is provided with a pair of 3D glasses. Before the movie begins, she is informed on the screen that the 3D glasses were produced from recycled materials. Would she enjoy watching the movie more *or* less when using the green 3D glasses compared to using conventional 3D glasses?

Similar to the movie theatre example, consumers frequently use green products, products with at least one environmental attribute (e.g., products made from recycled materials or biodegradable products, Haws, Winterich, and Naylor 2014), without deliberately choosing to use or purchasing one. Examples of green products used in similar occasions include headphones made with sustainable wood provided to sample music in a record store, bamboo chopsticks supplied at a sushi restaurant, or recycled paper cups offered at a coffee shop. Many of these green products (e.g., a pair of headphones) are accompanied by a

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consumption experience (e.g., listening to music). The central question posed in the current research is how using a green product influences the enjoyment of the accompanying consumption experience compared to using a conventional product.

Across five experiments in actual consumption settings, we show that using a green (vs. conventional) product enhances the enjoyment of the accompanying consumption experience. We refer to this effect as the *greenconsumption effect* and demonstrate that it is driven by warm glow, defined as feeling good about one's self after engaging in a prosocial behavior (Andreoni 1989, 1990). We demonstrate that using a green product makes consumers perceive an increase in their social worth—the extent to which they perceive themselves as valued as an individual by society (Grant and Gino 2010). The perceived increase in social worth leads to warm glow feelings and a subsequent enhancement of the accompanying consumption experience. The greenconsumption effect is stronger when consumers experience social exclusion (vs. not), suggesting that the use of green products helps consumer well-being beyond its environmental benefits. Finally, the greenconsumption effect disappears when the attribute that is environmentally friendly has low or negligible environmental impact.

This research has several theoretical and managerial implications. First, the current research advances our understanding of how green products influence consumer behavior at the consumption stage. Although past research on green products examines the drivers of green product purchase (Griskevicius, Tybur, and Van den Bergh 2010; Luchs et al. 2010; Newman, Gorlin, and Dhar 2014; Peloza, White, and Shang 2013), limited research addresses how using green products influences consumer behavior at the consumption stage. In addition, recent research on green products suggests that the presence of green product attributes may hurt product evaluations (Brough et al. 2016; Lin and Chang 2012; Luchs et al. 2010; Newman et al. 2014). In contrast, the current research shows that when the green product is used, warm glow feelings arise, leading to a more enjoyable consumption experience. In this sense, the current research contributes to past research by demonstrating a positive effect of using green products on the enjoyment of the accompanying consumption experiences.

Second, the current research contributes to the understanding of warm glow by identifying an antecedent of warm glow—social worth—and by demonstrating that using green products can elicit warm glow feelings even when individuals are not responsible or accountable for the decision to use the product. To date, warm glow has been associated with a deliberate decision to behave in a prosocial manner, such as making a charitable donation (Andreoni 1990), spending money on others (Dunn, Aknin, and Norton 2008), purchasing products that are linked to a cause marketing program (Andrews et al. 2014; Koschate-Fischer, Stefan, and Hoyer 2012), or participating in a voluntary green program (Giebelhausen et al. 2016). Even if consumers have not chosen to use a green product or purchased a green product, the current research demonstrates that merely using a green product leads consumers to perceive that they are valued more highly by society—an increase in social worth (Grant and Gino 2010)—and increases warm glow feelings. In relation to consumer well-being, this research suggests that consumption of green products may serve as a way to restore social worth and offset the negative impact of social exclusion.

Managerially, the current research suggests a positive effect of using green products on the accompanying consumption experiences and encourages experience providers, such as movie theatres, gyms, and restaurants, to go green. A gym, considering whether to purchase a conventional or a green version of exercise equipment (e.g., exercise ball), would benefit from opting for the green version and communicating the green attributes to its customers. Unlike past research that shows potential negative consequences of going green (Lin and Chang 2012; Luchs et al. 2010; Newman et al. 2014), the current research suggests that companies can benefit from investments in green products when the focal interest is consumers' enjoyment of the accompanying consumption experience.

The remainder of the article is organized as follows. We present the conceptual foundations of the greenconsumption effect and supporting empirical results across five experiments. We investigate the role of warm glow in the process (experiments 1–3, 5) and the role of social worth as a driver of warm glow in sustainable consumption (experiments 3–5). We then introduce a boundary condition to the greenconsumption effect (experiment 5). Finally, we discuss the theoretical and managerial implications of the findings.

CONCEPTUAL BACKGROUND

As green products become commonplace, an issue that has received much attention from scholars is the gap between the purchase intentions for these products and the actual purchases of them, referred to as the *intention-behavior gap* (Auger and Devinney 2007; Carrington, Neville, and Whitwell 2014). To better understand how to minimize this intention-behavior gap, research in marketing and social psychology has focused more on the drivers of green product purchase (Auger and Devinney 2007; Bodur, Duval, and Grohmann 2015; Carrington et al. 2014; Griskevicius et al. 2010; Gupta and Sen 2013; Luchs et al. 2010; Newman et al. 2014; Peloza et al. 2013). This stream of research examined consumer reactions to green products in terms of perception of green products (Brough et al. 2016; Lin and Chang 2012; Newman et al. 2014), purchase intentions (Bodur et al. 2015; Newman et al. 2014;

Peloza et al. 2013), or choice of green products (Griskevicius et al. 2010; Gupta and Sen 2013; Luchs et al. 2010). Although factors related to the purchase of green products are studied extensively, an understanding of how green products influence consumer behavior at the consumption stage is limited. The current research focuses on the consumption stage and examines whether using green (vs. conventional) products enhances the enjoyment of the accompanying consumption experiences.

The influence of using green products on consumption experience is worth investigating because consumers' interaction with green products is not limited to the purchase decision. Take the introductory example: a movie theatre where 3D screening is available and consumers are given a pair of 3D glasses to watch the movie. In many instances, these 3D glasses are green products (e.g., produced from recycled materials). How would using green products influence the consumption experience? Would consumers enjoy watching a movie more with green (vs. conventional) 3D glasses?

Past research does not answer these questions, as the majority of the earlier research focuses on evaluation, but not consumption, of green products. However, research on the evaluation of green products demonstrates conditional effects of offering green product attributes on product evaluations. For instance, Luchs et al. (2010) show that gentleness, but not strength, is associated with green products; therefore, conventional products are preferred over green alternatives when the benefit sought from the product is strength. Similarly, Lin and Chang (2012) demonstrate that consumers perceive green products to be less effective than conventional products. More recently, Newman et al. (2014) show that going green intentionally (vs. unintentionally) leads to decreased purchase intentions. The authors find that when companies enhance green product attributes intentionally, consumers believe that the resources are reallocated from functional attribute enhancement, resulting in decreased product quality perceptions and purchase intentions. In contrast, other research shows that green product attributes have a positive impact on product preference under certain conditions. For example, Griskevicius et al. (2010) find that green products are preferred over conventional products when consumers are driven by a status motive. Likewise, Peloza et al. (2013) show that consumers prefer green (vs. conventional) products when consumers' self-accountability is heightened and Green and Peloza (2014) demonstrate that consumers choose a product with an environmental (vs. self) benefit more frequently in a public but not in a private setting.

