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Yes, I Can!

Examining the effect of message framing on the feeling of
perceived effectiveness and sustainable consumption behavior

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Abstract

In light of current business practices and consumption patterns which overexploit the earth's natural resources, understanding sustainable consumer behavior is a complex but emergent concept. Moreover, it is critical to understand for corporate and public policy makers in order to make a difference in consumption patterns for the future and in creating an overall more sustainable society. Thus, the aim of the present dissertation is to examine the effect of concrete versus abstract message framing in sustainable advertising on the feeling of perceived consumer effectiveness as a strong motivator for more sustainable consumption behaviors. Based on a review of the academic literature on sustainable decision-making and message framing techniques, an experimental study design was used to test for the framing effects on consumers' attention to the advertisement, willingness to comply and their perceived effectiveness of their actions on issues that contribute to sustainable development. Results show, that the feeling of perceived effectiveness can be increased by presenting individuals with a positive concrete message on the feasibility of pro-environmental behavior instead of a message that focuses on abstract reasons for sustainable consumption. Thereby, the present dissertation makes a contribution to a more profound understanding of a concept that leads to more sustainable consumption and the process by which it can be increased, and that in turn holds important implications for the marketing literature and the advertising industry, in general.

Resumo

De acordo com os atuais modelos de negócio e padrões de consumo que sobre exploram os recursos naturais, entender métodos de consumo mais sustentáveis torna-se complexo, mas pertinente. O sector privado e as instituições governamentais devem compreender este fenómeno, para assim tornarem os padrões de consumo mais sustentáveis. Esta tese pretende examinar o efeito de mensagens concretas versus abstratas na consciencialização do consumidor através de publicidade que apele à sustentabilidade do planeta. Baseado num artigo académico que aborda o consumo sustentável e as técnicas pelas quais devem ser apresentadas mensagens publicitárias, foi conduzido um estudo empírico para avaliar o efeito de quatro tipos de mensagens na atenção dos participantes quando expostos a diferentes apelos de sustentabilidade, a sua vontade em agir em conformidade com a mensagem e, a percepção da sua efetividade nessas ações. Os resultados mostram que uma melhor percepção pode ser conseguida apresentando mensagens concretas que induzam um consumo pro-sustentável ao invés de mensagens que apliquem razões mais abstratas. Esta tese contribui assim, para um conhecimento mais profundo sobre o processo que leva a práticas de consumo mais sustentáveis e a possibilidade de as incrementar, o que tem grandes implicância para a literatura do marketing e o meio publicitário, em geral.

Acknowledgements

During my academic studies I became interested in consumer behavior and how consumers make choices, especially in situations of more complex decision-making. As we can no longer deny the harmful impact of human consumption on our environment, I am convinced that understanding consumers' sustainable decision-making will be the challenge for marketers in the near future. Therefore, I enjoyed working on a topic which personally concerns and interests me.

First of all, I would like to express my sincere gratitude for my supervisor professor Vera Herédia Colaço, for her support and continuous availability throughout the dissertation process. With her extensive knowledge in the field of consumer behavior, sustainability and marketing, as well as her always positive attitude and feedback, she was a true inspiration for the present dissertation. Thank you, professor, for being an excellent supervisor.

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1. Introduction

1.1 Problem Definition and Relevance

A recent report from the United Nations Environment Programme presents alarming results. Current business practices and human activity irreversibly harm the environment and exploit natural resources faster than the earth can recover (UNEP, 2016). Given that people are increasingly more informed about the importance of sustainable consumption, and sustainable product alternatives are also more easily available than in the past (Luchs, Brower, & Chitturi, 2012), why do people with a positive attitude towards the environment do not behave in a more sustainable way?

Over the past decades, consumption patterns have radically changed. While increased spending on leisure activities, electronic devices and transportation contributes to human development, increased production and consumption of products are unsustainable from an environmental viewpoint (UNEP, 2005). However, despite the increasing attention for sustainable consumption in academic research and society, over the recent years (Joshi & Rahman, 2015), empirical evidence suggests that, even though a growing number of people hold high values for ethical consumerism, those values often do not translate into sustainable consumption behaviors (Carrington, Neville, & Whitwell, 2010). Given a continued growth of the world's population and global economy, understanding the underlying mechanisms that lead consumers to make socially and environmentally responsible decisions are of great importance for public decision makers and marketing practitioners (Prothero et al., 2011).

According to Joshi and Rahman (2015), who reviewed 53 empirical articles on green purchase behavior, several factors account for the so called attitude-behavior gap. Besides situational factors, which often constitute barriers to sustainable behavior, such as product availability, price and the perceived inferior quality of sustainable products, individual personal factors can predict and drive sustainable behavior (Joshi & Rahman, 2015). Among these personal factors is perceived consumer effectiveness, defined as the subjective belief about the effectiveness that one's individual actions have on a larger scale (Ellen, Wiener, & Cobb-Walgren, 1991; Vermeir & Verbeke, 2006). A concept that constitutes both a motivational factor and good predictor of sustainable behavior (Cojuharenco, Cornelissen, & Karelaia, 2016; Kang, Liu, & Kim, 2013; Roberts, 1996). However, and in spite of its salient function in encouraging sustainable consumption behavior, little is known about how it can be

increased (Antonetti & Maklan, 2014b). More research is thus, needed to investigate on the factors that positively influence consumer's sense of perceived effectiveness and the appropriate marketing strategies that are needed to be developed in support of this type of behavior (Ellen et al., 1991; Roberts, 1996).

Among the extant literature on sustainable consumption behavior that looks into efficient ways to encourage consumer support for ethical initiatives is sustainable advertising (UNEP, 2005). In spite of the innumerable advertising efforts to promote sustainable consumption, research on the strategic use of pervasive ethical appeals in advertising and their effectiveness in driving behavior change is also still limited (Pelozo, White, & Shang, 2013). Given the urgency to deal with environmental issues, more research is needed in order to examine ways in which advertising techniques, such as message framing, can be used to improve the effectiveness of institutional and commercial sustainable advertisement campaigns on consumers' decisions to behave more sustainably (Cheng, Woon, & Lynes, 2011).

1.2 Objective and Research Questions

With marketers asking for more research on strategies that aid the transformation towards sustainable consumption practices (Prothero et al., 2011), the primary objective of this research is to develop a greater understanding on the influence of message framing tactics on consumer's perceived effectiveness. Accordingly, this research contributes to the evolving stream of research on message framing and sustainable consumption behavior (Chang, Zhang, & Xie, 2015; Cheng et al., 2011; White, Macdonnell, & Dahl, 2011). More precisely, the author investigates how the feeling of having an impact on sustainability can be strategically increased in order to influence consumers' attitude and behavior towards sustainable consumption.

While prior studies exist that investigate the feeling of perceived effectiveness in different consumption contexts and in relation to other concepts which have shown to be linked to sustainable consumption (Cojuharenco et al., 2016; Kang et al., 2013; Vermeir & Verbeke, 2006); to the best of the author's knowledge, little research has examined how perceived consumer effectiveness can strategically be increased through message framing in sustainable advertisement campaigns. For this reason, the present dissertation intends to make a contribution to the existing body of research in sustainable consumption behavior by

providing a more thorough understanding on the context of perceived effectiveness and its relation to two message framing concepts also known as abstraction and temporal focus of a message (Trope, Liberman, & Wakslak, 2007).

Therefore, the following research questions are addressed:

RQ1: Does the feeling of having an impact on sustainability (Perceived Consumer Effectiveness - PCE) lead to more sustainable consumption choices?

The first research question is intended to provide a fundamental understanding of the importance of perceived consumer effectiveness in influencing sustainable consumption behavior. It also reflects on the initial motivation of the dissertation topic and gives reason to the presented study. Different theoretical concepts and findings from prior research on the topic are presented and discussed in the literature review section. Consequently, answering this question opens the way for the following research questions, and for the research model addressed in this dissertation.

RQ2: Can the feeling of having an impact on sustainability (Perceived Consumer Effectiveness - PCE) be increased by showing individuals the positive impact of their consumption choices?

Assuming that the feeling of perceived consumer effectiveness may have a positive impact on sustainable consumption choices, the second question seeks to answer whether it can be increased by providing consumers with information on their individual positive impact. It is important to note here, that the present research focuses on positive rather than on negative information with the intention to encourage individual pro-environmental actions. Despite the existing research on negative appeals (Antonetti & Maklan, 2014a; Jiménez & Yang, 2008) and its relevance in institutional and commercial sustainable advertisement (Hartmann, Apaolaza, D'Souza, Barrutia, & Echebarria, 2014), negative appeal constructs, such as feelings of fear and guilt, are opposite constructs to what is intended to be analyzed in the present research. In order to answer the second research question, a set of hypotheses on message framing effects are formulated and tested in an experimental study design.

Moreover, in order to get a better understanding of the factors that might moderate the effect of message framing on consumer's perception of the sustainable advertisement, a third research question is presented:

RQ3: How do consumers' individual differences in environmental concern and knowledge affect the congruency effect between appeal type and temporal focus on consumers' responses to sustainable advertising?

The third research question points to the fact that individuals are not equally receptive to message framing effects and therefore, there might be individual differences that account for more versus less sustainable consumption behaviors (Cheng et al., 2011). Therefore, this perspective is also considered to be an important topic of research to be investigated at the individual level.

1.3 Thesis Structure

The dissertation is structured as follows: The first chapter gives an introduction to the underlying problem statement and the structure of the dissertation. A review on the existing academic literature on sustainable consumption behavior, perceived consumer effectiveness and message framing is then presented and a set of hypotheses are suggested that conduct to the empirical investigation of this dissertation. Following the methodology and data analysis' section, the results of the study are presented. At the end of the dissertation, conclusions are presented, as well as theoretical, practical implications and future research suggestions are made for the marketing literature on sustainable consumption behavior.

