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Consumer motivations for sustainable consumption

The interaction of gain, normative and hedonic motivations on electric vehicle adoption

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Abstract

Recent conceptual studies identify gain, normative, and hedonic factors as three categories of motivations of consumer pro-environmental behavior. However, empirical understanding of how these motivations interact and affect pro-environmental behavior is limited. This study is based on a survey of car owners in Sweden (N=573) and utilizes structural equation modeling to analyze the data. The empirical findings point to the importance of all three motivations (gain, normative and hedonic) in consumer electric vehicle adoption intentions. Furthermore, for consumers who perceive high social norms regarding sustainable consumption, the direct effect of hedonic motivations on behavioral intention is stronger, and the direct effect of gain motivations is insignificant. The business strategy implications point to that targeting consumers who perceive high social norms in relation to pro-environmental behavior and communicating the hedonic and normative aspects of pro-environmental behaviors to this group might be more effective than general mass communication.

Introduction

The unsustainable consumption of food, energy, and natural resources has created wide-ranging environmental and social problems. In response, sustainable products, which have less negative environmental impacts, are produced and marketed by firms and, to some extent, supported by governments. However, consumer adoption of sustainable products is slow (McDonald & Oates, 2006; Prothero et al., 2011; Bodur et al., 2015). To intervene and speed up the adoption of sustainable products, it is important to understand the underlying motivations that explain why consumers (do not) adopt sustainable products (Jansson, 2011; Ozaki, 2011; Testa, Iraldo, Vaccari & Ferrari, 2015). Green businesses can gain from such understanding by aligning their business and marketing strategies to their targeted consumers' motivations.

The reasons why consumers adopt sustainable products have been investigated from different theoretical perspectives. Steg and Vlek (2009) identify three major motivations for sustainable consumption that are drawn on different theoretical models and they suggest that an integrative perspective on pro-environmental motivation is needed. First, enhancing the personal gains from sustainable consumption has been recognized as an important motivation (Bamberg & Möser, 2007; Lanzini & Thøgersen, 2014; Bamberg et al., 2015). If consumers believe that the benefits of sustainable products outweigh the costs, then they are more likely to buy sustainable products. Secondly, the role of normative motivations, or individual perception of moral correctness and incorrectness (personal moral norms) of the purchase of sustainable products is argued to be important in the literature (Schwartz, 1977; Stern, 2000; Jansson, 2011; Jansson et al., 2010). If consumers believe that purchasing sustainable products is what one ought to do, the probability of a green purchase increases. Thirdly, an important reason for consumer purchase of sustainable products is the hedonic motivation, or whether the sustainable consumption improves one's feelings (Schuitema et al., 2013; Onwezen et al., 2013; Rezvani et al., 2017). Anticipating feelings of pleasure and excitement from the purchase of sustainable products can increase the probability of a green purchase. These three motivations have been investigated individually in previous studies, but little is known about their interaction and integrated effect on consumer purchase of sustainable products.

Investigating the integrated effect of gain, normative (personal moral norms), and hedonic (positive anticipated emotions) motivations is important. The findings can answer the question raised in the literature regarding whether these motivations support or conflict with each other (Steg et al., 2014). A few studies address the interplay between the motivation factors with differing results. Steg and Vlek (2009) and Steg et al. (2014) suggest in their conceptual framework that personal moral norms can conflict with positive emotions and enhanced gains. This is because what individuals perceive they ought to do for the environment does not necessarily improve their positive feelings or maximize their gains. However, Onwezen et al. (2013) show that people with higher levels of personal moral norms tend to anticipate positive emotions from their sustainable consumption and thus have higher intentions to purchase sustainable products.

Further studies are however needed to clarify whether the three motivations support or conflict with each other in influencing consumers' sustainable consumption, as the attempts to empirically explore the relationships between these motivations are few. Such an understanding is important for a firm's development of sustainable business and marketing strategies. If, for example, gain motivations, anticipated positive emotions, and personal moral norms support each other, promoting the adoption of sustainable products can be done by explicitly linking them in communication messages (Steg et al., 2014), and by forming motive alliances (Belz et

al., 2010), which are more likely to motivate the desired behavior. Instead, if the motives are conflicting, other promotion strategies need to be developed that are directed towards the motives that are positively effecting consumer pro-environmental behavior.

To clarify whether the three motivations support or conflict each other, this study examines a model integrating the effect of gain, normative, and hedonic motivations on consumers' sustainable consumption intentions. The focus is on high involvement products (such as cars and houses) which are high-cost products and where consumers' decision making often involves evaluations of different factors such as instrumental attributes of the product. Such evaluations usually are of a complex nature and cannot be done automatically. Furthermore, purchase of high-involvement products is not a repetitious action as such purchase decisions are not taken on a daily basis (Parasuraman et al., 1991). The empirical context chosen for this study is personal transport which has a high environmental impact. The current dominant mode of personal transport is based almost exclusively on fossil fuels and does not meet the criteria for environmentally sustainable consumption. Therefore, a specific type of Alternative Fuel Vehicle (AFV) has been studied, the Electric Vehicle (EV) (Jansson, 2011), a high-involvement sustainable product within the personal transport industry. The electric vehicle is a good example of a high involvement sustainable product in the Nordic countries, where a considerable amount of electricity (between 50 and 80%) is produced from renewable sources such as hydro power (European Commission, 2015), which can considerably reduce the carbon emissions of private cars. The Swedish government aims for making the car fleet free from fossil fuels by 2030. EVs play an important role in achieving this goal and several incentives have been put in place over the years to increase the purchase of environmental friendly cars. Furthermore, Sweden has a history of setting examples in terms of sustainable development internationally with examples like the carbon tax, renewable electricity and biofuel directives (Pacini & Silveira, 2011; Fridolfsson & Tangerås, 2013; Energimyndigheten, 2016;). Thus, in several ways Sweden can be thought of as a frontrunner and therefore understanding consumer EV adoption by Swedish consumers is valuable for policymakers and marketers in other countries as well.