Taken together, these findings pertain to the purchase decision and do not shed light on the overall effect of green products on consumption experiences and the underlying process. More importantly, the research that points to negative evaluations of green (vs. conventional) products explains the process through lay beliefs (e.g., green products are gentle but not strong; Lin and Chang 2012, Luchs et al. 2010) or inferences based on product attributes (e.g., green product attributes take away from functional product attributes; Newman et al. 2014). Consumers, however, may revise these lay beliefs or inferences about green products when they use green products and gather further objective information and experience of performance. Furthermore, actual experience with the product during the consumption stage may influence how consumers feel about themselves and have downstream consequences on the consumption experience. In order to answer the question of how using green products would influence the consumption experience, we draw from research on warm glow.

Research on warm glow was first initiated in an attempt to challenge the belief that pure altruism—in other words, selfless good deeds—exists (Andreoni 1989, 1990). People feel warm glow upon performing a prosocial behavior such as donating to a charity (Andreoni 1989, 1990), spending money on others (Dunn et al. 2008), or purchasing a product that is linked to a cause marketing program (Andrews et al. 2014; Koschate-Fischer et al. 2012). Recent research further demonstrates that proenvironmental behavior leads to warm glow feelings (Giebelhausen et al. 2016; Taufik, Bolderdijk, and Steg 2015). For instance, Taufik et al. (2015) find that people who learn that they are more environmentally friendly compared to their peers feel warm glow. In a similar vein, Giebelhausen et al. (2016) also show that consumers who participate in a voluntary green program of a service provider feel warm glow. The authors find that consumers who participate in a green initiative (e.g., towel reuse program) feel warm glow and report higher levels of satisfaction with the service.

One common aspect of the research on warm glow is that people deliberately decide to engage in a prosocial behavior (e.g., donating to a charity, purchasing a product that is linked to cause marketing, participating in a green initiative). Extending research demonstrating warm glow, we predict that using a green product will elicit warm glow feelings even when consumers do not deliberately choose to use or purchase the product. This prediction is in line with the initial theory developed by Andreoni (1989, 1990) and the research that followed (Andrews et al. 2014; Taufik et al. 2015), because it is doing a good deed that leads to feeling warm glow, not the deliberate choice. Green products possess inherent prosocial attributes; therefore, merely using a green product indicates doing a good deed, which leads to warm glow feelings.

In light of the above discussion, we argue that merely using a green product, a proenvironmental behavior, will lead to feeling warm glow. We predict that when the green product (e.g., a pair of headphones) has an accompanying consumption experience (e.g., listening to music), the warm glow feelings that arise due to using the green (vs. conventional) product will enhance the accompanying experience. This prediction is based on the expectation that

increased warm glow feelings will spill over to the accompanying consumption experience. To revisit the introductory example, we predict that the consumer will feel warm glow and enjoy watching the movie more when using the recycled 3D glasses compared to conventional 3D glasses.

H1: Using a green (vs. conventional) product will enhance the enjoyment of the accompanying consumption experience.

H2: Warm glow feelings that arise due to using a green (vs. conventional) product will mediate the positive effect of using a green product on the enjoyment of the accompanying consumption experience.

In summary, we predict a positive main effect of green (vs. conventional) products at the consumption stage, although past research has demonstrated negative effects at the purchase stage (Brough et al. 2016; Lin and Chang 2012; Luchs et al. 2010; Newman et al. 2014). We suggest that feeling warm glow at the consumption stage mediates this positive effect. Earlier research that demonstrated the negative effects of green product attributes examined consumers' intention to purchase green products rather than what happens after the act of purchasing a green product. Consistent with this research, we refer to the purchase stage as the stage at which consumers elaborate on whether or not to purchase a green product. We expect warm glow to be less relevant at this stage, because consumers rely more on their lay beliefs or inferences based on green product attributes, which may not yet reflect their actual experiences. However, at the consumption stage, consumers are more likely to rely on how they feel while using the green product, and this can lead to a positive effect through warm glow feelings.

OVERVIEW OF EXPERIMENTS

We tested our predictions in five experiments in actual consumption settings. Experiment 1 tests the main prediction that using a green (vs. conventional) product enhances the enjoyment of the accompanying consumption experience and compares the consumption stage with the purchase stage. Experiment 2 examines the robustness of the greenconsumption effect with strength-related products and its downstream consequences for the focal product. Experiment 3 investigates the process further by identifying a driver of warm glow when using green products, and experiment 4 tests this process with a moderation approach. Finally, experiment 5 demonstrates that the greenconsumption effect disappears when the green product attribute is perceived to have a negligible environmental impact.

EXPERIMENT 1

Experiment 1 tests whether using a green product (a pair of headphones) enhances the enjoyment of the accompanying consumption experience (listening to music) compared to using a conventional product, and explores its downstream consequences on the purchase intentions for the focal product (the pair of headphones). To provide a comparison of purchase and consumption stages, we manipulated the evaluation context in experiment 1 such that while one half of the participants used the product to listen to music (to mimic the consumption stage), the other half did not use but only examined it (to mimic the purchase stage). The paradigm of experiment 1 allows us to compare our findings at the consumption stage with past research that focused on the purchase stage.

Method

One hundred ninety-eight undergraduate students participated in the experiment in exchange for partial course credit (49.5% females; $M_{age} = 20.86$; SD = 2.70). The experiment employed a 2 (product type: conventional, green) × 2 (evaluation context: examination, consumption) between-participants design.

Participants in the consumption condition were told that the research purpose was to understand how consumers evaluate music to eliminate demand effects. After the introduction, participants were asked to put on a pair of Sony MDZRX110 headphones that were placed next to the computer screen to continue with the experiment. Next, they were provided with brief information about the headphones (see web appendix A for the stimuli used in all the experiments). In the green product condition, in addition to the generic product description, participants learned that Sony uses recycled materials in the headphone production process. In the conventional product condition, participants were not given this piece of information. After reviewing the product description, participants listened to 45 second excerpts from three songs in a counterbalanced order ("Skin & Heart & Lungs" by Language Room, "All I Can Give to You" by Anna Coogan and North 19, and "Hey Young World" by Ruckus Fo'Tet). After listening to each song, participants indicated how enjoyable the song was (1 = not at all enjoyable, 7 = enjoyable) and reported how likely they would be to purchase the headphones on three items (1= not at all likely, 7 = very likely; 1 = not at all probable, 7 = very probable; 1 = not a chance at all, 7 = very good chance; α= .95). Finally, participants reported the extent to which they felt warm glow on four items used in past research to measure warm glow ("I felt good about using these headphones" [Andrews et al. 2014], "I am happy with myself that I used these headphones" [Nunes and Schokkaert 2003], "It made me feel good about myself to use these headphones" [Arora and Henderson 2007], "Using these headphones made me have a warm feeling in my chest" [Schnall, Roper, and Fessler 2010]; Likert scale with endpoints 1 = strongly disagree, 7 = strongly agree). The items loaded on a single factor

and showed high internal consistency ($\alpha = .90$); we therefore used the average to form a warm glow index.

Participants in the examination condition were told that the research purpose is to understand how consumers evaluate products. After the introduction, participants were given a pair of Sony MDZRX110 headphones and were provided with brief information about the headphones identical to that in the consumption condition. Next, participants were asked to examine the Sony headphones at their own pace. None of the participants used the headphones to listen to music. After examining the headphones, participants reported their likelihood to purchase the headphones they had examined on the same three items as in the consumption condition ($\alpha = .95$). Participants further reported the extent to which they *would* feel warm glow if they purchased the headphones they had examined on the four items used in the consumption condition (e.g., "I would feel good if I purchased these headphones"; $\alpha = .91$).