2. Academic Literature Review

2.1 Sustainable Consumption Behavior

Sustainability and the sustainable development concepts were first defined by the Brundtland Commission (1987) as, “the development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987). It was in the Brundtland Report (1987) where the notion of an economic growth which works towards minimizing the negative impact on the environment and society, first gained significance. Throughout the existing literature on sustainability, the “actions taken by individuals [...] to enhance societal well-being (do good) or to avoid harmful consequences for society (do no harm)” can also be referred to as social and environmental responsible, social conscious, pro-environmental or green behavior (Crilly, Schneider, & Zollo, 2008, p. 176). Such actions include the purchase of sustainable products, re-use and recycling behavior, conservation of water or energy and an overall reduced consumption (Cojuharenco et al., 2016; SDRN, 2005).

Ethical-minded consumers or consumers that feel a responsibility towards the environment or society are facing more complex decision-making processes today than in the past, as they consider a broader range of concerns (Vermeir & Verbeke, 2006). Previous literature on the purchase decision-making of ethical-minded consumers has mainly focused on consumption behavior, business ethics and social psychology (Carrington et al., 2010). Among some of the theories used to explain sustainable consumption behavior are Schwartz's (1977) Norm Activation Theory, the Theory of Planned Behavior (Ajzen & Fishbein, 1980) and the Theory of Reasoned Action (Ajzen, 1991). The aforementioned theories are widely supported in behavioral research and are used to explain the discrepancy between intentions and actions. These theories provide, therefore, the theoretical foundations of the present dissertation.

Schwartz's (1977) Norm Activation Theory

According to Schwartz's (1977) Norm Activation Theory, personal norms are a direct predictor of environmental responsible behavior. Personal norms can be seen as moral obligations of an individual to behave in a way that does not harm or even enhance the environment. Environmental responsible behavior occurs as a response to an individual's personal norms together with an awareness of the consequences for one's actions and a feeling of responsibility towards those. Thus, the awareness of the behavioral consequences

and the acknowledgment of personal responsibility play a vital role in activating personal norms that may contribute to environmental sustainable decisions. In other words, when people are aware of the consequences of not behaving or consuming in an environmental responsible way, together with a feeling of responsibility, the moral obligation they feel towards an environmentally responsible behavior is likely to be activated. As a consequence, more sustainable consumption choices are performed. While Schwartz's Norm Activation Theory was developed to understand altruistic behavior of individuals, the frameworks of Ajzen and Fishbein's (1980) "reasoned action" and Ajzen's (1991) "planned behavior" are also frequently referred to in the marketing literature, in order to understand the decision-making process of ethical-minded consumers. This lies in the fact that an individual's behavioral intentions are a predictor of actual behavior.

The Theory of Reasoned Action and the Theory of Planned Behavior

According to the Theory of Reasoned Action, behavioral intentions are a function of an individual's attitude towards a certain behavior and its subjective norms, which shape actual behavior. Therefore, behavior depends on the expected consequences of a certain action and on normative beliefs concerning social pressure to perform certain behaviors. In order to increase the predictable power of the Reasoned Action framework, Ajzen (1991) included perceived behavioral control as an additional variable in the Theory of Planned Behavior (see Figure 1). Behavioral control is comprised by the more general concepts of locus of control as developed by Rotter (1966) and self-efficacy (Bandura, 1982), and has shown to be a variable that allows more accurate predictions of intention and goal-directed behaviors (Ajzen, 2002; Ajzen & Madden, 1986). According to Ajzen (1991), the translation of intentions into actual behavior can be predicted by perceived behavioral control, which refers to an individual's perception about their control over the situation, and thus, the ability to perform a certain behavior. Under the assumption that an individual truly has volitional control over his/her actions, perceived behavioral control and intention are directly correlated with actual behavior (SDRN, 2005). Perceived behavioral control has been important in the sustainable consumption behavior literature (Antonetti & Maklan, 2014b; Ellen et al., 1991), since previous research has shown that the feeling of having little behavioral control or an insignificant impact on a larger scale constitute reasons that prevent individuals from engaging in sustainable behaviors.

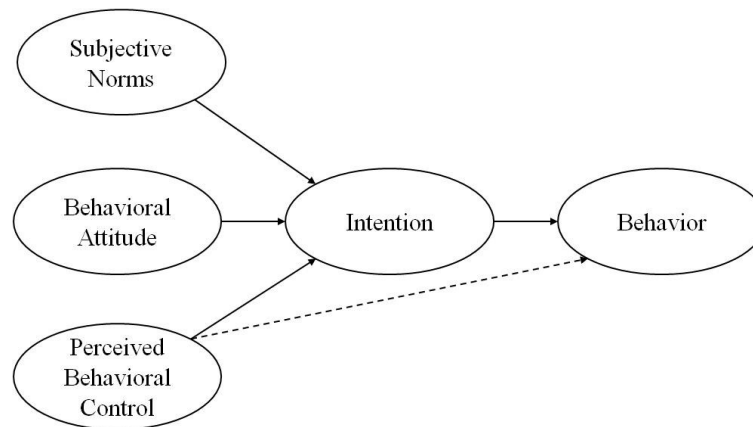


Figure 1: Theory of Planned Behavior
Source: adapted from Ajzen (1991)

2.2 Perceived Consumer Effectiveness (PCE)

The extent to which one's actions are believed to make a difference is a concept related to perceived behavioral control (Ellen et al., 1991), and is known as perceived consumer effectiveness (Vermeir & Verbeke, 2008). The common denominator of both concepts is that intentions and actions are determined by an individual's confidence in their capabilities. Also, the degree to which individuals perceive the occurrence or the dimension of an event to be affected by their actions (Ellen et al., 1991). Though perceived consumer effectiveness derives from perceived behavioral control, it is distinct from the latter since the controllability beliefs of the behavioral control concept are linked to internal, as well as external factors that influence the performance of a certain behavior. In contrast, perceived effectiveness reflects an individual's belief in a specific action and constitutes an internal and direct motivation for sustainable consumption only, which is the subject under consideration in this dissertation.

Perceived consumer effectiveness (PCE) in its original form was first conceptualized and measured by Kinnear, Taylor and Ahmed (1974) as the subject's beliefs that the efforts of an individual acting alone can contribute to the solution of an environmental problem (Ellen et al., 1991). PCE, as a situation-specific belief, has shown to be a necessary antecedent and strong motivational factor for social and environmental well-being behaviors (Cojuharenco et al., 2016). In fact, Roberts (1996) found PCE to be a good predictor of environmental sustainable behaviors, since the stronger the belief that one's individual actions can have an impact on environmental and social issues, the more likely people are to behave sustainably. On the contrary, when people do not believe that their actions can have a positive impact on the environment or on social issues, the less likely they are to behave in a sustainable way.

According to the marketing literature, PCE seems to be a causal factor for social and environmental responsible consumption, such as energy-saving and recycling behavior (Webb, Mohr, & Harris, 2007); and a predictor that positively affects purchase intentions for sustainable products (Vermeir & Verbeke, 2006, 2008).

In previous research on sustainable consumption behavior, PCE has also been associated with other constructs such as environmental concern (Kinneer et al., 1974), environmental knowledge and perceived personal importance of environmental issues (Kang et al., 2013). However, measured only as part of an overall effectiveness index, the role of PCE in explaining and motivating sustainable behavior is likely to be underestimated (Ellen et al., 1991). While the existing literature on sustainable consumption suggests that concern for the environment does not directly translate into behavior (Ellen et al., 1991; Vermeir & Verbeke, 2006, 2008); PCE was found to moderate a variety of behaviors due to its uniqueness in influencing specific goal-directed behaviors that involve concrete actions (i.e. conserving water by taking shorter showers). However, despite the extensive body of research that examined the moderating role of PCE in bridging the gap between attitudes and behavior (Ellen et al., 1991; Kang et al., 2013; Roberts, 1996), only few research exists on PCE as a dependent measure.

A noticeable exception are the findings of Allen (1982), who examined the influence of attribution and persuasive message appeals on PCE and consequent energy conservation behavior. Referring to PCE as a self-concept, findings suggest that instead of communicating economic rewards from conservation, marketers who wish to enhance consumer's perceived effectiveness need to look into creative self-perception based strategies, e.g. providing individuals with positive feedback on their conservation behavior as "a cue to use in forming beliefs about themselves" (Allen, 1982, p. 389). He therefore calls for more research on attribution and persuasive message appeals, that refer to the importance of the individual action in solving an underlying environmental problem, and on PCE as a dependent measure.

Additionally, with consumers being increasingly more educated on the consequences of their actions on the planet as well as interested in the producers and processes behind the products they buy (UNEP, 2005), public and corporate marketing actions should encourage sustainable consumption through message framing strategies, to increase consciousness towards the importance of behaving in a sustainable way. Thus, the present research examines the effect of sustainable message framing on PCE, as we see next.

2.3 Message Framing and Effects

Message framing, as a communication technique in advertising messages, originates from Prospect Theory of Psychology and was first described by Tversky & Kahneman (1981) who illustrated a framing effect in the formulation of decision-problems involving risk. According to the Prospect Theory, possible outcomes or consequences of a particular choice are perceived as a positive or negative divergence (gain or loss) from a neutral reference outcome. The value attributed to the reference outcome is equal to zero. By definition, a “framing effect” occurs when different decisions result from objectively similar descriptions of a decision-making problem (Sher & McKenzie, 2008). Framing numerical probabilities and quantitative outcomes for a decision problem influences their evaluation and thus, the decision maker’s perception about certain options. How the frame is interpreted is partly determined by the formulation of the problem, as well as by personal norms – the expectations people hold for themselves, and in addition, the characteristics of the decision maker. The dependence of people’s preferences on the formulation of a decision problem makes it a central element in studying consumer decision making.

