



UNIVERSIDADE
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FILLING THE GAPS: PROSOCIALITY AND TEMPORAL
DISCOUNTING IN THE EXTENDED THEORY OF PLANNED
BEHAVIOR TO PREDICT GREEN PURCHASE INTENTION

Dissertation presented to the Portuguese Catholic University to
obtain a degree in Master in Psychology in Business and Economics

By

Seray Çoruk

Faculty of Human Sciences

November, 2020



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Abstract

Climate change is the biggest problem that humankind has ever faced so far. In the era of mass production and overpopulation, their impact on environmental degradation is increasing day by day, and unless people start to take action immediately, the future will be too late to do so (Mitchell, 2016). On a more comprehensive level, professional activities such as manufacturing, mass production, and individual-level activities such as overconsumption and non-renewable energy use can be shown as examples. Even though the opportunities to make a change at the more comprehensive level are higher, since most people are not able to be a part of those decisions, individual-level behavior change is the best option to start minimizing the negative impacts of human behavior. Green consumption behavior change is the most likely behavioral change for people to the individual level to decrease climate change's negative externalities. The theory of planned behavior (TPB) is one of the best models to predict behavioral intention. Although TPB is based on a self-interest theory, thus it is not able to explain why people act to benefit society and why the level of internalizing future possibilities differs among people. Therefore, it is necessary to include such variables in order to have a better predictive model. Results showed that prosocial values together with the Extended Theory of Planned Behavior, can predict one's purchase intention regarding green products, although the same statement cannot be made for the impact of temporal discounting on predicting consumers' intention. In future studies, it would be useful to explore the effectiveness of temporal discounting on people's purchase intentions since it represents how people perceive possible future events. It is essential to mobilize people to take action to minimize environmental degradation immediately.

Keywords: the extended theory of planned behavior, green purchase intention, temporal discounting, prosocial behavior, climate change.

Resumo

As alterações climáticas são o maior problema até agora vivido pela humanidade. Na era da produção massificada e da sobre população, o seu impacto na degradação ambiental está a aumentar e a menos que as pessoas tomem medidas imediatamente, no futuro será demasiado tarde para o fazer (Mitchell, 2016). A nível mais abrangente, atividades profissionais como o fabrico, produção em massa; e a nível individual, atividades como o consumo excessivo, utilização de energia não-renovável servem como exemplos. Embora o efeito de uma mudança mais abrangente seja maior, uma vez que estas decisões não estão acessíveis à maioria das pessoas, a mudança de comportamento a nível individual é a melhor opção para minimizar os impactos negativos do comportamento humano. A mudança comportamental para um consumo verde é possível a nível individual diminuindo as externalidades negativas das alterações climáticas. A teoria do comportamento planeado (TPB) é um dos melhores modelos para prever a intenção comportamental. Embora a TPB se baseie numa teoria de interesse próprio, não é, contudo, capaz de explicar porque é que as pessoas agem em benefício da sociedade e porque é que o nível de interiorização dos efeitos futuros nos comportamentos difere entre as pessoas "*temporal discounting*". Assim, é necessário incluir tais variáveis para um melhor modelo de previsão. Os resultados mostraram que os valores prosociais juntamente com a versão alargada da teoria do comportamento planeado podem prever a intenção de compra de produtos verdes, embora a mesma afirmação não possa ser feita quanto ao impacto do "*temporal discounting*". Nos estudos futuros, seria útil explorar o efeito do "*temporal discounting*" sobre as intenções de compra das pessoas, dado que representa a forma como as pessoas percebem possíveis acontecimentos futuros e é essencial mobilizar as pessoas para tomarem medidas a fim de minimizar imediatamente a degradação ambiental.

Palavras-chave: a teoria alargada do comportamento planeado, intenção de compra verde, "*temporal discounting*", comportamento prosocial, mudança climática.