This study provides important insights into the interplay and role of gain, normative, and hedonic motivations for consumption of sustainable products in a setting where social norms also are at play. The results will bear practical implications for marketers and policymakers to design effective marketing and communication strategies for alternative fuel vehicles and specifically electric vehicles, which can support reductions of CO_2 emissions related to personal car driving.

Theoretical foundation and hypotheses

It is important to investigate behaviors which have considerable negative environmental impacts, and where the changing from conventional to sustainable behavior significantly affects the environment (Steg & Vlek, 2009). As high-involvement sustainable products such as cleaner cars can reduce the negative environmental impacts of consumption significantly, it is important to understand consumers' motivations to adopt them (Prothero et al., 2011). Furthermore, studies show that consumer behavior toward high-involvement products are different from those toward low-involvement products (Jansson, 2011; Putrevu, 2010; Wood & Moreau, 2006). With low-involvement sustainable products (such as clothes and groceries) being the focus of many sustainable consumption studies (Prothero et al., 2011), it is important to investigate further the factors that influence consumer purchase of high-involvement sustainable products as these purchases are less likely to be habitual and instead involve more evaluation and cognitive processes. In the present study, the Electric Vehicle (EV) is chosen as

an example of a high-involvement sustainable product; this type of car can substantially reduce the CO2 emissions related to personal car driving.

Motivations of sustainable consumption
The reason why people purchase sustainable products (both low-involvement and high-involvement) has been an important question for researchers in several different fields. For example, economists have focused on the role of financial dis/incentives (Mannberg, Jansson, Pettersson, Brännlund & Lindgren, 2014), sociologists and marketing researchers have focused on the role of interpersonal influence (Jansson, Pettersson, Mannberg, Brännlund & Lindgren, 2017) and psychologists have focused on personal psychological factors such as attitudes and values (Rezvani, Jansson & Bodin, 2015). Although all perspectives bring important knowledge to the area, in this study we use a consumer behavior and environmental psychology perspective assuming that consumers are driven to behave based on different types of motivations in their psychological setup. In this type of literature three types of motivations have been identified to affect consumer sustainable consumption in different ways. We first present these together with the developed hypotheses and then discuss how they interact.

First, the theory of planned behavior (TPB; Ajzen, 1991), assumes that consumers make decisions based on rational evaluations of products and the possible consequences of adopting them (Bamberg & Möser, 2007; Ozaki, 2011; Moons & De Pelsmacker, 2012; Bamberg et al., 2015). The focus is on gain motivations or weighing costs and benefits (cost-benefit trade-off). This theory holds that the higher the gain from adopting a product, the higher the intention to adopt the product. In TPB, the primary predictor of behavior is intention, i.e. consumer readiness and willingness to adopt the product. Consumer attitude toward behavior, i.e., the perceived sum of positive and negative possible consequences of adopting a product, or gain motivations, is a predictor of intention (Moons & De Pelsmacker, 2012; Egbue & Long, 2012; Bamberg et al., 2015). The gain motivations are also shown to be important predictors of purchase of high-involvement sustainable products (Moons & De Pelsmacker, 2012; Schuitema et al., 2013). Based on the understanding of gain motivation we formulate our first hypothesis:

H1: Gain motivations have a positive influence on consumer EV adoption intentions.

Another theoretical perspective, the norm activation model (NAM, Schwartz, 1977), theorizes the effect of personal moral norms on consumer intentions for pro-environmental behavior. Consumers' normative motivations and personal moral norms are argued to be the major driving force of pro-environmental behavior and sustainable consumption. Personal moral norms are individual perceptions of moral correctness and incorrectness, and moral obligations to perform a certain act (De Groot & Steg, 2009). The higher the levels of moral norms for reducing the environmental impacts of consumption, the higher the likelihood of developing pro-environmental behavioral intentions (i.e. Schwartz, 1977; Jansson, 2011; Onwezen et al., 2013). On the other hand, lack of normative beliefs can be a barrier to sustainable consumption. The norm activation model also explains that higher levels of awareness of environmental problems and the tendency to take personal responsibility for these problems can activate personal moral norms. Personal moral norms are shown to be significant predictors of consumer adoption of high-involvement sustainable products in recent research (Jansson et al., 2011; Wolske et al., 2017; Jansson et al., 2017). Based on this theoretical perspective and previous findings, moral motives are important factors influencing individuals' sustainable consumption intentions. This leads to the second hypothesis:

H2: Normative motivations have a positive influence on consumer EV adoption intentions.

Furthermore, conceptual and empirical studies (Steg & Vlek, 2009; Steg et al., 2014) identify a third perspective on consumer pro-environmental behavior, which includes the influence of positive emotions and improving feelings or so-called hedonic motivations. Emotions are defined as states of conscious feelings (i.e. joy, shame, regret, pride), which are normally the result of evaluations and appraisals of stimuli (Lazarus 1991; Baumeister et al. 2007; Watson & Spence, 2007). Possible future emotions are taken into account and guide actions when consumers assess a product or a behavior (Connolly & Zeelenberg, 2002). Consumers strive to experience positive emotions (pleasure, excitement, pride, etc.) and avoid negative ones (regret, shame, etc.) based on their decisions (Frijda et al., 1989).