Given the fact that sending “the right message” can be critical for how an audience responds to a marketing campaign, as well as based on how the message is composed and subsequently understood, message framing techniques are of great importance for marketers. Therefore, message framing as a marketing technique that is used to shape consumers perceptions and construct meaning in advertising messages, has been a growing field of research in the areas of consumer psychology of judgment and decision making (Chan, 2000; Janiszewski, Silk, & Cooke, 2003; Levin, 1998; Levin & Gaeth, 1988; Sher & McKenzie, 2008). Moreover, message framing has been used in the marketing literature to communicate environmental sustainability (Chang, Zhang, & Xie, 2015; Cheng et al., 2011). In communicating environmental sustainability, the most frequently used type of message framing has focused on shaping the recipients’ perception of behavioral outcomes in terms of benefits (i.e. gain) or costs (i.e. losses) (Cheng et al., 2011). In gain and loss frames, the message focuses either on the positive or negative aspects of a decision problem. The effectiveness of gain and loss framing in promoting sustainable behavior has been studied in relation to framing personal versus other-benefits (Loroz, 2007), as well as perceived salience (Obermiller, 1995) and proximity of environmental issues (Spence & Pidgeon, 2010).

Previous message-framing research has shown that positive and negative message frames can alter individuals' decision-making processes on the basis of varying attention and subsequent understanding of messages (Chang et al., 2015). While loss frames provoke negative emotions, such as fear and guilt, which have shown to cause avoidance behaviors (i.e. quit smoking), gain frames provoke more positive emotions in people, such as joy and contentment (Cheng et al., 2011). In turn, positive emotions have shown to enhance creativity and perceived effectiveness in problem solving as information processing is improved. This suggests that positive emotions not only facilitate a systematic processing of information, but also lead to increased levels of efficiency in considering different types of information within the decision-making process (Isen, 2001). According to Isen (2001, p. 80), "decision makers [...] in whom positive affect has been induced are more flexible, open, and innovative, as well as more careful and thorough in addressing interesting or important issues". In sum, positive affect has shown to make people more socially responsible and able to take other people's perspective in interactions (Isen, 2001).

Construal Level Theory

Another way to increase individual's confidence in their problem solving abilities can be attained by framing perceived feasibility on the construal level of the message (Obermiller, 1995). Construal level theory (Trope et al., 2007) assumes that people think of an activity or event at varying levels of abstraction depending on psychological distance. With the individual constituting the reference point, psychological distance is found to exist in time, space, social context and "hypotheticality" (Trope et al., 2007, p. 85). Construal level theory is also particularly relevant in the context of sustainable behavior, since behavioral outcomes can be oriented either towards the present or the distant future (Chang et al., 2015). Construal level theory assumes that people mentally construe psychological distant events in high-level, abstract and stable characteristics. In contrast, actions or events that are psychologically near are construed in terms of low-level, concrete and detailed mental representations (Trope et al., 2007). As construal level theory affects individuals' thoughts and behavior, it is often used in the area of consumer behavior involving sustainable decisions (Spence & Pidgeon, 2010; White et al. 2011).

Throughout their work, Trope and Liberman (1998; 2007) found evidence that individuals' evaluation of the desirability and feasibility of an action was related to psychological distance. When considering goal-directed actions or behavior, such as sustainable consumption

behaviors, high-level construal emphasize the desirability of an end-state. Yet, low-level construal involves the process by which to reach an end-state, and therefore, its feasibility (Trope et al., 2007). For instance, when thinking about recycling behavior at an abstract level, people may think about generic reasons to recycle (high level construal). Whereas, at a concrete level, people may recall concrete actions that can be performed to recycle and therefore, may become more prominent (low-level construal). Thus, high-level construal refers to “why” an activity is performed whereas low-level construal refers to “how” an activity can be performed (Trope et al., 2007).

The temporal distance dimension of Construal Level Theory

Besides the abstraction – concrete dyadic relationship, the temporal distance dimension of construal level theory has been found to account for the perceived desirability and feasibility of an action (Trope et al., 2007). In other words, whether actions are framed towards the present or towards a distant future has an impact on how they are mentally construed. Past research has examined the fact that distant future events are represented in more abstract terms, related to a subordinate purpose of why the activity is performed. Whereas, when framed towards the proximal distance, an event is represented in more concrete terms and linked to its subordinate means, which shows how an activity is performed. Asking participants to describe a series of events that take place either in the near (i.e. tomorrow) versus the distant future (i.e. next year), results show that activities in the distant future are described rather abstract, while in the near future those are interpreted as being represented in more concrete terms (Trope & Liberman, 1998). To the best of the authors’ knowledge, only a few studies have examined the effect of construal-level theory on sustainable advertising and behavior.

Based on the aforementioned research and findings, the present work extends the existing literature on message framing in a sustainability context by focusing on the impact of positive and concrete message framing in sustainable advertisement on attention towards advertising messages, willingness to comply, and PCE.

3. Conceptual Framework and Hypothesis

Based on the review of consumer behavior, sustainable decision-making and message framing literature, this chapter presents the conceptual model and the hypothesis that will be tested. The presented conceptual model is envisioned as an adaptation of the Theory of Planned Behavior model, referred previously (Ajzen, 1991, Figure 1). The empirical study examines the impact of type of message appeal (concrete versus abstract) on attitudes towards advertising messages, willingness to comply, and PCE, the dependent variables. The independent variables are the type of appeal of the advertised message (concrete versus abstract), as well as the temporal distance (present versus future), all conceptually framed in the model presented below (Figure 2).

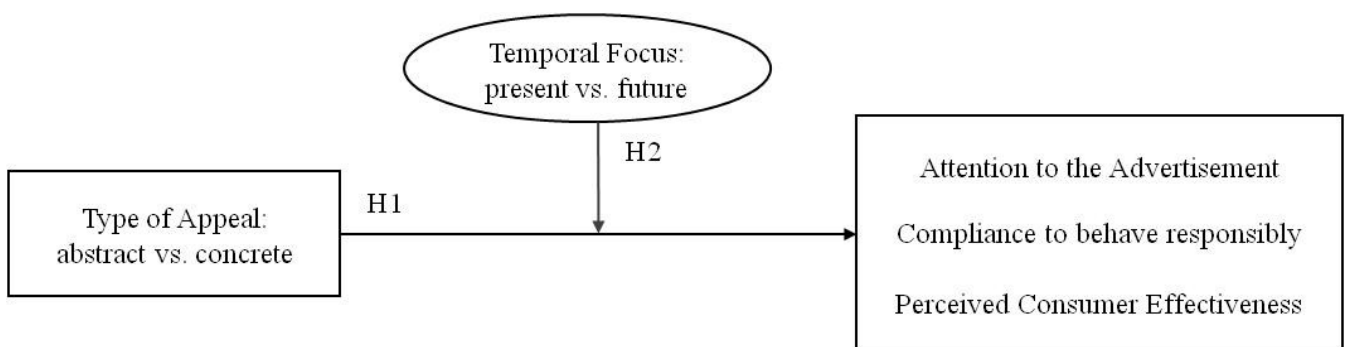


Figure 2: Conceptual Framework
Source: own contribution

Hypothesis

Existing research suggests, that for an issue of high concern, which is the case for sustainability, presenting the issue in a feasible way, giving positive feedback as well as concrete practical advice will be more likely to increase consumer's perceived effectiveness. Also, it will induce behavior change compared to a message that frames an issue as insoluble (Allen, 1982; Obermiller, 1995). The idea of highlighting the importance of individual actions and its problem solving potential is also supported by Ellen et al. (1991), who call for public and private policy makers to enhance consumer's perceived effectiveness in order to encourage more sustainable consumption choices. Based on prior literature on message framing and construal level theory (White et al., 2011), the author predicts a positive impact of concrete (versus abstract) message appeals on attention, compliance and consumers' perceived effectiveness.

Therefore, the first hypothesis is suggested:

H1: A concrete framed message will be more effective than an abstract framed message when promoting an environmental friendly cause, in:

- H1a: Increasing attention towards the advertisement,
- H1b: Attaining compliance behavior, and
- H1c: Enhancing perceived consumer effectiveness.

Moreover, we expect that whether actions are performed focusing on the present or the future, will have an impact on perceived feasibility of the actions. Therefore, the author hypothesizes that a concrete (versus abstract) message that focuses on making changes in the present (versus making changes for the distant future) will have a moderating effect on the effectiveness of the advertising message in promoting an environmentally-friendly cause. The following hypothesis is thus, suggested:

H2: Temporal focus of the advertisement will moderate the impact between the type of message appeal and perceived consumer effectiveness, so that:

- H2a. When the message is framed towards the present, concrete information appeals will be more effective in enhancing perceived consumer effectiveness than those presenting information in an abstract way.
- H2b. When the message is framed towards the future, abstract information appeals will be more effective in enhancing perceived consumer effectiveness than those presenting information in a concrete way.

4. Methodology and Data Collection

The main objective of this chapter is to present the research method used and to provide a detailed description of the variables used in the study to answer the stated research questions.