Results and Discussion

Six participants who failed to follow the instructions (e.g., fast-forwarded or skipped through the songs) or experienced a technical problem while listening to the songs were removed from the data, leaving a sample of 192 undergraduate students for the analyses (48.4% females; $M_{age} = 20.91$, SD = 2.71). The results when those participants were retained had a similar pattern. We analyzed the data in two stages. First, we focused on the consumption condition ($n = 92$, 50% females; $M_{age} = 20.73$, SD = 2.91) to examine whether participants experienced the greenconsumption effect. Given participants in the examination condition did not use the product, they could not report enjoyment. Hence, we cannot compare the two groups in terms of enjoyment. However, in the second stage of the analysis, we compare the two groups on their likelihood to purchase the green (vs. conventional) product after using it in the consumption condition and examining it in the examination condition.

Enjoyment. We predicted that participants who listened to the songs with the green headphones would enjoy the experience more than those who listened to the songs with the conventional headphones. A repeated-measures ANOVA with songs as the within-participants factor, product type as the between-participants factor, and enjoyment as the dependent variable supported this prediction: participants in the green product condition ($M = 4.61$, SD = 1.23) enjoyed listening to the songs more than those in the conventional product condition ($M = 4.13$, SD = .97; $F(1, 90) = 4.34$, $p = .040$, $\eta_p^2 = .046$). Importantly, the interaction of songs and product type was not significant ($F < 1$; $p > .50$), indicating that enjoyment did not vary as a function of product type among songs.

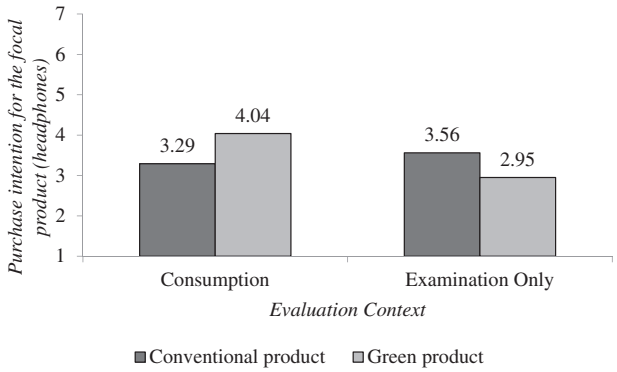
Prior to process analysis involving warm glow, we assessed the discriminant validity of warm glow by comparing the average variance explained (AVE) by warm glow items to the squared correlation coefficient between enjoyment and warm glow (Farrell 2010; Fornell and Larcker 1981). The average variance explained by warm glow items ($AVE_{WG} = .543$) was greater than the shared variance between warm glow and enjoyment (.161) and the 95% confidence interval of the shared variance did not include one (95% CI [.033, .343]; Anderson and Gerbing 1988), providing evidence for discriminant validity.

We then tested whether warm glow feelings drive the effect of using the green product on the enjoyment of the accompanying consumption experience in a mediation analysis with 10,000 bootstrap samples (Hayes 2013). The results indicated a significant positive main effect of product type (conventional = –1, green = 1) on the warm glow ratings ($\beta = .25$, SE = .13; $t = 2.01$, $p = .048$); and when we controlled for product type, warm glow ratings had a significant positive effect on enjoyment ($\beta = .35$, SE = .09; $t = 3.79$, $p < .01$). The direct effect of product type on the enjoyment of the experience was no longer significant once the warm glow ratings had been introduced into the model ($\beta = .15$, SE = .11; $t = 1.40$, $p > .10$); but the indirect effect of attribute type on the enjoyment of the experience through warm glow ratings was significant, suggesting an indirect-only mediation ($\beta_{indirect} = .09$, SE = .05, 95% CI = [.01; .20]).

Purchase Intention. We examined the purchase intentions for the headphones in the consumption and examination conditions. An ANOVA with product type (conventional, green) and evaluation context (examination, consumption) as independent variables and purchase intention for the headphones as the dependent variable revealed a marginally significant main effect of evaluation context ($M_{consumption} = 3.66$, SD = 1.46 vs. $M_{examination} = 3.25$, SD = 1.71; $F(1, 188) = 3.35$, $p = .069$, $\eta_p^2 = .018$) and, more importantly, a significant interaction effect ($F(1, 188) = 9.12$, $p < .01$, $\eta_p^2 = .046$). When the participants used the headphones to listen to music (consumption condition), they were more likely to purchase the headphones when the headphones were green ($M_{green} = 4.04$, SD = 1.48 vs. $M_{conventional} = 3.29$, SD = 1.35; $F(1, 188) = 5.32$, $p = .022$, $\eta_p^2 = .028$). However, when the consumers only examined the headphones, but did not use them to listen to music (examination condition), the pattern was reversed such that purchase intentions were marginally higher in the conventional product condition compared to the green product condition, in line with earlier research ($M_{green} = 2.95$, SD = 1.81 vs. $M_{conventional} = 3.56$, SD = 1.58; $F(1, 188) = 3.83$, $p = .052$, $\eta_p^2 = .020$). Figure 1 demonstrates the interaction pattern. These results support the argument that using green products is critical in the enjoyment of the consumption experience and further leads to higher purchase intentions for the instrumental product.

FIGURE 1

CONSUMERS ARE MORE LIKELY TO PURCHASE A GREEN (VS. CONVENTIONAL) PRODUCT AFTER USING THE PRODUCT BUT NOT AFTER EXAMINING THE PRODUCT WITHOUT CONSUMPTION, EXPERIMENT 1



Prior to process analysis involving warm glow, we assessed the discriminant validity of warm glow and purchase intention by comparing the AVE by warm glow items to the squared correlation coefficient between purchase intention and warm glow (Farrell 2010; Fornell and Larcker 1981). The average variance explained by warm glow items ($AVE_{WG} = .687$) and purchase intention items ($AVE_{PI} = .914$) were greater than the shared variance between warm glow and purchase intention (.501) and the 95% confidence interval of the shared variance did not include one (95% CI [.389, .612]; Anderson and Gerbing 1988), providing evidence for discriminant validity. The detailed analyses of discriminant validity, the raw correlation coefficients, and the factor loadings of the items measuring constructs among the constructs measured in all of the experiments are available in web appendix B.

Finally, we tested whether warm glow feelings underlie the observed interaction effect. We suggest that in the consumption condition, participants feel warm glow upon using the green (vs. conventional) product; hence, they have a higher likelihood to purchase the product after consumption. However, we suggest that in the examination condition, where warm glow feelings are absent, warm glow will not have an indirect effect. Mediation analyses (10,000 bootstrap samples, model 8; Hayes 2013) provided support for our predictions. The interaction of the product type and evaluation context had a significant positive effect on warm glow ($\beta = .20$, SE = .10; $t = 2.09$, $p = .038$) and when we controlled for the interaction and the main effects, warm glow had a significant positive effect on purchase intention ($\beta = .83$, SE = .06; $t = 13.27$, $p < .01$). In line with our prediction, in the consumption condition, a significant indirect effect of warm glow was observed ($\beta_{indirect} = .21$, SE = .11, 95% CI [.01, .42]), while the direct effect of product type disappeared ($\beta_{direct} = .17$, SE = .12; $p > .10$). In the examination condition, however, the indirect effect of warm glow was absent ($\beta_{indirect} = -.12$, SE = .12, 95% CI [–.36, .11]). Finally, the indirect effect of the highest-order interaction was significant ($\beta_{indirect} = .33$, SE = .16, 95% CI [.03, .65]).