Not only felt emotions are of importance for consumer behavior. Studies have shown that anticipation of future emotions can be regarded as a primary motivation of behavior (Frijda et al., 1989; Louro et al., 2005; Baumeister et al., 2007). Bagozzi et al. (1999) argue that anticipated emotions are especially relevant to research on consumer behavioral intentions. The importance of anticipated emotions in driving sustainable consumption has been explored in previous research (i.e. Pooley & O'Connor, 2000; Steg & Vlek, 2009; Bamberg & Möser, 2007). For example, Peter and Honea (2012) show that anticipating guilt-relief, joy, and pride positively influence consumer intentions to decrease the use of plastic water bottles. Onwezen at al. (2013) further explore the combined effect of anticipated guilt and pride and demonstrate that anticipated emotions simultaneously influence the purchase of sustainable low-involvement products (such as organic food) positively. These studies highlight the importance of emotions for intentions to buy sustainable low-involvement products. However, emotions have also been shown to be important for some high-involvement products such as EVs, personal digital assistants, and course management software (Wood & Moreau, 2006; Schuitema et al., 2013). Studies on technology acceptance by consumers highlight the positive influence of hedonic motivations on technology use (e.g. Venkatesh, 2000; Venkatesh, Thong & Xu, 2012). Based on this, it is assumed that emotions are also important for sustainable high-involvement products leading to the third hypothesis:

H3: Hedonic motivations have a positive influence on consumer EV adoption intentions.

To design marketing and communication strategies, it is important to identify the motivation that is most influential in encouraging consumer pro-environmental behavior (Steg et al., 2014). As regards the costly pro-environmental behaviors, such as adoption of high-involvement products, the gain and hedonic motivations are argued to have stronger impacts than normative motivations (i.e. Steg & Vlek, 2009). Furthermore, there are conceptual arguments for why personal norms are not important in high-involvement sustainable consumption motivations (e.g. De Groot & Steg, 2009). However, the empirical studies carried out show the opposite and confirm the importance of moral norms in high-involvement sustainable consumption (Jansson, 2011; Jansson et al., 2011; Wolske et al., 2017).

Based on the literature review, the present study examines the direct relationships between the gain motivations, normative motivations, hedonic motivations, and the intention to adopt electric vehicles using the three hypotheses presented above. Testing the hypotheses in a high-involvement context allows understanding whether any of these motivations has a stronger effect on consumer adoption and thus needs to be the focus when designing business and communication strategies.

The interplay between the three motivations
The three theoretical perspectives on consumer pro-environmental behavior explain the effect of gain motivations, normative motivations, and hedonic motivations on pro-environmental

behavior separately. However, goal framing theory (GFT, Lindenberg & Steg, 2007) conceptually brings together these three perspectives on consumer motivations. Based on this theory, gain, normative, and hedonic motivations are not mutually exclusive as they can support or conflict with each other (Steg et al., 2014). For example, although some people hold environmental beliefs and personal moral norms regarding decreasing environmental impact of cars, public transport might not be enjoyable, or convenient, compared to driving their own car. If the hedonic motives are strong and frame the evaluation, the normative motives will be downplayed resulting in continuous car use. For others, moral norms might be the frame and accordingly they would feel positive and see value in using public transport because of their moral norms. Understanding the associations between different motivations is important because if gain, normative, and hedonic motivations can support each other, promoting the adoption of sustainable products can be done by explicitly linking the gains, positive anticipated emotions, and personal moral norms in the communication messages to consumers (Steg et al., 2014). Furthermore, such association signals motive alliances, which might increase the chance of success for business and marketing strategy (Belz et al., 2010).

Although there is little empirical evidence available, one study has confirmed that the effect of gain motivations on behavioral intention is mediated by the effect of hedonic motivations or positive anticipated emotions in purchase of a high-involvement product (Schuitema et al., 2013). It is shown that more positive attitudes toward instrumental attributes of EVs (gain motivations) lead to higher anticipation of hedonic motivations (anticipating pleasure and excitement from driving an electric vehicle), and, in turn, to higher EV adoption intentions. Based on this research and the reasoning behind GFT, a mediation effect can be hypothesized:

H4: The effect of gain motivations on consumer intention to adopt EVs is mediated by hedonic motivations.

In addition, personal moral norms are evaluations of the pro-environmental consumption situation, which can result in anticipating emotions (Onwezen et al., 2013). This is coherent with the appraisal theory of emotions, which asserts that emotions are felt or anticipated based on the appraisal or evaluation of stimuli/situation (Lazarus, 1991; Frijda et al., 1989; Ruth et al., 2002; Baumeister et al., 2007). If the behavior is perceived to be compatible with the personal moral norms, hedonic states or positive anticipated emotions related to the pro-environmental behavior can be elicited, which influences the behavioral intention (Steg & Vlek, 2009; Onwezen et al., 2013). Research also shows that the higher the moral norms one holds about decreasing the environmental impact of consumption, the higher he or she anticipates positive feelings about purchasing organic food products (Onwezen et al., 2013). Furthermore, Onwezen et al. (2013) show that the effect of personal moral norms or the normative motivations on consumers' intention of purchasing organic food is mediated by anticipated emotions. However, the extent to which the personal moral norms, and anticipated emotions simultaneously effect high-involvement pro-environmental behaviors have has not yet been examined quantitatively. Thus, a mediation effect is hypothesized to examine how personal moral norms (normative motivations) influence consumers' purchase intention as regards high-involvement sustainable product through positive anticipated emotions (hedonic motivations):

H5: The effect of normative motivations on consumer intention to adopt EVs is mediated by hedonic motivations.