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List of Abbreviations

ETPB: The Extended Theory of Planned Behavior

GA: Green Attitudes

GPI: Green Purchase Intention

GSN: Green Social Norms

PEEB: Perceived Effectiveness of Environmental Behavior

PER: Perceived Environmental Responsibility

PS: Perceived Seriousness of Environmental Problem

PV: Prosocial Values

TD: Temporal Discounting

TPB: Theory of Planned Behavior

Chapter 1: Introduction

1.1. Background and Problem Statement

Nonetheless, globalization is gaining momentum; it has brought several problems with it. Humanity causes massive costs to the rapid economic, technological advancement, constant increase in population, and unsustainable consumption in the form of environmental degradation (Sreen, Purbey, & Sadarangani, 2018). People have started to include these environmental problems in their agendas and began to talk about their externalities more and more (Boztepe, 2012); consequently, now some of the consumers share their concerns regarding how the world's future would be. As a result, some have shifted to more environmentally-friendly products; however, most of society has not started or finished that transmission yet.

The adverse outcomes of climate change are quite distinguishable, including but not limited to exceeding rains, storms, uncontrollable fires, biodiversity loss, environmental migration (NCA4, 2017), which are all caused by several human activities. The detrimental consequences of overusing environmental resources raised the question of “how the environment can be protected?” during the 1960s (Buttel, 1987). That question caught numerous scientists’ perceptions from several fields such as psychology, sociology, economics, anthropology, and even some engineering and led the rise of environmental psychology in the late 1960s (Weiner & Craighead, 2009). Studies on environmental psychology proved that regarding human behavior, providing rational choices of methods and objectives most of the time did not work out; as a matter of fact, irrational motives usually led the behavior (Weiner & Craighead, 2009).

Environmental problems such as climate change, pollution, and global warming are caused by society and human behavior (Lehman & Geller, 2004), professional activities such as manufacturing, logistics, marketing (Nuttavuthisit, & Thøgersen, 2017), as well as individual activities such as overconsumption, energy conservation (Gao, Wang, Li, & Li, 2017) have severe impacts on the environmental problems. As the population increases, material consumption and production increase as well; however, the quality and the number of environmental resources decrease. The population is estimated to reach about 9 billion around 2050, specifically in the less industrialized countries (Engelman, Halweil, &

Nierenberg, 2002). With an increase like that, there will not be enough space for people to live, mature, and resources to secure development; acknowledging those basic human needs will be an even more increase in environmental degradation. Moreover, the United Nations Environment Program (UNEP, 2002) and the European Union Agency (EEA, 2003, 2005) have already shared their concerns regarding the decrease in biodiversity, shortages in freshwater, loss of fish diversity, global warming, air pollution, and extreme climate changes.

Unsustainable consumption behavior (production and consumption of animal source foods, using energy from non-renewable sources, technology consumption, shifting to larger size vehicles, homes, household goods, and fast fashion consumption which all cause an increase in materials and energy use) is generating 30-40% of the direct hazard on environmental degradation: water contamination, soil erosion, et cetera (Chuvieco, Burgui-Burgui, Da Silva, Hussein, & Alkaabi, 2018; Marteau, 2017; Schor, 2005). Moreover, according to UNEP's report (2010), household consumption creates more than 60% of all environmental impact, and 80% of this impact happens during end-use. Even if per capita consumption is held constant, as the population increases, it will increase the global emissions rate by about a half (Swim, Clayton, & Howard, 2011). Therefore, it is crucial to take action and start to reshape the consumption patterns to prevent their negative impacts on the environment.

There are numerous strategies to approach environmental problems at different levels, such as governmental policies, international agreements, and educational programs at a more comprehensive level, whereas some small-scale approaches such as individual-level behavior. The majority of the people are not able to influence the public policies directly; nonetheless, they are able to shape society by adopting behaviors to minimize the hazardous impacts of environmental problems: decreasing meat consumption, switching up renewable energy sources (Osbaldiston & Schott, 2012). These behaviors are called pro-environmental behaviors; in the literature, several terms are interchangeable with pro-environmental behaviors such as sustainable consumption conservation behaviors, environmentally friendly behaviors, and environmentally sustainable behaviors, and so forth (Park & Ha, 2011).

Pro-environmental behavior generally can be defined as a behavior "that consciously seeks to minimize the negative impact of one's actions on the natural and built world"

(Kollmuss & Agyeman, 2002) and includes acting in a multiple-way with the main aim of preventing environmental harm as much as possible (Steg & Vlek, 2009). Preferring a bicycle over a car, recycling, separating waste, cutting down on water and energy consumption, consuming eco-labeled products could be given some examples of pro-environmental behavior (Krajhanzl, 2010). In a nutshell, adopting environmental-friendly consumption patterns or green consumption behavior, in other words, could help people to minimize their adverse impacts on environmental degradation.