4.1 Research Method

An online survey using the Qualtrics web platform was conducted to reach a sufficiently large number of participants within a specific period of time. Data collection, in the way that the survey can be efficiently distributed to a large audience with low administrative cost and in a time effective manner, is one of the main advantages of an online survey methodology. In addition, collecting data online also provides greater flexibility and convenience for participants as the survey can be accessed without any spatial or temporal restrictions. Another advantage of online survey tools is the multitude of features to customize the survey according to the research purpose, together with the ease of data entry and analysis (Evans & Mathur, 2005). Regarding the purpose of the study presented, internet-based technology allows to reduce possible bias by randomly presenting participants with one of the four experimental conditions in the form of high-quality stimuli (Tingling, Parent, & Wade, 2003).

4.2 Sampling

Among nonprobability sampling techniques, those that do not take into account the probability of a population being perfectly represented, research differentiates between convenience and purposive sampling methods, such as quota or judgmental sampling (Kothari, 2004, p. 15). The main advantage of convenience sampling, compared to the other sampling techniques, is that data can be obtained cost-effectively and in a shorter period of time. Convenience sampling seemed to be an appropriate technique to be used since the present study intended to address a specific theoretical research question about the effectiveness of communication appeals that are not yet expected to be generalizable to a certain population. Being an area of research that is still in an immature stage of development (Peloza et al., 2013), sustainable advertising requires a piecemeal approach to test its impact and consequences first among a segment of more educated people. University students, which comprised a larger proportion of the sample in the study therefore seemed appropriate to evaluate the topic in question. Especially, since young and well educated people are assumed to be the next generation of consumers, capable of changing consumption patterns for the future, and thus the target audience chosen for testing the framing effects (Vermeir & Verbeke, 2008).

4.3 Research Instruments

Two main research instruments were used: a pilot and a main study using a web-based software – Qualtrics, as previously mentioned. In both studies, participants accessed the survey through a link that was shared among different social media groups. In order to reduce the social desirability bias, which is likely to occur when ethical intentions are at stake (Carrington et al., 2010), the survey was conducted anonymously. A detailed description of the procedures used is provided next, which include both the independent and dependent variables used to test the set of hypotheses proposed.

Pilot Study

The survey was pretested prior to launching the main survey to assure that all questions were understood by the participants and crucial to test the survey flows for the different experimental conditions: type of message appeal and temporal focus manipulations, to be used in the main study.

Manipulation check items on type of appeal and temporal focus of the developed advertising messages included in the survey, were the same as the once used in a pretest among 20 participants, who did not participate in the main survey. Both times, participants were asked to indicate their perception about the message right after seeing the advertisement. In particular, to test for the type of appeal manipulation, participants were asked whether they perceive the message to be abstract or concrete. Next, temporal focus manipulation was assessed by asking participants to indicate their perception of the message that focused either on the present or on the distant future.

Main Study

A total of 293 responses was collected, of which only 192 were fully completed. High dropout rates are not uncommon for web-based self-administered surveys, since participants can be easily interrupted and/or do not feel committed to answering all the questions in the survey (Reips, 2002). Yet, the sample size is assumed to be sufficiently large, with 48 subjects participating in each cell of the four experimental conditions, thus, conforming with the number of observations needed for a randomized experimental-design study (Maxwell & Delaney, 2004, p. 645).

4.4 Design and Procedure

All data was collected within one week at the end of November 2016. One hundred and ninety-two individuals were randomly allocated to one single condition and were first presented with a short text introducing the scope of the survey without revealing its purpose. The study followed a mixed design with a 2 (Type of Appeal: concrete, abstract) x 2 (Temporal Focus: present, future) between-within subjects' design. Appeal type and temporal focus were experimentally manipulated on the advertisement stimuli. In the appeal condition we used a concrete (versus abstract) message pertaining to the wisely use of the planet's natural water resources, while in the temporal focus condition we used a sentence that referred to the importance of making a difference in consumption for the present (versus the future), as supported by our manipulation check.

Right after seeing the advertisement, participants were asked to answer to two questions that were used as manipulation check measures. The first question, asked whether the type of message was more abstract versus more concrete. A second question followed, which asked participants about whether the focus of message was either in the present or the future. Next, all participants responded to a series of multi-item measures that were organized in three sections: (1) environmental concern (2) emotions, and (3) self-reported knowledge on environmental issues (Cheng et al., 2011; Loroz, 2007). At the end, participants were asked to complete a set of demographic questions and were thanked for participating in the survey.

4.5 Stimuli Development

The stimuli used in this study were fictional marketing materials for a campaign intended to raise awareness for water conservation behavior. The issue of water conservation was chosen as it is assumed by the author to be of relative high importance and a large majority of people can personally relate to the topic. The stimuli were developed prior to the main study, and were critically discussed and pretested in the pilot study to ensure that the manipulation of both the appeal and temporal focus conditions were perceived as intended.

Four versions of the advertisements were developed that tested four conditions – concrete & present, concrete & future, abstract & present and abstract & future, presented in a random order. In order to minimize differences between groups, the advertisements shared the same structure and image in all four versions. Stimuli were adapted from the study of White et al. (2011). The advertisements were manipulated using a verbal message in the headline that

delivered either a concrete or an abstract framed message highlighting concrete actions, “Think about how you can make a difference...”, versus more abstract motives, “Think about reasons to make a difference...” to engage in sustainable behaviors. The main body of the advertisement identified the same problem, either presenting detailed information (numerical precision; Xie & Kronrod, 2012) in the concrete appeal or using abstract, unspecific wording about reasons to conserve water. In line with the headline, the bottom sentence of the advertisement reinforced specific actions that each individual could perform to preserve water versus a more generic appeal about “using water wisely”. Finally, and unlike White et al. (2011) who framed outcomes towards today/tomorrow, the temporal focus manipulation emphasized the importance to conserve water for “today” versus for “future generations”. The stimuli, as used in the survey, can be found in Appendix 1.

4.6 Variable Descriptions

Manipulation Checks. Manipulation check items asked participants whether the advertisement they had just seen were either more abstract or more concrete, assessed on a 7-point Likert scale (1 – very abstract, 7 – very concrete). Also, if the advertisement focused either on the present or the distant future, also assessed on a 7-point Likert scale (1 – focusing on the present, 7 – focusing on the distant future).

All the remaining variables were also assessed on 7-point Likert scale, right after participants were exposed to the stimuli, in order to measure their reaction to the advertisement.

Dependent Variables

Attention towards the advertisement, was assessed by asking participants about the effectiveness of the advertisement in getting people’s attention to behave in a more environmental responsible way (1 – not effective, 7 – extremely effective).

Compliance, was assessed by asking participants to indicate the likelihood that other people would comply with the intended behaviors after seeing the advertisement (1 – extremely unlikely, 7 – extremely likely).

The aforementioned dependent variables, deliberately focused on other people’s behavior instead of the respondent in order to mitigate chances of social desirability bias.

Perceived Consumer Effectiveness, the third dependent variable PCE was assessed by asking participants to complete three items concerning their perceptions about the effectiveness of their behaviors (e.g., I feel that by reducing my water consumption I can make a difference, 1 – completely disagree, 7 – completely agree), adapted from Ellen et al. (1991) and White et al. (2011) .

Potential confound variables, cognitive and affective measures were presented next, namely,

Environmental Concern, was assessed by asking participants for their level of agreement with four items concerning the extent to which people perceive themselves to be related with the natural environment (e.g., I would devote more time or money to work for environmental causes if I had enough, 1 – completely disagree, 7 – completely agree), adapted from Ellen et al. (1991) and Clayton and Opatow's (2003) Environmental Identity Scale (EID).

Emotions, were assessed by asking participants how they felt at the moment, using nine items - four positive, with pride being measured on two items, and four negative emotions (1 – not at all, 7 – very strongly), adapted from Antonetti and Maklan (2014).

Knowledge, as a final explanatory variable, was measured by asking participants to self-report their environmental knowledge, using two items (e.g., How well-informed do you consider yourself to be on the issue of water scarcity?; 1 – not at all informed, 7 – very well informed), adapted from Ellen et al. (1991). The complete questionnaire including all measures and corresponding scales can be found in Appendix 2.

5. Analysis and Results

In the following chapter, we will carefully analyze the data collected, including the successful manipulation of the stimuli, as well as reliability and correlation analyses on the measurement items.

5.1 Sample Characterization

Descriptive statistical analyses were conducted first, to outline characteristics of the sample and to check for equality between the four experimental conditions in terms of demographic variables. Sample homogeneity across the conditions assures greater reliability of the results and was the case here. The sample consisted of 192 considered responses, with more female (64.1%) than male (35.9%) participants. Nationality distribution of the sample showed a

majority of German respondents (41.7%), followed by American (21.9%) and Portuguese (10.9%). The majority of participants were between the age of 19 and 25 (39.6%), followed by participants aged between 25 and 34 (33.9%). Overall, age among participants ranged from less than 19 years to more than 65 years old. With regard to the educational level, the majority of the sample hold a Bachelor's (52.6%) or Master's degree (27.6%) and are currently studying (58.9%) or working (32.8%). Lastly, the annual income for most of the participants is below 10.000€ (41.7%) or was indicated as not known (13.5%). Please see Appendix 3 for more detailed information and graphical illustrations.