The hypothesized model is illustrated in Figure 1.

"Please insert Figure 1 here"

Controlling for social norms
The gain, normative, and hedonic motivations are individual motivations of pro-environmental behavior and can be activated by certain internal criteria (Bagozzi & Dholakia, 1999) such as awareness, and the associated values and beliefs (Steg & Vlek, 2009; Steg et al., 2014). For example, higher awareness and personal responsibility can create a sense of obligation, or personal moral norm, to act in a pro-environmental way (De Groot & Steg, 2009). In addition, messages, cues, and situations can make a motivation focal, and, therefore, evaluations and decisions will likely be made accordingly (Steg et al., 2014).

Certain contexts may weaken or strengthen individuals' motivations (Steg et al., 2014; Steg & Vlek, 2009). These external factors include family, society, and marketing (Bagozzi & Dholakia, 1999; Stern, 2000; Lindenberg & Steg, 2007). For instance, availability of sustainable products and related physical infrastructure (e.g. electric vehicles and charging stations), supportive policies, living in a caring community and family, and firms' communications can influence individuals' motivations and behavioral intentions to adopt sustainable products (Chen, Xu & Frey, 2016). Specifically, normative motivations can be strengthened by external social and institutional factors (Steg & Vlek, 2009; Lindenberg & Steg, 2007). Perceived social norms represent the social support that consumers believe that they receive from engaging in pro-environmental behaviors (Schwartz, 1977; Stern, 2000). Individuals may also expect to experience social sanctions from not exhibiting pro-environmental behaviors. The effect of perceived social norms is even stronger if the social support (or sanctions) is expected from people who are important such as close family and friends (Cialdini et al., 1991). Thus, for individuals who perceive higher social norms with regard to pro-environmental behavior, the normative motivations can be more easily activated and the effect of normative motivations on pro-environmental intentions can be stronger. Hence, in addition to the hypotheses presented above it becomes important to control for the effect of perceived social norms on the link between normative motivations and pro-environmental intentions.

Methodology

Study context
The environmental consequences of human behavior are especially high in some sectors. Transport accounts for 27% of the world's greenhouse gas emissions and is the largest end-use sector emitting carbon dioxide, the most prevalent greenhouse gas (EPA, 2016). Fossil fuel cars are also responsible for the air pollution, which has resulted in the premature death of many and caused severe economic losses (Brajer et al., 2012). Introducing more environmentally sustainable cars is thus of great importance for consumer well-being. Alternative Fuel Vehicles (AFVs) are a more environmentally sustainable option since they can run on renewables such as biogas, ethanol, and electricity, and can thus lower carbon dioxide emissions and environmental degradation related to car driving (US Department of Energy, 2015). However, the mere production and development of AFVs and the supporting policy goals will not result in decrease in carbon dioxide emissions from transport, if consumers do not buy AFVs. Consumers need to adopt these cars (and also decrease their usage) for emissions to decrease, and AFV adoption has been slow to take off (Claudy et al., 2013; Jansson, 2011). For example, the sales of Electric

Vehicles (EVs, also called electric cars) in 2014, amounted to less than one percent of all cars sold in the US and European markets (Forbes; Fortune 2014). In Sweden, almost 7% of cars are AFVs (Trafikanalys, 2014). The low adoption makes it important to understand the drivers and inhibitors of consumer adoption of AFVs. Such knowledge would make it easier to develop education and social marketing strategies, which might result in a higher AFV adoption rate among consumers.

In this study, we focus on EVs and we consider them as electrified vehicles with batteries that can be charged from an electric outlet. EVs pose challenge for researchers and practitioners because they are more disruptive innovations in transportation technology (Proost and Van Dender, 2010; Schuitema et al., 2013) and pose different behavioral demands on consumers (Rezvani et al., 2015).

Sample and data collection

To carry out the data collection for this study, a pre-study was conducted. A short online survey was made available on Bilprovningen home page (www.bilprovningen.se). Bilprovningen is a leading private-public organization in Sweden, which provides examination services and the mandatory approvals of cars in terms of performance and safety measures. In 2012, Bilprovningen examined 5.4 million cars, which is about 80 percent of cars in Sweden (Bilprovningen, 2013). Car drivers need to book examination time through Bilprovningen and this is the major reason for visiting its website. Thus, the coverage of the intended population through the Bilprovningen website is relatively good. The online survey was not a pop-up window, but accessible to visitors through an icon asking, 'What do you think about electric vehicles?' This online survey, which was short to achieve a high response rate, included questions regarding socio-demographic information, attitude toward electric vehicles and the environmental impacts of driving with fossil fuels, attitude toward environmental transport policy in Sweden, which targets replacement of fossil fuel cars with AFVs by 2030, and probability of adopting electric cars in the next car purchase.

At the end of the survey, respondents were asked whether they were interested in participating in another survey on EVs. In total, 926 respondents agreed to participate in a longer survey on electric vehicles and left their email address to receive the link to the online survey.