Experiment 1 reveals that using a green (vs. conventional) product enhances the enjoyment of the accompanying consumption experience, and that warm glow feelings drive this effect. Specifically, in experiment 1, participants who listened to music with a pair of green headphones enjoyed listening to music more than those who used a conventional counterpart. Furthermore, experiment 1 examines the downstream consequences of consuming green products (vs. simply examining them without usage) on purchase intentions: participants who listened to music with the headphones had a higher likelihood to purchase the headphones when the headphones were presented as a green (vs. conventional) product. However, participants who simply examined the headphones but did not use them showed a reverse pattern. These results support our assertion that a shift in the evaluation context from examination to consumption is the reason for observing the positive effect of green product attribute in contrast to past research that showed negative effects (Luchs et al. 2010; Newman et al. 2014). Mediation analyses further revealed that warm glow feelings underlie the effect of using green (vs. conventional) products on the enjoyment of the accompanying consumption experience and purchase intention for the focal product.

In experiment 1, participants enjoyed listening to music more with a pair of green (vs. conventional) headphones because they felt warm glow. However, it could be argued that the positive effect observed in the green product condition may be due to the inclusion of an additional positive product attribute compared to the conventional product condition, and not to the nature of the attribute (i.e., environmental friendliness of the product). To address this alternative explanation, we compared the green product condition to an alternate condition in which the product was presented with a positive (but not green) attribute in a follow-up experiment (see web appendix C). Participants who used the product presented as a green product ($M = 5.55$, SD = 2.14) enjoyed the consumption experience more than those who used the product presented with an alternate positive attribute ($M = 4.41$, SD = 2.13; $F(1, 63) = 4.58$, $p = .036$, $\eta_p^2 = .068$). This effect was mediated by warm glow feelings ($\beta_{indirect} = .43$, SE = .17, 95% CI = [.14; .81]). These findings suggest that the greenconsumption effect is not merely a halo effect.

EXPERIMENT 2

Experiment 2 tests whether the positive effect of using a green (vs. conventional) product on the enjoyment of the accompanying consumption experience can be generalized

to strength-related products. Generalizing the greenconsumption effect to strength-related products is important given that past research demonstrates the unintended negative consequences of green product attributes with strength-related products (Lin and Chang 2012; Luchs et al. 2010; Newman et al. 2014). For instance, Luchs et al. (2010) find that consumers associate green products with gentleness and not strength. However, the consumption or use of a green product may provide additional experiential information and consumers may rely on how they feel when using the green product more than on their lay beliefs. Therefore, in experiment 2, we used a strength-related product, dinnerware sanitizer (green vs. conventional), to conduct a more rigorous test of the greenconsumption effect. In experiment 2, we also tested the downstream consequences of the enjoyment of the consumption experience on purchase intentions and willingness to pay for the focal product (dinnerware sanitizer).

Method

Eighty undergraduate students participated in the experiment in exchange for partial course credit (40% females; $M_{age} = 20.69$; SD = 2.37). They were told that the purpose of the research was to understand the steps university students take in hand-cleaning dinnerware (plates and utensils). Next, we provided participants brief information about the dinnerware sanitizer. We used a real brand, Tandil, with which our sample was not familiar (1 = not familiar at all, 9 = very familiar; $M_{familiarity} = 1.59$; SD = 1.43). In the green product condition, participants learned that the product is made with plant-based and biodegradable ingredients in addition to the product description provided in the conventional product condition. In the conventional product description, this information was not presented. After reading the cover story and the product description, participants were asked to move on to the next cubicle. In this cubicle, participants were presented with instructions to follow for cleaning dinnerware, a sample bottle of Tandil dinnerware sanitizer, dinnerware to be cleaned, and a dish rack for the cleaned dinnerware. After cleaning the dinnerware using the focal product, participants returned to the computer cubicle and reported how much they had enjoyed cleaning the dinnerware (1 = not at all, 9 = very much), their intentions to purchase the dinnerware sanitizer (1= not at all likely, 9 = very likely; 1 = not at all probable, 9 = very probable; 1 = not a chance at all, 9 = very good chance; $\alpha = .98$), and how much they would be willing to pay for the product. Finally, participants indicated the level of warm glow they felt while cleaning the dinnerware as in experiment 1 ($\alpha = .96$).

Results and Discussion

An ANOVA with product type as the independent variable and enjoyment as the dependent variable revealed that participants who cleaned the dinnerware with the green sanitizing product ($M = 5.78$, SD = 2.02) enjoyed the experience more than those who used the conventional sanitizing product ($M = 4.70$, SD = 2.37; $F(1, 78) = 4.78$, $p = .032$, $\eta_p^2 = .058$), consistent with the greenconsumption effect. Next, an ANOVA with product type as the independent variable and purchase intention for the dinnerware sanitizer as the dependent variable revealed a marginally significant main effect. After cleaning the dinnerware, participants had marginally higher purchase intentions for the green dinnerware sanitizer ($M = 5.49$, SD = 2.08) compared to the conventional one ($M = 4.65$, SD = 2.07; $F(1, 78) = 3.30$, $p = .073$, $\eta_p^2 = .041$). Finally, an ANOVA with willingness to pay as the dependent variable revealed similar results. After using the product, participants were willing to pay more for the dinnerware sanitizer in the green product condition ($M = \$6.19$, SD = 3.90) compared to the conventional product condition ($M = \$4.36$, SD = 2.66; $F(1, 78) = 6.04$, $p = .016$, $\eta_p^2 = .072$). Together, these results suggest that inclusion of green attributes in a product offering leads to more favorable product evaluations when consumers have the opportunity to use the product.

We tested the role of warm glow in driving the greenconsumption effect in a mediation analysis with 10,000 bootstrap samples (Hayes 2013). Results indicated a significant positive main effect of product type (conventional = –1, green = 1) on the warm glow ratings ($\beta = .49$, SE = .23; $t = 2.13$, $p = .036$); and when we controlled for attribute type, warm glow ratings had a significant positive effect on enjoyment ($\beta = .72$, SE = .09; $t = 7.94$, $p < .01$). The direct effect of product type on the enjoyment of the consumption experience was no longer significant once the warm glow ratings were introduced into the model ($\beta = .19$, SE = .19; $t = .99$, $p > .30$). However, the indirect effect of product type on the enjoyment of the consumption experience through warm glow ratings was significant, suggesting an indirect-only mediation ($\beta_{indirect} = .35$, SE = .16, 95% CI = [.03; .66]).

Experiment 2 generalizes the greenconsumption effect to strength-related products and demonstrates that when consumers are given the opportunity to use the green product, the unintended negative impact of green attributes is reversed. Experiment 2 further documents that warm glow felt during the use of the green product drives the greenconsumption effect. The findings of experiment 2 suggest that consumers have higher purchase intentions and higher willingness to pay for the green (vs. conventional) product after using the product. These findings complement past research by demonstrating that the opportunity to use the green product can reverse the negative evaluations that are formed prior to consumption in strength-related product categories.

The first two experiments provide support for the mediating role of warm glow in the greenconsumption effect.

Experiment 3 further investigates why consumers feel warm glow while using green products.