5.2 Scale Reliability

The majority of items used in the present study were adapted from previous research. Yet, it is important to test for the scales' reliability in the context of this study for the findings to be as accurate as possible. Cronbach's α (alpha) is a widely used statistical measure of reliability for Likert-type scales. For multiple items in a questionnaire that are interrelated, Cronbach's α is referred to as a measure of internal consistency. Cronbach's α is expressed on a scale from 0.1 to 1, whereas higher values of alpha are an indicator for high degrees of internal consistency and reliability of a sum or average of the survey items. Thus, alpha provides information on whether all items reliably measure the same latent variable and should be averaged into one scale. Under the most stringent premise, items being "parallel" are assumed to have similar variances and covariances (Bonett & Wright, 2015). However, there is little consensus among researchers and no universal minimum acceptable value for Cronbach's α exists. In the past, values ranging from 0.6 – 0.9 were referred to as acceptable for research purposes, whereas too high values of alpha (above 0.9) are assumed to indicate redundancy among the items (Streiner, 2003). In the present study, Cronbach's α was calculated for each multi-item scale that was intended to measure the same construct. Those were: PCE, concern and knowledge. It is important to note that two items for concern and one item for PCE were recoded as they were reverse coded in the survey. Results for internal consistency are presented in Table 1.

Table 1: Reliability Test for Multi-Item Scales

Scale	Initial number of items	Cronbach's alpha	Cronbach's alpha if items deleted	Items deleted	Final number of items
Perceived Consumer Effectiveness	3	.519	.645	1	2
Environmental Concern	4	.609	-	-	4
Environmental Knowledge	2	.807	-	-	2

For environmental concern and knowledge, values for alpha were above the minimum acceptable threshold of 0.6, whereas for the three items PCE a value below 0.6 was reported. For concern and knowledge no improvement of the alpha measure would be achieved if any of the item was deleted. However, testing Cronbach's α for the three items of PCE for the case in which items are deleted, results show that alpha for the scale could be lifted above the threshold, if the third item would be deleted. Therefore, item PCE3 was excluded from the further analysis to improve the internal validity of the scale.

Moreover, as the alpha coefficient was found to likely underestimate reliability if the number of test items is too small (Tavakol & Dennick, 2011), we conducted a correlation analysis to estimate the strength and direction of the correlation between variables for scales with only two items. Calculating a Pearson correlation statistic for the remaining two items PCE indicated a moderate positive correlation ($r = .506$, $N = 192$, $p < .001$). While the two items knowledge were found to have a strong positive correlation ($r = .684$, $N = 192$, $p < .001$) (see Table 2). Following the just described reliability and correlation analysis, the remaining items for each construct were averaged into one scale for the later data analysis.

Table 2: Correlation Analysis 2-Item Measures

Variables	1	2
1. PCE	-	
2. PCE	.506**	-

Variables	1	2
1. Knowledge	-	
2. Knowledge	.684**	-

** Correlation is significant at the .01 level

5.3 Results Manipulation Check

Successful manipulation for the type of appeal and temporal focus conditions were statistically significant, when independent t-tests at a 95% confidence level were conducted. That is, participants in the concrete condition perceived the message to be more concrete rather than abstract ($M_{\text{concrete}} = 5.88$ vs. $M_{\text{abstract}} = 4.43$; $t(190) = -7.13$, $p < .001$).

For the temporal focus manipulations of the message, results of the t-test also showed to be statistically significant. The advertisement that highlighted the importance for water conservation behavior for today, was perceived by participants to focus on the present versus the distant future ($M_{\text{present}} = 3.15$ vs. $M_{\text{future}} = 4.76$; $t(190) = 6.27$, $p < .001$). Thus, type of appeal and temporal focus in the stimuli were successfully manipulated (see Table 3).

Table 3: Manipulation Check using t-Tests for Equality of Means

	Groups				t-test
	abstract		concrete		
	Mean	SD	Mean	SD	
Type of Appeal Manipulation Check	4.43	1.67	5.88	.92	-7.13***
	present		future		t-test
	Mean	SD	Mean	SD	
	Temporal Focus Manipulation Check	3.15	1.98	4.76	

* $p < .05$; ** $p < .01$; *** $p < .001$

Note: Equal variances assumed

5.4 Main Results

Having the variables of the model characterized and validated, as well as checked for a successful manipulation of both experimental conditions, we proceeded to test our set of hypothesis.

5.4.1 The effect of concrete and abstract framing

In order to test our first hypotheses, in which we proposed that concrete (versus abstract) message frames will have a positive impact on: (a) attention towards the advertisement, (b) compliance behavior, and (c) perceived consumer effectiveness, a first analysis was performed.

A multivariate analysis of variance (MANOVA) was used to test for main and interaction effects between the experimental groups. Statistically, a MANOVA is used to test for an effect of one or more independent categorical variables on one or more continuous dependent variables (Seltman, 2006).

As expected, results indicated a statistically significant main effect for type of message appeal on PCE ($F(1,191) = 19.11, p < .001$). Participants who saw the advertisement with a concrete framed message reported considerable higher levels of PCE than participants who saw the abstract framed message (perceived consumer effectiveness (PCE): $M_{\text{concrete}} = 6.01$ vs. $M_{\text{abstract}} = 5.43$; $t(190) = -4.38, p < .001$).

A significant effect, though marginal, was also found for type of message appeal on attention towards the advertisement ($F(1,191) = 3.66, p = .06$) and compliance behavior ($F(1,191) = 2.58, p = 0.1$). Participants who saw a concrete message indicated higher levels of attention towards the advertisement compared to participants who saw an abstract message (attention towards the ad: $M_{\text{concrete}} = 4.18$ vs. $M_{\text{abstract}} = 3.79$; $t(190) = -1.87, p = .06$). Also for compliance behavior, participants in the concrete condition indicated higher average values for compliance than those who were in the abstract condition (compliance: $M_{\text{concrete}} = 4.27$ vs. $M_{\text{abstract}} = 3.93$; $t(190) = -1.54, p = .1$) (see Table 4).

Table 4: Results Main Effect Type of Appeal

Dependent Variables	Type of Appeal				F test
	abstract		concrete		
	Mean	SD	Mean	SD	
Attention towards the Ad	3.79	1.43	4.18	1.45	3.66 ⁺
Compliance	3.93	1.39	4.27	1.65	2.58 ⁺
Perceived Consumer Effectiveness (PCE)	5.43	.91	6.01	.91	19.11***

Note: *** $p < .001$, ** $p < .01$, * $p < .05$, + $p \leq .1$

While consensus exists on the .05 alpha criterion for testing significance of null-hypothesis, there are no defined guidelines on how to go about values that fall near-threshold p-values. However, research noticed an increased use of effects being described as “marginal significant” or “approaching significance” in top-tier academic journals (Pritschet, Powell, & Horne, 2016). One reason for this might be that practitioners relying on a strict binary decision rule feel to “ignore potentially important observed differences” (Gelman & Stern, 2006, p. 328). Therefore, it is important to mention here that in the present study p-values between .05 and .1 are considered to be marginal significant and are carefully interpreted as such.

Our findings thus, support the first hypothesis, that a concrete framed message is more effective than an abstract framed message in promoting an environmental friendly cause through (a) increased attention towards the advertisement, (b) enhanced compliance behavior and (c) PCE.

5.4.2 The moderating effect of temporal focus

In order to test our second hypotheses, in which we propose the moderating effect of temporal focus on the relationship between the type of message appeal and PCE, a two-way type of appeal x temporal focus MANOVA was performed on the dependent variables.

Even though a significant main effect of type of appeal on PCE was observed ($F(1,191) = 19.11$, $p < .001$), contrary to our predictions, results showed no significant main effect for temporal focus or a two-way type of appeal x temporal focus interaction effect ($F_s \leq 1.35$, p 's $> .1$) on the dependent variables, not supporting H2a and H2b (see Table 5). When we tested

for the confounding effects of environmental knowledge concern on the dependent variables, no significant results were observed either.

Table 5: Results Two-Way Interaction Type of Appeal and Temporal Focus

	Type of Appeal main effect	Temporal Focus main effect	Type of Appeal x Temporal Focus
	<i>F test</i>	<i>F test</i>	<i>F test</i>
(<i>N</i> = 192)			
Attention towards the Ad	3.66 ⁺	1.35	.02
Compliance	2.58 ⁺	1.15	.44
Perceived Consumer Effectiveness (PCE)	19.11***	.02	.18

Note: *** $p < .001$, ** $p < .01$, * $p < .05$, ⁺ $p \leq .1$

5.5 Further Analysis

Additional analyses were conducted in order to get a deeper understanding of the causal relationship between our independent and dependent variables. This time, and following prior research on environmental sustainable behavior (e.g. Ellen et al., 1991; Kang et al., 2013; Roberts, 1996; Vermeir & Verbeke, 2008), PCE was used as an independent instead as a dependent variable. A median split was performed on this continuous measure (the variable was split for values below and above 5.6, the reported median value) to divide the sample in two groups of participants according to their low and high perceived consumer effectiveness (0 = low PCE; 1 = high PCE), ending up with a total of 138 low PCEs and 54 high PCEs.

With type of appeal, temporal focus and PCE as independent categorical variables, a MANOVA was run to compare means between groups on the remaining dependent variables: attention towards the advertisement and compliance behavior.

While no significant three-way type of appeal x temporal focus x PCE interaction effect was observed ($F_s < .97$, p 's $> .1$), our results showed a marginally significant two-way temporal focus x PCE interaction effect on compliance behavior ($F(1,191) = 2.96$, $p = .09$). A statistically significant main effect of PCE on attention towards the ad ($F(1,191) = 4.03$ $p < .05$) also emerged in the dataset, followed by a marginally significant main effect on compliance behavior ($F(1,191) = 3.34$, $p = .07$). As far as the temporal focus independent

variable is concerned, a marginally significant main effect was also observed for attitude towards the ad ($F(1,191) = 2.75, p = .09$) and compliance behavior ($F(1,191) = 3.56, p = .06$) (see Table 6).