To carry out the online survey, web survey Textalk was used. This service was provided by the university of researchers and is an online survey platform. The link to the online survey was sent to the email addresses of 926 car drivers who opted to participate and the response rate was close to 62% with 573 usable responses forming the data of this research. With the support of Bilprovningen, all respondents received an online Trisslot (value of 30 SEK, almost 3 Euros) in their email. The socio-demographic characteristics of the two groups of respondents, the pre-study (1507 responses), and the study (573 responses), were compared. The two groups were not significantly different from each other. Moreover, the socio-demographics of respondents to the first round before and after the reminder were compared and no significant statistical differences were found. Thus, based on the method of Armstrong and Overton (1977) for examining nonresponse bias, the bias was minimized.

The sample (N= 573) had a significantly higher representation of males (90%) than females (10%), which is common in studies on cars (Egbue & Long, 2012; Olson, 2013). The proportion of alternative fuel vehicle owners in the sample (18%) was also higher compared to the Swedish car driving population. AFV drivers were almost 10% in 2012 (Bil Sweden, 2012). However, the overall sample was representative of car drivers in Sweden in terms of age, education, and annual distance driven per year. The socio-demographic data of the sample are presented in

Table 1. As the purpose of this study is not simply and merely to draw general conclusions on the population, but also to test the theoretical model developed, the sample was deemed acceptable.

"Please insert Table 1 here."

Measures
In adopting sustainable products, gain motivations can be operationalized with consumer attitudes toward the instrumental attributes of sustainable products (Steg et al., 2014). Moreover, anticipating positive emotions or the hedonic motivations needs to be measured with regard to purchase and use of sustainable products (Schuitema et al., 2013). Finally, personal moral norms or the normative motivations can be measured in relation to the purchase of sustainable products and reducing the related environmental impacts. Therefore, attitudes toward an EV's instrumental attributes were measured with five questions on performance, maintenance, style, affordability, and operation costs based on Schuitema et al. (2013). All items were measured on a five point Likert scale. Personal moral norms in relation to fossil fuel-based car driving, which included three items adapted from Jansson (2011), assessed the degree to which respondents felt an obligation to reduce fossil fuels and drive using alternative fuels. The items were: (1) I feel a moral obligation to drive cars which run based on electricity or any other biofuels such as ethanol/ bio gas instead of fossil fuels such as oil/ gasoline/ diesel. (2) If I were to replace my car today I would feel a moral obligation to replace it for a car fueled by electricity or any other biofuel such as ethanol/ bio gas. (3) I feel a moral obligation to conserve fossil fuels no matter what other people do.

In this study, consumers' anticipated emotions are of interest. Some scholars see emotions as being too subjective and thus question their measurement (Vitell et al., 2013). This has meant that studies on emotions have been fewer compared to studies on other subjective factors such as attitudes and norms. However, Richins (1997) and Laros and Steenkamp (2005), point to the importance of emotions and thus measure consumer emotions for different consumption behaviors. In line with the recommendation of Bagozzi et al. (1999), we measured emotions with unipolar measures. Consumers were asked the extent to which they anticipated feeling an emotion, if they adopted an EV. With this choice, we expected that the subjective emotions of respondents could be understood. Furthermore, based on the study of Van Boven and Ashworth (2007), measuring anticipated emotions is more effective than measuring felt emotions. Van Boven and Ashworth (2007, p 298) discuss that because people "mentally simulate future events more extensively than past events", anticipated emotions related to future events are more intense than felt emotions. Thus, it is recommended measuring anticipated emotions. To measure anticipated positive emotions, respondents read the following text and then answered questions on emotions: "*Imagine that you want to purchase a new car for yourself and you have two options which are equally affordable for you: a battery electric vehicle or a regular fuel based car. You think about the battery electric vehicle as an option. Answer the following questions as you think about the battery electric vehicle.*" The question on emotions was thus worded: "What emotions do you anticipate you will feel from owning and driving a battery electric vehicle?" The answers were phrased as follows: "Compared to a regular fuel based car, I will feel [emotion] from owning and driving an electric vehicle." The specific positive emotions were adapted from the literature (Steg, 2005; Schuitema et al., 2013). Emotions included measures of pride, pleasure, and excitement.

Consumers' anticipated emotions are related to intentions and not actual behavior. Intention, consumer readiness, and willingness to adopt an innovation are the main predictors of adoption

behavior and considered, in many studies, as proxy variables for adoption behavior (Arts et al., 2011; Schuitema et al., 2013). Intention to adopt an EV was measured using two items: the respondent had intentions to adopt an electric vehicle in the next year or in the next five years. Perceived social norms related to car driving and adopting alternative fuel vehicles were measured using four items. The question asked respondents to indicate the degree to which they agreed with the statements starting with "People who are important to me believe that [four obligations]": conserving fossil fuels, eco-friendly driving, decreasing car use, and driving alternative fuel vehicles. All scales used in the survey instrument were five-point Likert scales anchored by 1 not important, and 5 very important.

Descriptive statistics of study constructs are reported in Appendix 1.

Results

Measurement model
Prior to testing the measurement model, an Exploratory Factor Analysis (EFA) was conducted. The results are reported in Table 2. Five items of gain motivations loaded significantly ranging from 0.54 to 0.74. Three items of normative motivations or moral norms loaded significantly on one factor, ranging from 0.80 to 0.84. Moreover, three items of hedonic motivations loaded significantly on the hedonic factor with loading ranging from 0.60 to 0.83. The two items of intention to adopt EV loaded significantly on the intention factor as well (loadings 0.70 and 0.87). The Cronbachs'Alpha of constructs are reported in Table 2. Since the results of EFA and reliability analysis deemed acceptable, no item was eliminated.