Several frameworks are used to explain environmental-friendly behavior, such as the theory of reasoned action, the theory of planned behavior, norm-activation model, and values-beliefs-norms theory (Sawitri, Hadiyanto, & Hadi, 2015). Nevertheless, the Theory of Planned Behavior (1980) is the most vital theories for explaining the components of how the final behavior happens, which mechanisms affect the behavior, and how they can be altered in order to change the behavior in several contexts which environmental behavior also is included (Yuriev, Dahmen, Paillé, Boiral, & Guillaumie, 2020). The theory of planned behavior (Ajzen, 1991) has derived from Ajzen and Fishbein's (1975) theory of reasoned action that takes attitudes as a predictor of the behavior while focusing on the importance of intention towards a particular behavior. The additional concept that distinguishes the theory of planned behavior from the theory of reasoned action is one's perception of control over behavior, also called perceived behavioral control (Ajzen, 1991). The theory of planned behavior has been applied in several fields, including pro-environmental behavior and green purchase intention (Sawitri, Hadiyanto, & Hadi, 2015).

In recent years, the possibility of the extended version of the theory of planned behavior bringing a better perspective to green consumption behavior is one of the hottest discussion topics in pro-environmental behavior studies (Minton, Spielman, Kahle, & Kim, 2018). Even though the theory of planned behavior is one of the most used theories for predicting green purchase intention, it still needs improvement (Kollmuss & Agyeman, 2002). For instance, the previous studies have not considered individuals' environmental concerns and the feeling of responsibility towards the environment while predicting the green purchase intention (Maichum, Parichatnon, & Peng, 2016; Paul, Modi, & Patel, 2016). Besides, green consumption behavior is a relatively new area compared to pro-environmental behavior studies (Gilg, Barr, & Ford, 2005), wherefore more information is still necessary for exploring the role of environmental concerns and environmental

responsibility on green purchase intention. Environmental concern (or perceived environmental seriousness in other words) is one's perception of how serious environmental problems are and their attitudes consequently towards the level of problem (Lee, 2008; Franson & Garling, 1999). On the other hand, environmental responsibility is one's state of mind regarding being ready or not to take necessary actions to prevent environmental degradation (Moon, Mohel, & Farooq, 2019). Both perceived environmental seriousness and environmental responsibility are two significant concepts that determine both one's attitudes and green purchase intention, similar to the perceived behavioral control from the original theory of planned behavior (Lee, 2008; Moon et al., 2019; Ajzen, 1991). Therefore, despite the fact that the theory of planned behavior is useful to understand the motivation behind the behavior, it is necessary to include external factors to better understand behavior (Maichum et al., 2016).

Moreover, no matter how useful the theory of planned behavior for understanding the individual's motives behind the behavior, it is a self-interest theory (Bertoldo & Castro, 2016). Traditionally pro-environmental behavior is considered a specific form of prosocial behavior affected by self-interest motives and prosocial motives (Gao et al., 2017; Steg & de Groot, 2010; Turaga et al., 2010; Venhoeven, Bolderijk, & Steg, 2013). Since prosocial behavior refers to the set of actions that are taken voluntarily to promote the welfare of others (sharing, donating, caring, comforting, and helping), pro-environmental behavior with the aim of increasing others' well-being could be considered as a prosocial behavior (Venhoeven et al., 2003; Eisenberg, Fabes, & Spinrad, 2006; Penner, Dovidio, Piliavin, & Schroeder, 2005). Prosocial values are precisely an essential aspect of the personality which affects a wide range of economic decisions and outcomes such as the provision of public goods, management of commons, governmental and judicial efficiency or economic growth (Guiso, Sapienza, & Zingales, 2009; Cooper & Kagel, 2009). Much research on pro-environmental behavior has drawn on prosocial behavior principles (Nolan & Schultz, 2015). However, its relationship with the extended theory of planned behavior has not been explored thoroughly. Therefore, addressing the relationship between the extended theory of planned behavior and prosocial behavior principles could bring a new understanding of green purchase intention.

Pro-environmental behavior can be analyzed under several subcategories. Green consumption behavior is one of the subcategories of pro-environmental behavior. The term

of the green falls under the category of sustainable consumption, which is “the use of services and related products which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials, as well as emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations” (Norwegian Ministry of the Environment, 1994). Although there is no exact definition of green consumption behavior in the literature, which usually causes problems to understand the concept and its dynamics, scholars criticize it for lack of clarity and inconsistency (Atkinson, 2015).