EXPERIMENT 3

In earlier research, warm glow has been demonstrated as a feeling that arises upon engaging in a prosocial behavior (Andreoni 1990; Andrews et al. 2014; Dunn et al. 2008). The more critical question, though not addressed in earlier research, is why individuals feel warm glow upon doing a good deed. We propose a potential driver of warm glow in the domain of sustainable consumption. We argue that doing a good deed through the use of a green product elevates consumers' perceived social worth and contributes to warm glow feelings. Social worth is the extent to which a person perceives him- or herself as valued by society, and performing a prosocial behavior can increase one's perceived social worth (Grant 2008; Grant and Gino 2010; Hardy and Van Vugt 2006; Lee and Shrum 2012). In the context of the current research, the use of green products is expected to increase one's social worth insofar as society values the use and consumption of environmentally friendly, green products. Consumers believe that others value proenvironmental consumption behaviors (Taufik et al. 2015) and have positive attitudes toward green consumers (Mazar and Zhong 2010). For instance, green consumers are perceived as being more ethical, more altruistic, and more collaborative than other consumers (Mazar and Zhong 2010). We therefore expect that consumers will experience an increase in their perceived social worth when using a green (vs. conventional) product, which will lead to an increase in the warm glow feelings and in the subsequent enjoyment of the accompanying consumption experience.

H3a: Using a green (vs. conventional) product will lead to a higher degree of perceived social worth.

H3b: Social worth and warm glow will mediate the relationship between product type and enjoyment of the accompanying consumption experience.

In experiment 3, we test the indirect effect of social worth and warm glow on the enjoyment of the accompanying consumption experience.

Method

One hundred nine undergraduate students participated in the experiment in exchange for partial course credit (56% females; M_{age} = 22.21; SD = 5.87). To eliminate demand effects, a cover story informed the participants that the research aims to understand how consumers evaluate music. After the introduction, participants put on a pair of headphones that were placed next to the computer screen to continue with the experiment. The presentation of the stimuli was identical to experiment 1. After reviewing the product description, participants listened to 45 second excerpts from the three songs used in experiment 1 in a counterbalanced order and indicated how much they enjoyed listening to each song (1 = not at all, 7 = very much). Next, participants reported perceived social worth ("Having used the headphones, how much do you feel (1) valued by society, (2) appreciated as an individual by society, and (3) you make a positive difference in society; 1 = not at all, 7 = very much, α = .91; Grant and Gino 2010) and warm glow (the four-item warm glow scale used in the previous experiments, α = .90).

Results and Discussion

Seven participants who failed to follow the instructions (e.g., fast-forwarded or skipped through a song) or experienced a technical problem while listening to the songs were removed from the data, leaving a sample of 102 undergraduates for the analyses (55.9% females; M_{age} = 22.27, SD = 6.04). The results with these participants followed a similar pattern.

Replicating the greenconsumption effect, a repeated-measures ANOVA with songs as the within-participants factor, product type as the between-participants factor, and enjoyment as the dependent variable revealed that participants in the green product condition (M = 4.58, SD = 1.13) enjoyed listening to the songs more than those in the conventional product condition (M = 4.17, SD = .95; $F(1, 100) = 4.01$, p = .048, η_p^2 = .039). The interaction between songs and product type was not significant (p > .20).

Finally, we tested whether social worth and warm glow serially mediate the greenconsumption effect. A serial mediation analysis with 10,000 bootstrap samples (model 6, Hayes 2013) with product type as the independent variable (conventional = –1, green = 1), perceived social worth as the proximal mediator, warm glow as the distal mediator, and enjoyment as the dependent variable revealed a significant positive main effect of product type on perceived social worth (β = .42, SE = .17; t = 2.55, p = .012); and when we controlled for product type, social worth significantly influenced warm glow (β = .42, SE = .08; t = 5.34, p < .01). Finally, when we controlled for the product type and social worth, warm glow had a positive effect on enjoyment (β = .19, SE = .08; t = 2.46, p = .016). The confidence interval for the indirect effect through social worth and warm glow did not include zero, suggesting a significant indirect effect ($\beta_{indirect}$ = .03, SE = .02, 95% CI = [.01; .10]). More importantly, none of the other indirect effects or the indirect effect with reversed order of the mediators were significant. Finally, a follow-up mediation analysis with product type as the independent variable, social worth as the mediator, and warm glow as the

dependent variable also revealed a significant indirect effect ($\beta_{indirect} = .18$, SE = .08, 95% CI = [.05; .36]).

Combined, these results show that while using a green (vs. conventional) product, consumers perceive an increase in their social worth (hypothesis 3a) and feel warm glow, which in turn translates into an increased enjoyment of the accompanying consumption experience (hypothesis 3b). For a more convincing causality inference, we follow a moderation approach in experiment 4 and vary perceived social worth by manipulating social exclusion. We also test for moderation of the greenconsumption effect.

EXPERIMENT 4

Experiment 4 introduces social exclusion as a potential moderator of the greenconsumption effect. Social exclusion, a state in which an individual feels ignored or rejected by others, increases an individual's need to belong and decreases perceptions of self-worth (Allen and Badcock 2003; DeWall, Maner, and Rouby 2009; Williams 2009). In line with this finding, other research indicates that socially excluded individuals show higher need for affiliation (Maner et al. 2007) and are more motivated to attain social acceptance in order to rebuild their social standing (DeWall et al. 2009). By experimentally manipulating social exclusion, we vary perceived social worth to serve two purposes. First, building on experiment 3, we explore the impact of perceived social worth on the greenconsumption effect using a moderation approach and consequently contribute to the understanding of the process and the causal path. Second, we explore the potential use of green products as a recovery mechanism from social exclusion and the subsequent managerial and public policy implications. We predict that individuals who experience social exclusion will report higher enjoyment from the accompanying consumption experience with a green (vs. conventional) product. Specifically, the participants who experience social exclusion (vs. a control group) and a lower perceived social worth will have a greater need to improve their social worth and will benefit more from using the green product. Consequently, this greater increase in social worth will amplify the enjoyment of the accompanying consumption experience.

> **H4:** The positive effect of using a green (vs. conventional) product on enjoyment of the accompanying consumption experience will be amplified during an episode of social exclusion (vs. a control group).

Method

Two hundred nine undergraduate students participated in the experiment in exchange for partial course credit (55.5% females; $M_{age} = 21.33$; SD = 3.33). The experiment employed a 2 (product type: conventional, green) × 2 (social exclusion: control, present) between-participants design and consisted of two parts. The first part of the experiment manipulated social exclusion. Participants were asked to take part in a life event survey to understand the events undergraduate students go through. Participants were instructed to think about a time when they felt that others did not value them and did not appreciate their company or their contributions (adapted from Dommer, Swaminathan, and Ahluwalia 2013). This manipulation is similar to social exclusion paradigms used in past research (DeWall et al. 2009). A separate pretest was conducted using Amazon Mechanical Turk to verify that social exclusion manipulation indeed results in a decrease in perceived social worth. The participants ($N = 73$, 42.5% female, $M_{age} = 36.58$, SD = 11.25) were randomly assigned to social exclusion manipulation and control conditions. In the control condition, participants did not complete the life event survey that manipulated social exclusion. Results revealed that perceived social worth (measured on a three-item scale, Grant and Gino 2010; $\alpha = .95$) was lower in the social exclusion condition ($M = 3.66$, SD = 1.53) compared to the control condition ($M = 4.50$, SD = 1.71; $F(1, 71) = 4.73$, $p = .033$, $\eta_p^2 = .062$).

In the second part of experiment 4, the participants were invited to write a short essay, using a pen and paper, on how they spend their spare time. The participants were informed that the purpose of the research was to understand gender differences in handwriting. The pen was the focal product. In the green product condition, the participants learned that the pen was produced from recycled materials. The participants in the conventional product condition did not receive this piece of information. Next, the participants were given 5 minutes to write the essay and then reported how much they enjoyed writing the short essay (1 = not at all, 9 = very much).