Furthermore, to evaluate and validate the measurement model in terms of reliability, convergent and discriminant validity of the constructs, a Confirmatory Factor Analysis (CFA) was conducted. Fit indices were $\chi2$=164.551, df= 48, ρ= 0.000, $\chi2$/df= 3.428, NNFI= 0.950, IFI= 0.964, CFI= 0.963, RMSEA= 0.065, which indicate good model fit according to the recommended threshold (Churchill, 1979; Gerbing & Anderson, 1988; Hu & Bentler, 1999). Reliability and validity measures are reported in Table 2. The Composite Reliability (CR) ranged from 0.70 to 0.85, greater than the standard of 0.6. For convergent and discriminant validity of the measures, the Average Variance Extracted (AVE) for each factor was between 0.50 and 0.72, which was either equal to or higher than 0.50. Therefore, the convergent validity of our measurement model was acceptable (Zhao & Tamer Cavusgil, 2006).

"Please insert Table 2 here."

Structural model
The hypothesized models were tested using structural equation modeling. The fit indices for the structural model were as follows: $\chi2$=191.836, df= 59, ρ= 0.000, $\chi2$/ df= 3.251, NNFI= 0.950, IFI= 0.961, CFI= 0.961, RMSEA= 0.063. This indicates good model fit. Standardized regression weights of the structural model are presented in Table 3 and Figure 2. The effect of personal moral norms on consumer intention to adopt EVs was significant and positive (β= .22, ρ < .001). The relationship between gain motivations and intention was also significant and positive (β= .21, ρ < .001). The effect of positive anticipated emotions on intention to adopt EVs was also positive and significant (β= .31, ρ < .001) indicating that the higher the anticipation of positive emotions from adopting an EV, the higher the probability of adopting one. The analysis results also confirm that the effects of gain and normative motivations were partially mediated by the

hedonic motivations. Accordingly, hypotheses 1-5 were supported and the hypothesized relationships were found to be statistically significant.

"Please insert Table 3 here."

"Please insert Figure 2 here."

Controlling for the effect of perceived social norms

In order to control for the effect of perceived social norms on the relationships of motivations with intention to adopt, the average of perceived social norms was calculated (Mean=3.00) and two groups of high (score higher than mean) and low (score lower than mean) social norms were created and entered into the group variable of the structural model. The two models for high and low social norm groups had good fit (Low social norm: $\chi2=116.462$, df= 48, ρ= .000, $\chi2$/df= 2.426, NNFI= 0.952, IFI= 0.950, CFI= 0.950, RMSEA= 0.062. High social norm: $\chi2=100.955$, df= 48, ρ= .000, $\chi2$/df= 2.103, NNFI= 0.950, IFI= 0.951, CFI= 0.950, RMSEA= 0.061). The critical ratio test was performed for the group differences in terms of parameter estimates. Accordingly, the direct effect of normative motivations on intentions was insignificant in the low social norm group, whereas in the high social norm group, it was significant. However, normative motivations had a significant positive effect on anticipated emotions in both groups. Gain motivations also had a significant positive effect on hedonic motivations in both groups, yet the direct effect of gain motivations on intentions became insignificant in the high social norm group, whereas it was significant in the low social norm group (z-score= 2.068; ρ< .000). Hedonic motivations, on the other hand, had stronger effect on adoption intentions in the high social norm group compared to the low social norm group (z-score= -1.79; ρ< .00). Please see Table 4.

"Please insert Table 4 here."

Discussions and conclusions

This study explored the simultaneous effects of gain, hedonic, and normative motivations on consumer adoption of a high-involvement sustainable product, the electric vehicle. Using structural equation modeling, it was found that all three types of motivations directly and positively influenced intentions to adopt electric vehicles in the sample. The direct positive effect of hedonic motivations was strongest, but the direct effects of the gain and normative motivations were also found to be significant and positive. The associations between these motivations were further investigated, and the findings showed that they were positively correlated. In adopting an electric vehicle, personal moral norms significantly and positively influenced the positive anticipated emotions. The gain motivations were also positively associated with positive anticipated emotions. Thus, personal moral norms can support and strengthen the positive anticipated emotions, which in turn have the strongest direct influence on the behavioral intentions. This is an important finding for understanding consumer adoption of high-involvement sustainable products as little is known about the simultaneous influences of the gain, normative, and hedonic motivations on consumer pro-environmental behavioral intentions. It was also found that if people perceive a high social norm regarding reducing the environmental impacts of car driving and use of electric vehicles, positive anticipated emotions and personal moral norms have higher positive influences on intentions to adopt electric

vehicles, when compared to people who perceive low social norms. Moreover, the direct effect of gain motivations becomes insignificant in the high social norms group, while this effect is significant in the low social norm group. Thus, social norms seem put normative and hedonic motivations in focus for sustainable product adoption. This signifies not only the role of personal norms for adoption in high-involvement context, but also emphasizes social norms.

This study corroborates earlier findings in the consumer behavior literature (e.g. Richins, 1997; Bagozzi et al., 1999; Watson & Spence, 2007) and consumer pro-environmental behavior studies (Peter & Honea, 2012; Onwezen et al., 2013; Schuitema et al., 2013), suggesting that anticipation of positive emotions from behavior is a primary motivation to form behavioral intentions. Considering that emotions are rather overlooked in research on sustainable consumption and consumer pro-environmental behavior (Bamberg & Möser, 2007; Vitell et al., 2013) in relation to high-involvement products, the present study contributes to the literature by showing that anticipating positive emotions from a pro-environmental behavior is an important motivation for consumers in this context, also when compared to other motivations.