From an environmental perspective, green consumption behavior could help minimize environmental degradation and because of that, improving the consumption of green products is crucially important. Creating and improving the shared understanding of environmental responsibility could lead people to take more initiative, and it could be the first step of creating a green lifestyle (Paul, Modi, & Patel, 2016). The following examples would be useful to illustrate: buying local food to prevent transportation pollution, purchasing organic products, recycling, using eco-friendly products, and so forth.

Even though psychologists mostly dominate the area of pro-environmental behavior, several researchers argue that it needs an interdisciplinary perspective (Clark, Kotchen, & Moore, 2003). In conjunction with that Guagnano, Stern, and Dietz (1995) suggest that pro-environmental behavior should be considered as an area in which “science and policy require a socio-economic theory of behavior that incorporates both external conditions and internal processes” (p.700). Benefiting from other areas such as behavioral economics would provide a broader perspective for understanding the components of pro-environmental behavior. For instance, as mentioned, psychologists have been trying to provide a better understanding of pro-environmental behavior by using various theoretical frameworks. In contrast to the theories, the majority of human behavior acts irrational (Thaler & Sunstein, 2009), hence using rational theories usually fails to predict real-life behavior, even though it provides a conceptual understanding of the behavior. Therefore, it is essential to include additional concepts in psychological frameworks to increase its predictability.

Regardless of the theory of planned behavior's effectiveness in predicting one's particular intention, all predictors of the theory of planned behavior are based on the individual's rational thinking (Bertoldo & Castro, 2016). However, many people tend to

have irrational behavior (Thaler & Sunstein, 2008). Therefore, even though psychological frameworks provide a good understanding of the behavior's theoretical background, sometimes they fail to predict real-world behavior. For instance, it has been known for a long time that the negative impacts of climate-changing have been increasing, and people need to take immediate action to minimize the negativities. Although why many people fail to take action is still unclear in many ways. Many people believe that climate change's negative consequences have not been straightforward; thus, these consequences will not be experienced immediately but rather in the distant future (Clement, Henning, & Osbaldiston, 2014). As many behavioral economics scholars said, "the future is less important than the present" this phenomenon is also called temporal discounting, which mainly states that an individual's subjective value towards any rewards depends on the magnitude of the time when the promised reward is delayed (Reed & Luiselli, 2011). Despite using temporal discounting with the theory of planned behavior is not so common, a few studies focused on that: for instance, temporal discounting with the theory of planned behavior was used to older adults' exercising behavior (Tate et al., 2017). Although in terms of including temporal discounting in the extended theory of planned behavior or even including it to predict green purchase intention, no studies have been found so far. In the light of such information, examining the temporal discounting with regard to predicting green behavior and using it as an additional part of the extended theory of planned behavior would be the first in this area.

The studies mentioned above explain how the theory of planned behavior can be used for predicting pro-environmental behavior and why it is necessary to extend it. As Bertoldo & Castro (2016) stated, the theory of planned behavior is a self-interest theory, and the fundamentals of the theory are based on rational thinking. However, it becomes more challenging to predict it by using a rationality-based self-interest theory when it comes to human behavior. Nevertheless, there has not been any study that adds those two constructs (prosocial behavior and temporal discounting) to the extended theory of planned behavior to predict people's green purchase intention. Therefore, the purpose of this dissertation is to give a broader perspective of how the extended theory of planned behavior could be improved by including two other constructs: prosocial behavior and temporal discounting in terms of predicting and understanding the green purchase intention.

1.2. Aim and Scope

This dissertation aims to understand green purchase intention by using the extended theory of planned behavior, prosocial behavior, and temporal discounting. I propose to explore the components of the extended theory of planned behavior and its application in green purchase intention by including prosocial behavior and temporal discounting and provide new insights into the literature. I will use previous studies that practice on either the extended theory of planned behavior, prosocial behavior, or temporal discounting (Moon et al., 2019; Tate et al., 2017; Zaval, Markovitz, & Weber, 2015; Lee, 2008; Hardisty & Weber, 2009). Green purchase intention will be analyzed by using seven constructs, which for this dissertation, will be the perceived seriousness of environmental problem, perceived environmental responsibility, perceived effectiveness of environmental behavior, green attitude, green subjective norms, prosocial behavior, and temporal discounting. Moreover, to see how people's perceived values affect people's attitudes towards green purchase intention, green attitudes will be analyzed by using three constructs, which will be perceived environmental seriousness, perceived environmental responsibility, and perceived effectiveness of environmental behavior. This way, we can understand whether or not the green purchase intention could be predicted using those constructs while investigating the relationship between the constructs.