Results and Discussion

Five participants who failed to follow the instructions (e.g., did not write a short essay) or had a hand injury were removed from the data, leaving a sample of 204 undergraduate students for the analyses (55.4% females; $M_{age} = 21.34$, SD = 3.36). The results when those participants were included revealed a similar pattern to the findings below.

An ANOVA with social exclusion and product type as the independent variables and enjoyment as the dependent variable revealed a main effect of product type ($M_{green} = 5.98$, SD = 2.05 vs. $M_{conventional} = 4.57$, SD = 2.19; $F(1, 200) = 22.52$, $p < .01$, $\eta_p^2 = .101$), which was qualified by a marginally significant interaction ($F(1, 200) = 3.33$, $p = .07$, $\eta_p^2 = .016$). The control condition (no social exclusion) replicated earlier results such that participants using the green pen ($M = 5.47$, SD = 2.22) enjoyed writing the short essay more than those using the conventional pen

($M = 4.60$, SD = 2.15; $F(1, 200) = 4.19$, $p = .042$, $\eta_p^2 = .021$). The greenconsumption effect was stronger in the social exclusion condition: participants who wrote the short essay using the green pen ($M = 6.48$, SD = 1.76) enjoyed the experience more than those who used the conventional pen ($M = 4.54$, SD = 2.24; $F(1, 200) = 21.98$, $p < .01$, $\eta_p^2 = .099$). More importantly, among participants who used the green pen to write the short essay, those who experienced social exclusion ($M = 6.48$, SD = 1.76) enjoyed writing the short essay more than those in the control condition ($M = 5.47$, SD = 2.22; $F(1, 200) = 5.47$, $p = .02$, $\eta_p^2 = .027$), providing support for hypothesis 4.

Experiment 4 provides further evidence for a process through social worth. When social exclusion reduces perceived social worth, using green products allows consumers to repair their social worth. A lower initial social worth allows a greater total change in social worth through use of the green product, leading to an amplification of the greenconsumption effect. In other words, threatening social worth through social exclusion increases the role of using green products to repair and elevate one's social worth.

In experiment 5, we explore the moderating role of the environmental impact of the attribute that makes a product green on the green consumption effect.

EXPERIMENT 5

The choice of the focal attributes one uses to present a product as green is an important one. For instance, a pen may be positioned as green on the basis of the wooden body of the pen (which replaces the plastic body) or an environmentally friendly ink (which replaces the regular ink in the cartridge). The degree to which the focal green attribute has an environmental impact with respect to other attributes of the product can be pivotal in this decision. In experiment 5, we test whether the greenconsumption effect persists when we attain the green positioning by improving an attribute that has a relatively lower environmental impact compared to other attributes. If the greenconsumption effect disappears, then this experiment will present a boundary condition and relevant practical implications in green (re)positioning of products. To test this boundary condition, we manipulated the relative environmental impact of green product attributes in experiment 5.

Method

One hundred fifty-one undergraduate students participated in experiment 5 in exchange for partial course credit (43.7% females; $M_{age} = 21.59$, SD = 4.15). The experiment was a 2 (product type: conventional, green) × 2 (attribute with higher environmental impact: ink, outer body) between-participants design. The focal product in the experiment was a pen and the consumption experience was writing a short essay. The experiment consisted of two parts. In the first part, we manipulated the attribute with the higher environmental impact by presenting the participants with a research report indicating that the outer body (ink) of a pen is responsible for 87% of its negative environmental impact, while the ink (outer body) used in the pen is responsible for 4%. Next, participants completed a series of filler measures to minimize demand effects. They were then invited to the ostensibly unrelated second part of the experiment, which was a short-essay writing task.

In the second part of the experiment, participants were given a pen and paper to write a short essay. We manipulated the product type by giving participants either the green or the conventional version of the BIC pen and the corresponding product description. Both versions of the pen are commercially available products in the US. In the green product condition, the participants read that the outer body of the pen is produced from recycled materials. In short, the higher environmental impact attribute was either congruent or incongruent with the environmentally friendly attribute of the green pen. For participants who learned that the outer body (ink) was the main source of a pen's negative environmental impact, the relative environmental impact of the green pen was high (low). In the control condition, participants did not receive the information that the outer body was made from recycled materials. Next, participants wrote a short essay on how they spend their spare time and reported how much they enjoyed the writing task (1 = not at all, 9 = very much). Finally, participants reported their perceived social worth ($\alpha = .92$) and extent to which they felt warm glow while using the pen ($\alpha = .90$), as in the earlier experiments.

Results and Discussion

Six participants who failed to follow the instructions or had a physical condition that might have influenced the enjoyment of the experience (e.g., injured finger or wrist) were removed from the data, leaving a sample of 145 undergraduates for the analyses (44.8% females; $M_{age} = 21.48$, SD = 3.95). The results when the six participants were included in the sample had a similar pattern.

We predicted that when the attribute that had the higher environmental impact was the outer body of the pen, the participants would enjoy the writing task with the green pen (with the environmentally friendly outer body) more than with a conventional pen. However, when the attribute that had the higher environmental impact was the ink, the green pen would fail to increase the enjoyment of the accompanying consumption experience in comparison to the conventional pen. An ANOVA with the product type and the attribute with higher environmental impact as independent variables and enjoyment as the dependent variable revealed a significant interaction effect ($F(1, 141) = 4.12$, $p = .044$, $\eta_p^2 = .028$). When the higher environmental impact attribute was the outer body of the pen, participants

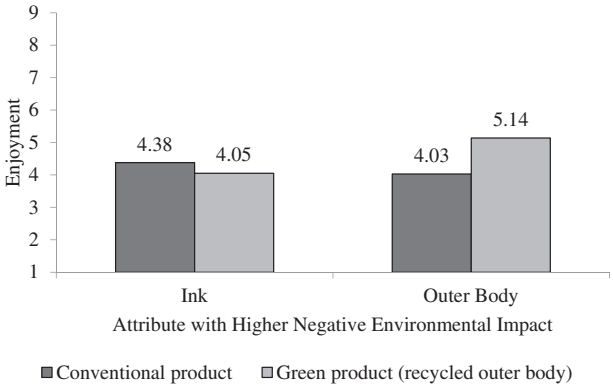
who used the green pen ($M = 5.14$, SD = 2.13) enjoyed the writing task more than those who used the conventional pen ($M = 4.03$, SD = 2.05; $F(1, 141) = 4.87$, $p = .029$, $\eta_p^2 = .033$). However, when the higher environmental impact attribute was the ink, the product type did not have a significant impact on enjoyment ($M_{\text{green, recycled}} = 4.05$, SD = 2.13 vs. $M_{\text{conventional}} = 4.38$, SD = 2.24; $F(1, 141) < 1$, $p > .50$). Figure 2 visually depicts the interaction.