Table 6: Results Three-Way Interaction Type of Appeal, Temporal Focus and PCE

	Type of Appeal main effect	Temporal Focus main effect	PCE main effect	Type of Appeal x Temporal Focus	Type of Appeal x PCE	Temporal Focus x PCE	Type of Appeal x Temporal Focus x PCE
	<i>F test</i>	<i>F test</i>	<i>F test</i>	<i>F test</i>	<i>F test</i>	<i>F test</i>	<i>F test</i>
(<i>N</i> = 192)							
Attention towards the Ad	1.45	2.75 ⁺	4.03*	.19	.24	1.31	.14
Compliance	.35	3.56 ⁺	3.34 ⁺	1.68	1.94	2.96 ⁺	.97

Note: *** $p < .001$, ** $p < .01$, * $p < .05$, ⁺ $p \leq .1$

Follow-up tests were conducted to further evaluate the moderating effect of temporal focus x PCE on compliance behavior, when participants were either exposed to abstract versus concrete messages. Results indicate interesting findings, especially when abstract framed messages are concerned. That is, our results show that individuals with high levels of PCE exposed to abstract messages in the present are more likely to comply with environmental behaviors than individuals with equivalent high levels of PCE but exposed to abstract messages framed in the future ($M_{\text{HighPCE, Present}} = 5.25$ vs. $M_{\text{HighPCE, Future}} = 3.82$; $t(22) = 2.55, p < .05$). Accordingly, individuals with high rather than low levels of PCE exposed to abstract messages framed in the present are also more likely to show higher compliance with environmental issues ($M_{\text{HighPCE, Present}} = 5.25$ vs. $M_{\text{LowPCE, Present}} = 3.81$; $t(57) = 3.31, p < .01$).

Interestingly, the same pattern of results did not occur for individuals exposed to concrete framed advertisements. That is, no significant differences were observed between groups of individuals with different nor equal levels of PCE exposed to concrete messages framed in sort of temporal focus condition (see Table 7).

Table 7: The Impact of Temporal Focus on Abstract versus Concrete Message Appeal

	High PCE		Low PCE		Temporal Focus main effect	PCE main effect	Temporal Focus x PCE
	future	present	future	present	<i>F test</i>	<i>F test</i>	<i>F test</i>
Abstract (N = 109)	(n=11)	(n=12)	(n=39)	(n=47)			
Compliance	3.82 (1.54)	5.25 (1.14)	3.69 (1.24)	3.81 (1.39)	6.13*	6.29**	4.43*
Concrete (N = 83)	(n=17)	(n=14)	(n=24)	(n=28)			
Compliance	4.18 (2.13)	4.50 (1.56)	4.25 (1.57)	4.21 (1.50)	.14	.08	.22

Note: *** $p < .001$, ** $p < .01$, * $p < .05$, + $p \leq .1$; standard deviations are presented between parentheses.

Discussion

In this section an extra analysis was run in order to assess PCE as an individual rather than dependent variable. Interestingly, our results follow prior literature on environmental conservation behavior and show that when PCE is used as moderator, the relationship between temporal focus and compliance behavior occurs for an abstract scenario. However, this relationship does not seem to occur for a concrete scenario. This phenomenon suggests interesting implication for advertising managers since it shows the relevance of framing abstract messages in the present rather than in the past or future, as well as it indicates that most likely this effect takes place among consumers with high levels of PCE.

6. Conclusions and Implications

The present research sought to address a first research question about whether an increased feeling of effectiveness, measured and empirically tested as *Perceived Consumer Effectiveness* with regard to individual pro-environmental actions, leads to more sustainable consumption behavior. In a response to past researchers who appealed for further research on the role of PCE as a response variable rather than a moderator, a second research question was also addressed, which tested the preliminary factors that may influence PCE, by focusing on concrete (versus abstract) message framing techniques in advertising (Allen, 1982; Roberts, 1996). A third question was also addressed, which looked into individual difference variables, such as how environmental concern and knowledge may explain some of the variations observed between groups of people who are exposed to sustainable advertising messages that are framed either in more concrete versus abstract ways. Also, how the willingness to comply in the present versus the distant future affects decisions.

Findings from two studies provide relevant information concerning the importance of the type of advertising appeal on attention and willingness to comply with environmental friendly behaviors. Our results show that an abstract appeal is less likely than a concrete appeal to motivate consumers to engage in sustainability. Also, a message that is framed in the present is more efficient than a message that appeals to consumers' engagement in sustainability that is framed in the distant future. These findings support our first hypothesis, and reinforce the fact that whether a sustainable message is framed on concrete or abstract message appeals has an impact on PCE. More precisely, results showed that presenting participants with a positive and concrete (versus positive and abstract) advertising message leads to increased attention towards the advertisement, enhances the likelihood of compliance with the behavior and even more significantly, it increases consumers feeling of perceived effectiveness with the action.

Most interestingly, however, are the various advertising message combinations (e.g., abstract message in the present versus abstract message in the future) that show to be effective in convincing consumers to comply with sustainability. Though, PCE was initially measured as a response variable, we followed the prior literature that assessed the effects of PCE as a moderator with two levels: high PCE and low PCE. By conducting further analyses and directly comparing groups of participants with high versus low levels of PCE, and who saw either an abstract or concrete message, revealed important additional insights. First and foremost, PCE has a positive effect on sustainable consumption behavior. Second, PCE itself

can be increased by presenting consumers with a concrete message on the feasibility of specific actions instead of an abstract message that focuses on abstract reasons for sustainable consumption. Finally, in spite that this phenomenon was not initially predicted in our research, PCE itself was shown to be a fundamental individual difference variable, which lies on the fact that mostly at high levels of perceived effectiveness, consumers even seem to comply with abstract framed messages. Our research has thus, important theoretical implications as we review next.

6.1 Theoretical Implications

We contribute to prior literature on message framing (Allen, 1982; Cheng et al., 2011), and sustainable consumption (Peloza et al., 2013), since our studies explicitly tested the impact of positive and concrete (rather than negative or abstract) information on sustainable consumption behavior. Moreover, the studies followed a careful framing manipulation procedure to ensure external validity as well as perceived credibility, in that the developed stimuli were similar to the advertisements and the types of message marketers commonly use.

While the manipulation check on the temporal focus worked as intended, temporal focus did not show to moderate the effect of appeal type on attitudes towards the ad and compliance behavior. Consequently, our findings did not support previous results on the consistency effect between message appeal and temporal focus in positively influencing processing fluency of the message, which was shown to lead to a potential positive evaluation of the consumption event (Kim, Rao, & Lee, 2009; White et al., 2011; Winkielman & Cacioppo, 2001). Nevertheless, driven by the conviction that temporal focus would play a role in perceived feasibility of sustainable behavior, alternative analyses were conducted. The moderating effect of PCE and temporal focus on compliance behavior emerged in the dataset and showed interesting findings with relation to messages that are framed as abstract (versus concrete).

Given that earlier research referred to framing feasibility and concrete information in the context of consumer's perceived effectiveness in sustainable behaviors (Allen, 1982; Obermiller, 1995; White et al., 2011), according to the author's knowledge only few previous studies examined the actual efficacy of concrete messages on PCE. A possible explanation may be limited confidence of researchers in the effectiveness of traditional message framing techniques in influencing individual difference characteristics, such as perceived effectiveness

(Allen, 1982; Scott, 1977). The current findings thus, contribute to research on the concept of PCE and its preliminary factors (Roberts, 1996), as well as to the research on sustainable consumption (Cojuharenco et al., 2016; Kang et al., 2013) in supporting the idea of communicating positive and encouraging environmental appeals to consumers in order to positively influence consumer's perceived effectiveness.

6.2 Practical Implications

This research provides interesting practical implications for marketers, advertisers and NGOs of the importance of convincing consumers to comply with sustainable behaviors. Practitioners who seek to encourage sustainable behavior through PCE should focus on communicating the individual positive impact on a sustainability issue as well as giving explicit advice that adds to the perceived feasibility of a certain behavior in order to increase individual PCE, and enhance behavior change. Therefore, marketers need to set up messages which are explicitly designed to promote specific actions and provide consumers with positive feedback on their consumption choices which make a difference today (Ellen et al., 1991; Roberts, 1996). Just recently, the former first lady of the United States, Michelle Obama, together with the Food and Drug Administration announced the introduction of modernized nutrition labels for all packaged foods, which present consumers with more concrete nutrition information in order to encourage more informed consumption choices. In line with this line of thought, and the present findings, we propose to use concrete message appeals not only in messages of sustainability campaigns intended to raise awareness on the issue, but also in labels of sustainable products, which still account only for a small share of the overall market (Luchs, Naylor, Irwin, & Raghunathan, 2010). While companies already understood the market potential for more sustainable products as they start to explore cleaner production schemes, and to invest in recyclable or biodegradable products; a change in consumer purchase behavior is needed to support their introduction (Peloza et al., 2013). Therefore, findings of the here presented study are assumed to represent an attempt to answer the question on how to motivate consumers to choose products on their sustainable attributes and a possible source to generate new academic and practical knowledge in the area of sustainable marketing.

7. Limitations and Future Research

Although the findings of this dissertation contribute to a more profound understanding on the concept of perceived consumer effectiveness and strategic message framing techniques, some limitations are associated with the nature and scope of the research.