1.3. Research Methods

Qualtrics collected the data without including any personal data, and all participants received a random response ID, and the participants were reached by using social media. The only eligibility criteria for participants were being older than 18, which was set for legal reasons. Since the main goal is to provide new insights regarding green purchase intention, no demographic background was considered an eligible criterion. G*Power was used to determine the required sample size for the study. G*Power is a highly used power analysis program for several statistical tests that are being used in the social and behavioral sciences (Faul, Erdfelder, Buncher, & Lang, 2009). Since ANOVA and multiple linear regression would be used for data analysis to detect the fixed effects and interactions between variables, the suggested sample size was found at least 132.

The quantitative method was preferred to analyze the data since it provides the possibility to conduct an explanatory research to analyze the attitude-behavior gap and

commonly is appropriate for this type of study (Field, 2013). The convenience sampling method was used to reach more participants, as there were no sources to perform random sampling methods. The data collection started on the 24th of March and finished on the 12th of May. 462 participants attended the survey.

1.4. Relevance

Climate change is already happening, and we are already witnessing its effects as an increase in temperature, heatwaves, hurricanes, flooding, wildfires, and many other natural phenomena. It is the greatest threat to an individual's physical health, mental health, and well-being, alongside many other species (Clayton, 2020). Time is running out, and every member of society must take on responsibility and start to take immediate action. Therefore, understanding the reasons behind people's pro-environmental behavior and the fundamentals of pro-environmental behavior with the aim of how it could be improved in a better way has crucial importance for psychologists.

The current dissertation will provide an opportunity of exploring the dynamics of the theories mentioned above (the Extended Theory of Planned Behavior, Prosocial Behavior, and Temporal Discounting) on predicting green purchase intention. It will help us understand the factors affecting green consumption behavior and explore various pro-environmental behavior subcategories. Consequently, the current dissertation will provide valuable insights about people's green consumption behavior, and the findings of this dissertation could be applied to several areas such as educational programs, marketing campaigns, public policies.

1.5. Dissertation Structure

The current dissertation is divided into 6 chapters. The first chapter starts with introducing the problem background and problem statement that includes the primary intention of the dissertation. The scope, relevance, and hypotheses are also explained in detail.

Chapter 2 will provide relevant literature, starting with the definition of green consumption behavior. Then the Theory of Planned Behavior and the Extended Theory of Planned Behavior will be explained in detail while the findings of previous research for predicting the green purchase intention were being provided. Following those theories, the

definition of prosocial behavior will be introduced with its connection to pro-environmental behavior and of predicting green purchase intention. Finally, the notion of temporal discounting will be clarified, and its impact on predicting pro-environmental behavior will be explained with examples.

Chapter 3 includes the study's methodology, which focuses on the study's research objectives and approaches, the data collection procedure, the materials, research design, data preparation, ethical guidelines, and the data analysis.

Chapter 4 will characterize the results of this dissertation based on the hypotheses mentioned above and, Chapter 5 will include the discussion part of the results in the light of a sustained literature review. Additionally, the study's limitations will be explained, and the suggestions regarding that will be demonstrated for future studies.

Chapter 6 will cover the conclusion of the presented study while providing insights about how it could be applied in the real world and what could be performed to improve the new-built theory.

Chapter 2: Literature Review

This chapter is going to include the relevant topics of the purpose of this dissertation. The up-to-date literature will be reviewed and analyzed to provide a scientific explanation of why it is crucial to investigate this topic.

The theoretical section will provide an explanation for five main categories in the following order: Pro-environmental Behavior, The Extended Theory of Planned Behavior, Prosocial Behavior, Temporal Discounting, Green Consumer Behavior.

2.1. Pro-environmental behavior

In the era of such severe and catastrophic climate change and environmental problems, pro-environmental behavior at the individual level has significance to minimize the negative externalities of those events. It is highly essential to understand what drives the pro-environmental behavior and how it can be improved in societies is one of the essential keys of the solution.