The finding with regard to the role of personal moral norms or the normative motivations is in line with previous research (e.g. Jansson, 2011; Jansson et al., 2017), which shows that personal moral norms are important predictors of high-involvement consumer pro-environmental behavior. These results contradict arguments suggesting that personal moral norms are more relevant to the low-involvement than high-involvement pro-environmental behaviors (Steg & Vlek, 2009). The present study contributes to the consumer pro-environmental behavior literature by showing that personal moral norms do matter in consumer adoption of a high-involvement sustainable product. Furthermore, it is shown that gain and normative motivations not only have direct positive influence on consumers' intention, but they also support hedonic motivations and influence the consumers' intentions through the mediating effect of hedonic motivations. This is an important finding because, first, it is an empirical analysis of the associations between the three motivations of consumer pro-environmental behavior discussed in the goal framing theory (Steg et al., 2014). Secondly, it shows that gain and normative motivations in the context of adopting a high-involvement sustainable product are important for consumers' appraisals (Lazarus, 1991; Watson & Spence, 2007) or evaluations which result in consumers' emotions. This understanding is important because it explains to some extent why consumers anticipate certain emotions. Therefore, this can be used in business and marketing strategies for sustainable products.

The results have practical implications for marketers and policymakers in designing effective promotional strategies for electric vehicles and reducing carbon dioxide emissions of personal car driving. They can also be assumed to be relevant for all sustainable high-involvement products. It is suggested the use of messages that frame both hedonic and normative motivations and strengthen their influence on consumer pro-environmental behavior with cueing the social norms and what important people (i.e. reference groups and celebrities) believe everybody should do to protect the environment. Moreover, targeting friends and families of current alternative fuel vehicle adopters and promoting to them alternative fuel vehicles and electric vehicles with normative and hedonic messages is also suggested, since it might be more effective than focusing on others who are not related to adopters. By forming such motive alliances (Belz et al., 2010), more effective marketing and communication strategies will be designed and utilized. Caution should also be exercised against using the gain goal as the main motivations to encourage pro-environmental behavior and sustainable consumption since it can crowd out the other motivations. Focusing on gain motivations and forgetting the normative motivations in encouraging the pro-environmental behaviors might result in hypocrisy, which prevents consumers from continuously choosing sustainable products. If gain

motivations are used, the cueing of social norms should be avoided as they hinder gain motives to support the adoption of sustainable products. This is in line with other studies showing that promoting gain motivations for a pro-environmental behavior does not result in spillover into other pro-environmental behaviors, while promoting the normative motivations results in spillover into other pro-environmental behaviors (Evans et al., 2012).

Limitations and future research

In this study, the intention to adopt an electric vehicle is utilized as the dependent variable. Focusing on intentions creates limitations in this study. There have been various studies about the relationship between intentions and behavior and the predictive ability of intention for behavior. Some studies have shown that half of the people who intended to perform a certain behavior actually did, and the other half did not due to reasons such as lack of control over the behavior (Sheeran, 2002). However, despite the limitations and this so-called intention-behavior gap, various consumer behavior and consumer pro-environmental behavior studies focus on intention to purchase or adopt, as the predictive ability of intention is shown to be higher than other indicators of behavior such as socio-demographics. The predictive ability of socio-demographics in these types of models is very limited compared to intentions and other types of attitudinal factors (Jansson, 2011; Diamantopoulos et al., 2003). Furthermore, marketing scholars suggest that consumer behavior is a purposive behavior and consumers strive to achieve certain goals through consumption (Bagozzi & Dholakia, 1999). Intention is "the psychological mechanism or bridge between goal setting and goal striving" (Bagozzi & Dholakia, 1999, p. 10). Thus, measuring intention provides important insights into the behavior and its motivations. Moreover, it is suggested in the literature that intention is the proxy for behavior "as the measurement of the level of actual adoption is not easily achieved" (Schuitema et al., 2013). In this study, the relatively low level of actual adoption among consumers in the market, still makes it difficult to identify the adopters and in turn study their motivations.

Another limitation is the sample as it is not fully generalizable to the population. Future research, with a more representative sample, can investigate the effect of messages, which frame multiple motivations of consumer pro-environmental behavior in different groups to control for group differences. Moreover, research can develop the area of study by priming social norms and exploring the influence of this factor by using experimental methods to reach conclusions on causal relations. Operationalizing the motivations variables differently can also be another area of future research. Dichotomizing continuous variables, as we did with perceived social norms, can results in some information loss (Altman & Royston, 2006), however it is done for practicality and simplicity of interpretation. Furthermore, for achieving sustainable development goals, investigating rebound effect (e.g., Sanne, 2005) and motivations for curtailment behaviors such as reducing car use is important (e.g., Jansson, 2011). What we label as sustainable products can only decrease the negative environmental impacts of consumption to certain levels, making consumption reduction and curtailment behaviors very important for sustainable development.

Another limitation is that this study is rooted in environmental psychology and consumer pro-environmental behavior literature and has not considered other theoretical perspectives that are also used to analyze sustainable consumption. Tanner and Wölfing (2003) for example argue that besides attitudes, values and other individual factors, situational factors matters as they can undermine the influence of such factors or block environmentally friendly behavior (c. f. Black, Stern, & Elworth, 1985). Further studies are needed to also include contextual and situational factors to better understand sustainable purchase intention.