Firstly, while self-administered surveys are perceived to be less intrusive and therefore suitable for more personal or sensitive topics (Evans & Mathur, 2005), assumptions that state intentions rather than actual behaviors has been reported as a considerable methodological limitation in ethical consumerism literature. In general, but especially in consumer decision-making studies that concern ethical considerations, self-reported behaviors have been shown to be susceptible of social desirability bias (Antonetti & Maklan, 2014b; Carrington et al., 2010; Martinho, Pires, Portela, & Fonseca, 2015). Social desirability bias occurs when “people feel social pressure to respond with answers in research that they believe to be socially acceptable” (Carrington et al., 2010, p. 143). While we tried to reduce the impact of social desirability bias in the way the survey questionnaire was designed (e.g., by asking participants how other people would react when exposed to the advertising message) it still needs to be acknowledged as a limitation of the methodology used and might also explain some of our findings.

While greater environmental knowledge and concern for environmental problems, as well as related emotions, were shown to be directly associated with the formation of pro-environmental attitudes and behavioral intentions (Ellen et al., 1991; Isen, 2001; Kang et al., 2013), those potential explanatory variables were not found to have a moderating effect on the attention to the ad, willingness to comply or PCE. Given the overall high and similar ratings for environmental knowledge and concern might be an indicator that measures were influenced by a social desirability bias. Future research therefore should use multiple sources, self-reported as well as observational studies, to collect data. Moreover, researcher that wish to study ethical decision-making could include items from the Crowne and Marlowe Social Desirability Scale (1960), in order to control for self-representation motives.

Also, different sustainable consumption situations were considered during the stimuli development. However, the use of the chosen stimuli has to be critically discussed and acknowledged as a part of the study which is vulnerable to subjective evaluation. As mentioned earlier we decided on water conservation as it was perceived to be widely

applicable and practicable for a large audience regardless of gender, age or nationality. However, it might be that water conservation behavior itself, and the specific action described in the advertisement, were perceived as self-evident for the participants of the study and therefore might not be surprisingly enough to trigger strong responses. Therefore, more extensive research is needed on the effectiveness of abstract and concrete message framing in different consumption contexts and its real-life applicability. Moreover, additional research is needed on the design of persuasive ethical appeals in advertisement in order to increase their effectiveness in influencing sustainable consumption behaviors (Peloza et al., 2013).

Lastly, while some of the findings did not demonstrate high confidence levels under the logic of null-hypothesis testing, the tested effects are still assumed to yield stronger results under a modified research design or with a refined set of hypothesis. Also, the reliability and generalizability of the presented findings are assumed to be substantially improved with a larger and more diverse sample. Studying the concept of PCE further, under the examination of positive feedback in real-life consumption situation, as within-subject design study over a certain period of time, is considered as a worthwhile direction for further research.

Appendices

Appendix 1: Stimuli

Think about how **YOU** can make a difference today!



Little changes in your daily routine can save up to **80 liters/a day** – this equals a bathtub full of water! **6 liters per minute** can be saved if you turn off the tap while brushing your teeth.

Your actions **today** can help to preserve the planet's water resources!



A: Concrete/Present

Think about how **YOU** can make a difference for the future!



Little changes in your daily routine can save up to **80 liters/a day** – this equals a bathtub full of water! **6 liters per minute** can be saved if you turn off the tap while brushing your teeth.

Your actions can help to preserve the planet's water resources **for future generations!**



B: Concrete/Future

Think about reasons to make a difference today!



Fresh water is the **most important** yet limited **natural resource** on earth. While most of the planet is covered in water only a small part of it is available for human use.

Using water wisely **today** can help to preserve the planet's water resources!



C: Abstract/Present

Think about reasons to make a difference for the future!



Fresh water is the **most important** yet limited **natural resource** on earth. While most of the planet is covered in water only a small part of it is available for human use.

Using water wisely can help to preserve the planet's water resources **for future generations!**



D: Abstract/Future

Appendix 2: Survey Questionnaire

Introduction to the survey

Dear participants,

Welcome and thank you for taking the time to complete this survey.

The survey is part of a master thesis in its final stage. Your participation is very important and contributes to its completion. This survey takes approximately 7 minutes to complete.

All data obtained will be used anonymous and confidential. Therefore, I ask you to answer honestly and spontaneously. There are no right or wrong answers. If you have questions or feedback regarding the survey, please contact: 152115200@alunos.lisboa.ucp.pt

Thank you in advance –
Kathrin

On the next page you will see an advertisement. Please take a moment to have a careful look. You may even scroll up and down to better review it.

Randomized Stimuli



Example: concrete/present

Q1: After looking at the advertisement above, how do you perceive the message to be?

- 1 - Very abstract
- Abstract
- 3
- Neither abstract nor concrete
- 5
- Concrete
- 7 - Very concrete

Q2: Looking at the advertisement, how do you perceive the message to be?

- 1 - Focusing on the present
- 2
- 3
- Neither on the present nor on the future
- 5
- 6
- 7 - Focusing on the distant future

Q3: How effective do you think the advertisement message will be in getting people's attention to behave in a more environmental responsible way?

- 1 - Not effective at all
- Ineffective
- Moderately ineffective
- Neither effective nor ineffective
- Moderately effective
- Effective
- 7 - Extremely effective

Q4: Still thinking about the advertisement, how likely do you think other people will comply with the advertising message?

- 1 - Extremely unlikely
- Moderately unlikely
- Slightly unlikely
- Neither likely nor unlikely
- Slightly likely
- Moderately likely
- 7 - Extremely likely

Based on this advertisement, please rate your level of agreement with the following statements,

Q5: I feel it is worth for each individual to make efforts to preserve natural resources and improve the environment.

- 1 - Completely disagree
- Disagree
- Slightly disagree
- Neither agree nor disagree
- Slightly agree
- Agree
- 7 - Completely agree

Q6: I feel that by reducing my water consumption I can make a difference.

- 1 - Completely disagree
- Disagree
- Slightly disagree
- Neither agree nor disagree
- Slightly agree
- Agree
- 7 - Completely agree

Q7: The sustainability efforts by a single individual are useful as long as other people are behaving sustainably.

- 1 - Completely disagree
- Disagree
- Slightly disagree
- Neither agree nor disagree
- Slightly agree
- Agree
- 7 - Completely agree

Q8: Please again indicate your level of agreement with the following statements,

	1 - Completely disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	7 - Completely agree
Q8a: Environmental issues are not affecting my personal life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q8b: I would devote more time or money to work for environmental causes if I had enough.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q8c: Environmental problems are exaggerated, as in the long term everything will balance out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q8d: Behaving responsible towards the earth is part of my moral values.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9: Please indicate how you feel right now...

	1 - Not at all	2	3	4 - Somewhat	5	6	7 - Very strongly
Q9a: bad (about myself)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q9b: guilty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q9c: joyful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q9d: good (about myself)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q9e: pride	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q9f: angry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q9g: sad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q9h: pleased	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q9i: encouraged	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10: Please rate your level of knowledge with the following issues,

	1 - Not at all informed	2	3	4 - Somewhat informed	5	6	7 - Very well informed
Q10a: How well-informed do you consider yourself to be on the issue of water scarcity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10b: How would you rate your knowledge on environmental issues in general?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Now, please answer some demographics about yourself.

Q11: What is your gender?

Male Female

Q12: What is your age?

Under 19 years

19 to 24 years

25 to 34 years

35 to 44 years

45 to 54 years

55 to 64 years

65 years and over

Q13: What is your occupation?

High School Student

University Student

Employed

Unemployed

Retired

Q14: What is the highest level of education you have completed?

Less than High School

High School

Bachelor Degree

Master Degree

Doctoral Degree

Professional Degree

Q15 Where do you come from?

▼ Drop down menu for all countries

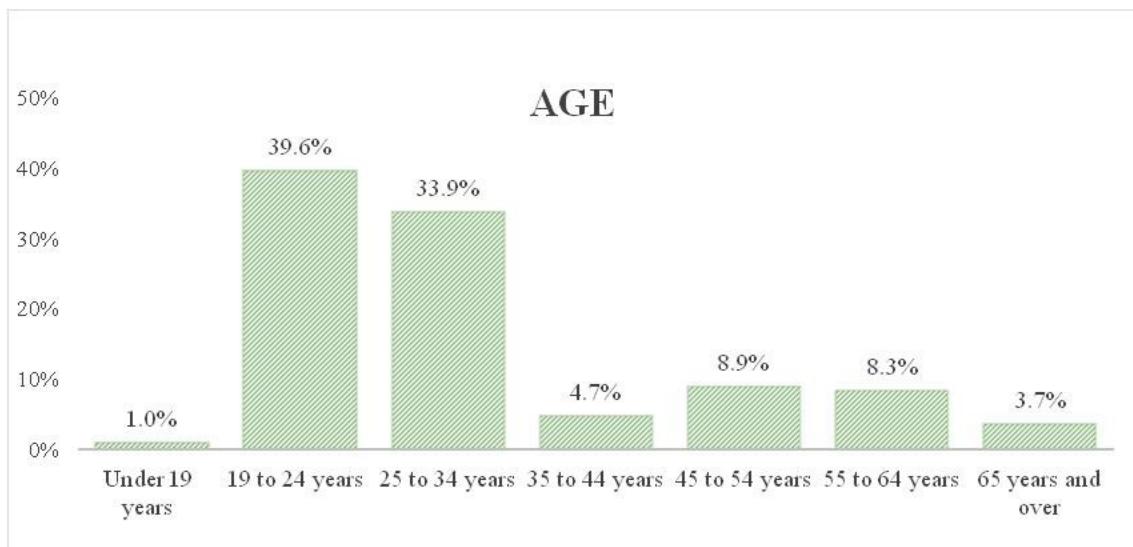
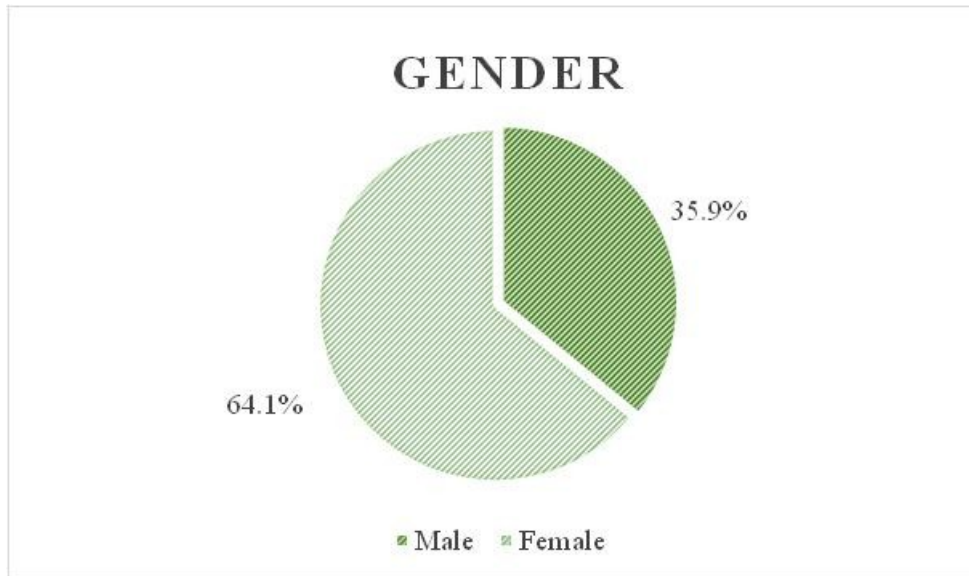
Q16 What is your current annual income in Euros