Next, we examined the role of social worth and warm glow in explaining the observed interaction. When the higher environmental impact attribute is the ink and the green version of the product has an outer body produced from recycled materials, participants are not expected to perceive an increase in their social worth or feel warm glow, because the environmental impact of the green product is low or negligible. When the higher environmental impact attribute is the outer body and the green version of the product has an outer body produced from recycled materials, however, we predict an indirect effect of product type on enjoyment through social worth and warm glow. We tested this prediction in PROCESS model 83, which allows testing serial mediation at different levels of a moderator (i.e., moderated serial mediation). A mediation model (model 83, Hayes 2013) with 10,000 bootstrap samples in which the product type (–1 = conventional, 1 = green, recycled) is the independent variable, the attribute with the higher negative environmental impact (–1 = ink, 1 = outer body) is the moderator, social worth is the proximal mediator, warm glow is the distal mediator, and enjoyment is the dependent variable supported the expected process. A significant effect of the interaction emerged on social worth ($\beta = .35$, SE = .17; $t = 2.09$, $p = .039$), and when we controlled for the main effect of product type, social worth had a significant effect on warm glow ($\beta = .42$, SE = .07; $t = 6.31$, $p < .01$). Furthermore, when we controlled for the main effects of product type and social worth, warm glow had a positive effect on enjoyment ($\beta = .35$, SE = .10; $t = 3.48$, $p < .01$). Finally, conditional indirect effects supported our predictions: when the higher environmental impact attribute was the outer body, the indirect effect of social worth and warm glow was significant ($\beta_{\text{indirect}} = .15$, SE = .07, 95% CI [.04, .33]). However, when the higher environmental impact attribute was the ink, the indirect effect was not significant ($\beta_{\text{indirect}} = .05$, SE = .04, 95% CI [–.02, .14]). The indirect effect of the highest-order interaction was significant ($\beta_{\text{indirect}} = .10$, SE = .07, 95% CI [.01, .28]). None of the indirect effects were significant when the order of mediators was reversed.

Experiment 5 presents a boundary condition to the greenconsumption effect. When the environmentally friendly attribute of the green product has a high environmental impact, the greenconsumption effect persists. However, when the environmentally friendly attribute of the green product has a low or negligible negative impact on the environment, the greenconsumption effect disappears. Social worth and warm glow mediate this interaction.

FIGURE 2

THE EFFECT OF USING A GREEN (VS. CONVENTIONAL) PEN ON THE ENJOYMENT OF THE ACCOMPANYING CONSUMPTION EXPERIENCE AS A FUNCTION OF THE ATTRIBUTE WITH HIGHER ENVIRONMENTAL IMPACT, EXPERIMENT 5



GENERAL DISCUSSION

The current research advances our understanding of how using green products influences the enjoyment of the accompanying consumption experiences and its downstream consequences on focal product evaluations. Across five experiments, we show that using green products (e.g., a pair of headphones produced from recycled materials, a dinnerware sanitizer made from plant-based ingredients) enhances the enjoyment of the accompanying consumption experiences (e.g., listening to music, cleaning dishes) compared to using conventional products. We find that warm glow feelings that arise while using green products drive this positive effect. Specifically, we demonstrate that consumers perceive an increase in their social worth when using green products and feel warm glow, which then enhances the enjoyment of the accompanying consumption experiences. Furthermore, we document that after using the green (vs. conventional) product, consumers are more likely to purchase the focal green (vs. conventional) product and willing to pay more for it. Finally, we report two moderators of the greenconsumption effect: (a) when consumers feel socially excluded (vs. not) and perceive their social worth to be lower, the positive effect of using green (vs. conventional) products on the consumption experience is amplified; (b) the greenconsumption effect, however, disappears when the perceived environmental impact of the product's green attribute is low, presenting a boundary condition.

One question that arises from the current research is whether or not consumers have insight into the positive effect of green products on the accompanying consumption experiences. In a follow-up single-factor (product type) between-participants experiment, we asked participants to imagine listening to their favorite song with a pair of green or conventional headphones. If the consumers predicted enjoying the accompanying experience (music consumption) more with the green product (green headphones), then this finding would suggest that consumers do have an insight into the greenconsumption effect. Eighty-four undergraduate students drawn from the same population as the presented experiments were first asked to write down the song that they would like to listen to most at that moment. On the next screen, participants were presented with the product description of a pair of headphones (green or conventional headphones, identical to experiment 1). Then, the participants were asked to imagine listening to the song they wrote down with the pair of headphones presented to them and to report how much they would enjoy listening to the song (1= not at all, 7 = very much). The results revealed no significant difference in the projected enjoyment of listening to music between the green and conventional product conditions ($M_{green} = 5.80$, SD = 1.25 vs. $M_{conventional} = 5.86$, SD = 1.32; $F(1, 82) < 1$, $p > .80$). This result suggests that consumers do not expect to enjoy experiences more with green products, compared to conventional products; yet the results of the five experiments suggest that they do enjoy the accompanying experiences more during actual consumption. We next discuss the theoretical, managerial, and public policy implications of our findings.

Theoretical Implications

The current research provides several theoretical implications. First, it examines an understudied impact of green products—namely, the effect of using green products on the consumption experience. Although previous research in marketing offers valuable insights about the drivers of green product purchase or consumers' perceptions of green products (Bodur et al. 2015; Carrington et al. 2014; Griskevicius et al. 2010; Haws et al. 2014; Luchs et al. 2010; Newman et al. 2014; Peloza et al. 2013; Pickett-Baker and Ozaki 2008), the literature is limited with regard to the effect of green products on consumer behavior at the consumption stage. Considering the fact that consumers interact with green products above and beyond the purchase stage, it is important to understand how green products influence consumption experiences. Furthermore, recent research on green products hints at the possibility that green products may have a negative influence on the accompanying consumption experiences, since consumers have certain associations with green products (Lin and Chang 2012; Luchs et al. 2010; Newman et al. 2014). Unlike recent research that shows potential detrimental effects of green product attributes (Lin and Chang 2012; Luchs et al. 2010; Newman et al. 2014), the current research presents a positive effect of green products on the accompanying consumption experiences and extends research on green products by documenting that the impact of green product attributes is positive on the evaluation of the focal product (i.e., purchase intentions, willingness to pay) when consumers are given the opportunity to use the product.

Second, the current research contributes to research on warm glow by (a) identifying social worth as one antecedent of warm glow and addressing why individuals feel warm glow in the domain of sustainable consumption (Andreoni 1990; Dunn et al. 2008; Koschate-Fischer et al. 2012), and (b) demonstrating that merely using green products—even without a deliberate decision to use one—leads to warm glow feelings. Extant research on warm glow documents the phenomenon in relation to engaging in a good deed by choice. For example, warm glow is shown to arise after making a charitable donation (Andreoni 1990), spending money on others (Dunn et al. 2008), purchasing products that are linked to a cause marketing program (Andrews et al. 2014; Koschate-Fischer et al. 2012), participating in voluntary green programs (Giebelhausen et al. 2016), or finding out that one is more environmentally friendly than one's peers (Taufik et al. 2015). The current research extends research on warm glow by showing that even when individuals are not responsible or accountable for the decision to use the product, using a green product leads to feeling warm glow.

Third, the current findings extend research on the attribute that leads to green perceptions of a product (Gershoff and Frels 2015). Gershoff and Frels (2015) find that consumers evaluate products to be more green when the central (vs. peripheral) attribute is the source of the product's greenness. The current research extends this stream of research by introducing another dimension: the relative environmental impact of the attribute. Specifically, we show that the positive impact of green products at the consumption stage disappears when the attribute instrumental in green positioning of the product has a low environmental impact.