In this study, the level of involvement is only defined based on the time and money spent on the product (which is a common method of determining the level of involvement in marketing). Level of consumers' involvement with products can be also be defined as the perceived relevance of the product based on their needs, values, and interests (Zaichkowsky, 1985). Thus, sustainable products, whether low-cost/involvement or high-cost/involvement can be high-involvement products based on the study of Zaichkowsky (1985), because the high-involvement might not be related to cost rather to consumers' values for protecting the environment. This opens avenues for future research as well.

Taken together, despite these limitations the focus on high involvement eco-innovation adoption and different motivations in a context of high and low social norms brings important contributions to the field.

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Table 1. Sample socio-demographic characteristics

		n = 573
		%
Gender	Male	90
	Female	10
Age	18 – 25	6
	26 – 35	16
	36 – 45	23
	46 – 65	41
	>66	14
Education	High school	5
	Pre-college	32
	2 years of college	18
	4 years of college or higher	45
Annual driving distance	1 – 500	7
(* 10 km)	501 – 1000	16
	1001 – 1500	25
	1501 – 2000	20
	2001 – 3000	18
	3001 – 4000	9
	Over 4000	5
Fuel of current car	Gasoline	50
	Diesel	13
	Efficient gasoline	5
	Efficient diesel	10
	Bio and Natural gas	5
	Ethanol	11
	Hybrid electric	3
	Plug-in hybrid electric	1
	Battery electric	2

Table 2. Constructs and items' reliability and validity

Latent construct	Observed indicators	Factor loadings	CR	AVE	Cronbachs' Alpha
Gain motivations	Performance	.54	.70	.50	.73
	Maintenance	.63			
	Style	.60			
	Affordability	.68			
	Safety	.74			
Normative motivations	- Moral obligation to drive alternative fuel cars	.83	.85	.72	.88
	- Moral obligation to replace the current car for an alternative fuel car	.80			
	- Moral obligation to conserve fossil fuels	.84			
Hedonic motivations	Proud	.60	.83	.62	.83
	Excited	.83			
	Pleasant	.76			
Intentions	1 year	.70	.77	.63	.73
	5 years	.87			

Table 3. Standardized regression weights

Construct		Construct	β
Intentions to adopt EVs	<---	Normative motivations	.22
Intentions to adopt EVs	<---	Gain motivations	.21
Intentions to adopt EVs	<---	Hedonic motivations	.31
Hedonic motivations	<---	Gain motivations	.42
Hedonic motivations	<---	Normative motivations	.49

Table 4. Group differences between high vs. low perceived social norms

			High Social Norm		Low Social Norm		Group differences
			Estimate	ρ	Estimate	ρ	z-score
Hedonic	<---	Normative	.521	.000	.604	.000	.611
Hedonic	<---	Gain	.756	.000	1.335	.000	1.596
Intention	<---	Hedonic	.567	.000	.215	.059	-1.790*
Intention	<---	Gain	.336	.311	1.347	.000	2.068**
Intention	<---	Normative	.426	.004	.186	.111	-1.277

*Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.001 level (2-tailed)

Appendix 1: Mean, standard deviation and Pearson correlations of study constructs

	Mean	SD	1	2	3	4	5
1- Hedonic	3.307	1.163	1	0.625**	0.568**	0.465**	0.541**
2- Normative	2.901	1.300	0.625**	1	0.482**	0.441**	0.515**
3- Gain	2.530	0.667	0.568**	0.482**	1	0.441**	0.499**
4- Perceived Social Norm	3.192	0.881	0.465**	0.505**	0.441**	1	0.351**
5- Intention to adopt EV	2.530	1.490	0.541**	0.515**	0.499**	0.351**	1

** Correlation is significant at the 0.01 level (2-tailed).
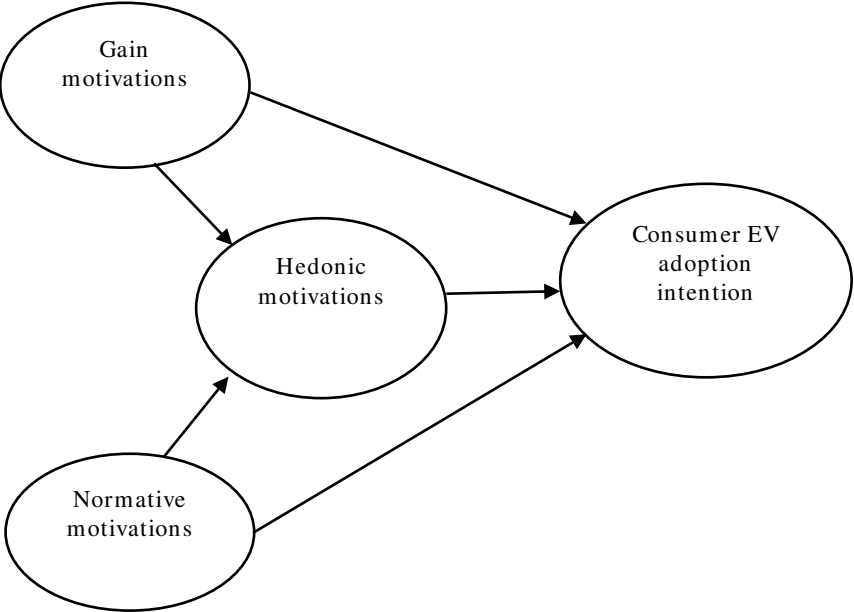
Figure 1. The hypothesized model

Figure 2. The SEM results for the conceptual model