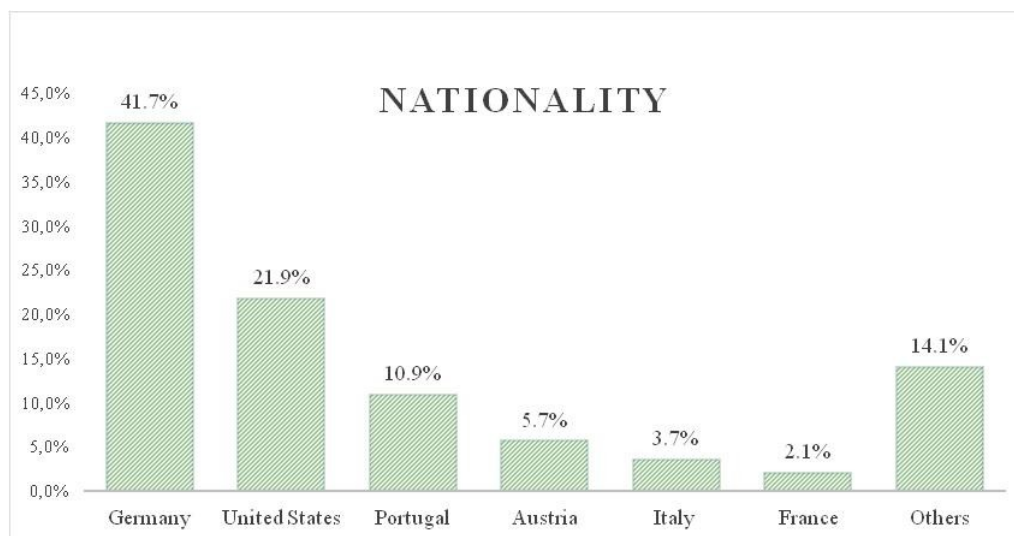
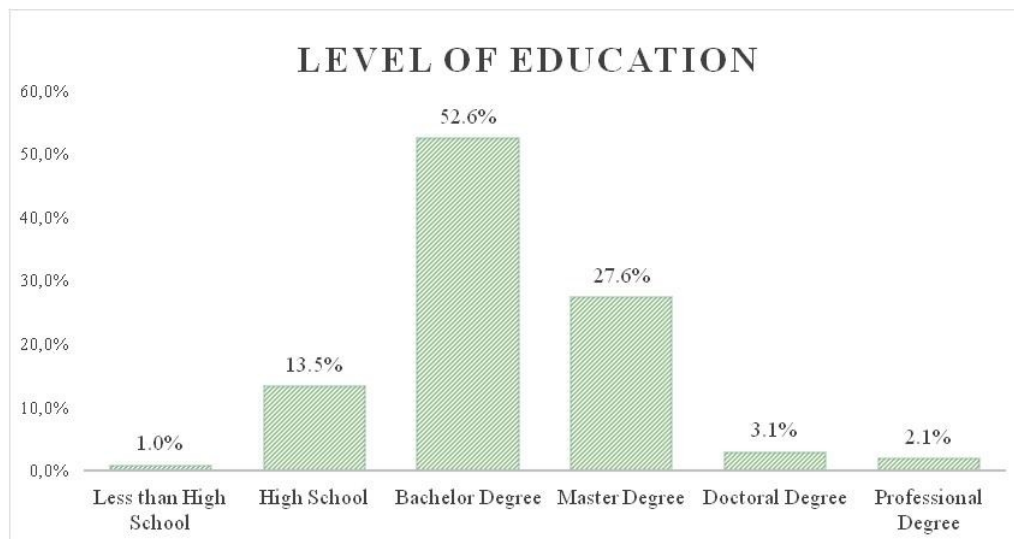
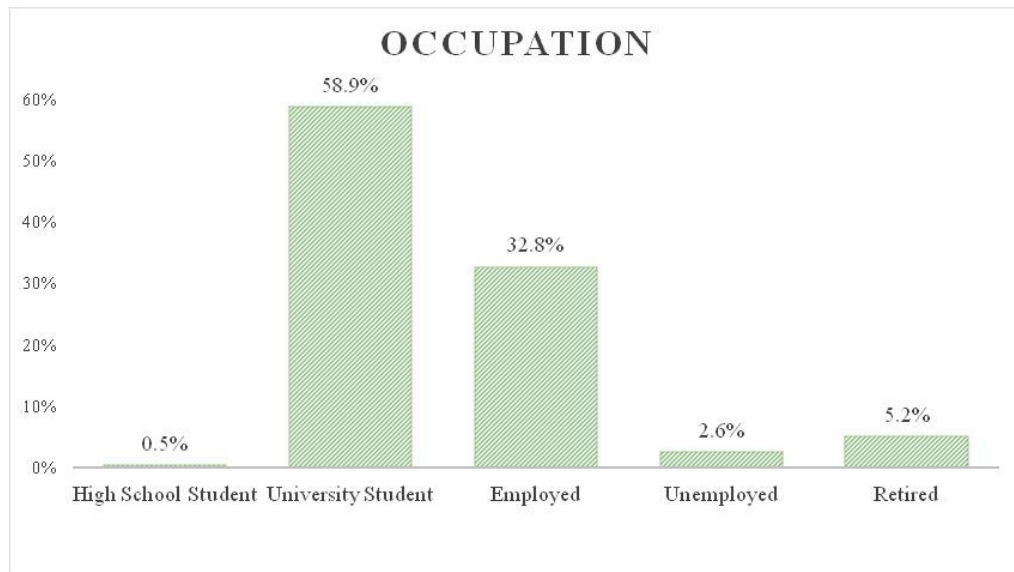
- Under €10,000
- €10,000 - €19,999
- €20,000 - €29,999
- €30,000 - €39,999
- €40,000 - €49,999
- €50,000 - €74,999
- €75,000 - €99,999
- €100,000 - €150,000
- Over €150,000
- Don't know

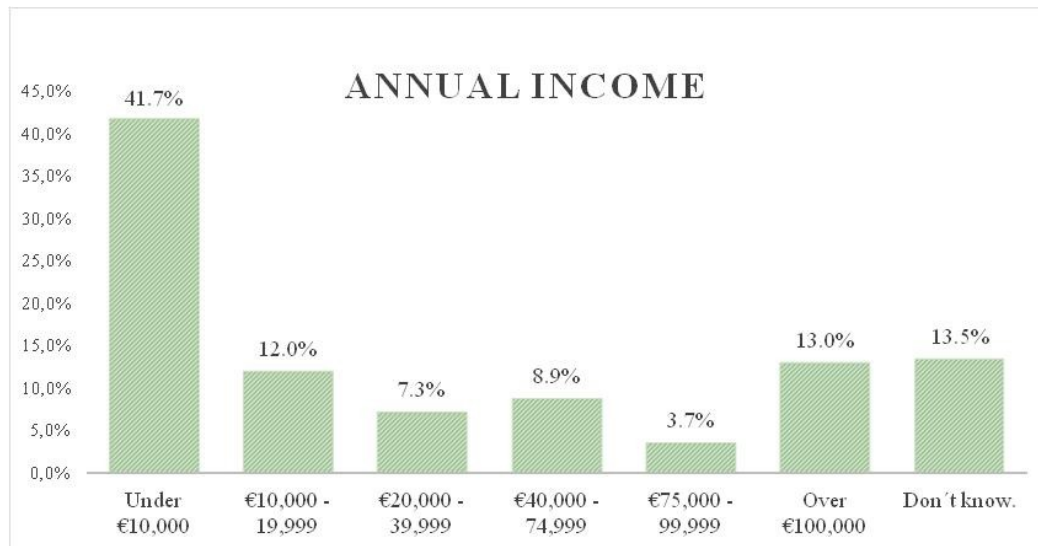
THANK YOU for participating in the survey today.

Please do not discuss the nature of the study with any other participants, as it may bias future results. Please click on the button below to end the study.

Appendix 3: Sample Characteristics







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