Finally, the findings from the current research point to the instrumental role of green products on the evaluation of other products related to the consumption experience. Expanding earlier research that examines happiness derived from experiences (Bhattacharjee and Mogilner 2014; Nicolao, Irwin, and Goodman 2009) and evaluation of experiential goods (Tully, Hershfield, and Meyvis 2015; Van Boven and Gilovich 2003), the current research suggests that a green product (e.g., headphones, wine glass) instrumental in the consumption of a secondary product (e.g., music, wine) may influence the purchase intention of the secondary product following an enjoyable consumption experience. To test this assertion, we conducted a follow-up

experiment in which participants listened to three songs with green or conventional headphones and reported their likelihood of purchasing the song online for 99¢. The results of this experiment revealed that participants were significantly more likely to purchase the songs they listened to when the headphones they used were green (vs. conventional). This finding suggests that green products that are instrumental in the consumption of other related products may improve the consumption experience and the evaluation of the related product.

Managerial Implications

The current research shows that marketers can enhance consumption experiences by going green. For example, a movie theater offering recycled (vs. conventional) 3D glasses, a gym implementing eco-friendly (vs. conventional) gym tools, or a restaurant offering bamboo (vs. plastic) chopsticks can improve consumer experience. The current research highlights that experience providers should effectively communicate the environmental benefits of the products to enhance consumers' enjoyment of the offered experience. Moreover, through promoting green versions of the products that are accompanied by consumption experiences, brands can benefit from the positive downstream consequences of the greenconsumption effect. For instance, participants were more likely to purchase the green (vs. conventional) headphones after listening to music (experiment 1), suggesting that brands can also increase consumers' intentions to purchase the products that are instrumental in the consumption experience.

Second, the current research highlights the importance of product sampling in the marketing of green products. In the first two experiments, participants had a higher likelihood to purchase and a higher willingness to pay for the green (vs. conventional) product after using the product. Earlier research shows that detrimental effects of green product attributes are driven by lay beliefs (Lin and Chang 2012; Luchs et al. 2010; Newman et al. 2014). However, as consumers sample the product, their evaluations are based on their experience with the product rather than lay beliefs. Furthermore, because consumers feel warm glow while using the product, they enjoy the accompanying experience more and, hence, have higher purchase intentions for the green product. This finding leads to two important managerial implications for selling green products. First, marketers can encourage consumers to sample green products to increase their sales, especially when the benefit sought from the product category is strength. The benefits of green product sampling extend to retailers. For example, many record shops provide headphones in-store to allow consumers to sample recently released albums. By introducing green products instrumental in the sampling of consumption experiences, retailers can enhance consumers' enjoyment of the experiences and sales of the instrumental product. Second, marketers can redesign the customer journey in a way that consumers learn about the green product attribute after purchasing the product rather than the purchase stage. In this way, the potential negative effects of green product attributes that were demonstrated in earlier research could be prevented while the greenconsumption effect would kick in after purchase, increasing the enjoyment of the accompanying consumption experience.

Finally, the current research highlights the importance of the choice of the attribute that will be environmentally friendly in designing a product. We find that the relative environmental impact of the attribute used in green positioning of the product moderates the greenconsumption effect. Specifically, brands should focus on the attributes that have the highest relative environmental impact in positioning green products and should explicitly communicate the environmental impact to consumers. For instance, while marketing a product manufactured with recycled materials, brands can communicate the raw materials saved to help consumers grasp the environmental impact.

Limitations and Future Research

The current research examines the effect of using green products on the enjoyment of the accompanying consumption experiences. Future research is needed to understand whether the greenconsumption effect generalizes to other ethical products (e.g., products with a cause marketing component, fair trade products). At face value, it is likely that the greenconsumption effect generalizes to ethical products. In fact, feelings of warm glow may be stronger with certain ethical attributes that are not inherent to the product, such as cause marketing–related attributes. One reason for this expectation is that with cause marketing–related attributes, the nature of the good deed (e.g., donating to a cause) is explicitly defined. A second reason is that, unlike green product attributes, the cause marketing–related attributes are less relevant to product performance and less likely to trigger negative consumer lay beliefs regarding product performance. For instance, Andrews et al. (2014) reported that consumers may forecast that they will feel warm glow at the purchase stage of a product linked to a cause-related program at certain price levels. A similar effect did not emerge with green products in the current research (experiment 1). On the other hand, many ethical product attributes are transactional in nature. For example, when considering products with a cause marketing component, the good deed is completed as soon as the product is purchased. Consequently, consumers may not feel warm glow with further product use because the product does not include an inherent ethical attribute. Future research can explore managerially relevant conditions that lead to greenconsumption effect with ethical attributes.

Another limitation of the current research pertains to the construct of warm glow, specifically to its definition and

measurement. In the current research, we define, operationalize, and measure warm glow in line with past research (Andreoni 1989, 1990; Andrews et al. 2014; Giebelhausen et al. 2016; Koschate-Fischer et al. 2012; Taufik et al. 2015). However, the conceptual definition of warm glow, its measurement, and our understanding of its antecedents call for further research. Although the construct of warm glow represents a rush of positive emotions upon doing a good deed, it is unclear exactly which emotions come together to compose warm glow. This research adopted measures from past research to create a unidimensional composite measure of warm glow that is congruent with the conceptual definition. However, there is a need for a more precise measure of warm glow, as it has already been expressed in consumer research (Giebelhausen et al. 2016). Further research can also uncover other antecedents of warm glow. Warm glow is felt upon engaging in prosocial behavior; however, the nature of prosocial behaviors can vary (e.g., donating to a charity, spending money on others, reusing towels at a hotel), and the way in which they lead to warm glow may also vary. In the current research, we propose social worth as one antecedent to warm glow in the context of sustainable consumption. Other antecedents of warm glow may exist for other prosocial behaviors.

Finally, in the current research, we examined the influence of using green (vs. conventional) products on three outcome variables: enjoyment of the accompanying consumption experience, purchase intention, and willingness to pay for the product instrumental in the consumption experience. One of the limitations of current research is that enjoyment of the accompanying consumption experience and willingness to pay for the focal product were assessed using single-item measures. Although past research documents the predictive power of single-item measures (Bergkvist and Rossiter 2007), future research is needed to examine the greenconsumption effect using multi-item measures. Furthermore, future research can extend the findings of the current research to other outcome variables, including behavioral outcomes. The frequent consumer interactions with green products—even without a deliberate choice—presents opportunities to design realistic field experiments to extend the greenconsumption effect on consequential dependent variables. To illustrate how the greenconsumption effect could be examined in the field, we ran a field experiment where we intercepted people at the entrance of a North American metropolitan university and asked them to serve as judges in a song competition. The participants listened to a song with a pair of headphones whose green attribute was either made salient or not, and rated the song (see web appendix D for further information on the field experiment). Building on this field experiment, future research can test other outcome variables, such as the observed and perceived duration of the experience, and the impact on subsequent product choices or on subsequent environmental behaviors. For instance, future research with the cooperation of a record store can compare the sales of vinyl records sampled in the store when the store-provided headphones are green vs. conventional, as well as the time spent in the store for sampling records, the sales of the headphones, future retail visits, and share of green products in the shopping basket.

DATA COLLECTION INFORMATION

The data for experiments 1 and 5 was collected in the winter of 2018. Experiment 2 was conducted in fall of 2016. Experiments 3 and 4 were conducted in the winter of 2017. The follow-up experiment to experiment 1 was conducted in the fall of 2015 and the field experiment was conducted in the winter of 2018. All the lab experiments were conducted using participants drawn from the participant pool at the John Molson School of Business, and the field experiment was conducted at the entrance of HEC Montréal. The data collection was managed by the first author under the supervision of the second author and the data were analyzed jointly by the two authors.

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