Pro-environmental behavior is defined as “the use of services and related products which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the lifecycle so as not to jeopardize the needs of future generations” by The UN CSD International Work Programme (1995) (UNEP, 2005). Pro-environmental behavior can be addressed in 2 levels: impact-oriented and intent-oriented approach.

The impact-oriented approach takes pro-environmental behavior as “the extent to which behavior changes the availability of materials or energy from the environment alters the structure and dynamics of ecosystems or the biosphere itself” (Stern, 2000, p.408). The impact-oriented approach analyzes the environmental problems from a broader perspective, including the direct causes (i.e., household waste disposal, extracting plastic pollutions from oceans), alongside indirect causes (i.e., governmental policies, international agreements) (Rosa & Dietz, 1998). On the contrary, according to the intent-oriented perspective, pro-environmental behavior is considered a result of one’s decision-making process. The intent-oriented approach is more commonly used in psychology than the impact-oriented approach as it emphasizes the individual’s intention, attitudes, and beliefs regarding the environment (Park & Ha, 2011). The impact-oriented and intent-oriented approaches address pro-environmental behavior in the public-sphere and private-

sphere (Stern, 2000). The impact-oriented approach focuses on the behavior in the public-sphere (i.e., Emission taxes, improving environmental policies), whereas the intent-oriented approach analyzes the pro-environmental behavior in the private-sphere (Stern & Gardner, 1981; Stern, 1997). Even though behaviors fall under impact-oriented approach could lead to bigger scale changes easier than the private-sphere behaviors, most people are not in charge of leading such decisions. Besides, private-sphere behavior could contribute to minimizing environmental problems while creating awareness that could lead to more significant changes in the long-term. Therefore, understanding intent-oriented behavior plays an essential role in gaining both short-term and long-term achievements in environmental protection.

In a private-sphere behavior context, pro-environmental behavior is defined as any behavior that allows consumers to make environmental energy and material save (Stern, 1997). Steg and Vlek (2009, p.309) described pro-environmental behavior as “behavior that harms the environment as little as possible, or even benefits the environment.”. Pro-environmental behaviors in the private-sphere contain the consumption of environmental-friendly products, green consumption (i.e., purchasing recycled products, organic foods), preferring renewable energy sources, and so forth. Pro-environmental behavior is interchangeable with environmental behavior, environmental-friendly behavior, sustainable consumption (Thøgersen & Ölander, 2002).

Numerous theories are being used to provide an understanding of pro-environmental behavior. The most common ones are the norm-activation model, value-belief-norm theory, social cognitive theory, and theory of planned behavior (Oreg & Katz-Gerro, 2006). Each theory uses various determinants for predicting pro-environmental behavior. For instance, the norm-activation model uses personal norms (morality), situational responsibility, and awareness of the need to predict pro-environmental behavior, while the theory of planned behavior is based on rational choice theory and includes one’s attitudes, beliefs, and social norms (Fishbein & Ajzen, 1975; Harland, Staats, & Wilke, 2010). In contradistinction to fundamentals of norm activation theory and the theory of planned behavior, some researchers also categorize pro-environmental behavior as a part of prosocial behavior.

The traditional definition of prosocial behavior points out that helping and this helping should benefit at least one other person (Batson, 1998). From this perspective, pro-

environmental behavior can be categorized as prosocial if the behavior itself provides benefits for at least one other person. Since the main aim of pro-environmental behavior is minimizing the negative impacts of climate change to have a better place to live for everyone, many pro-environmental behaviors could fall under prosocial behavior. Previous studies established the connection between pro-environmental behavior and prosocial behavior (Corral-Verdugo, Mireles-Acosta, Tapia-Fonllem, & Fraijo-Sing, 2011); for instance, Joireman and his colleagues (1997) established that people with higher prosocial values are more likely to use public transportation than preferring individual traveling methods which could also be categorized under pro-environmental behavior due to the fact that the action is a part of minimizing the environmental pollution. This part will be explained in further detail in the prosocial behavior part of the dissertation.

Pro-environmental behavior includes several types of behavior both in the public-sphere and private-sphere with the intention of minimizing the negative impacts of environmental problems. According to that definition, green consumption behavior is classified as a form of pro-environmental behavior. Even though there are still many debates about one clear definition of green consumption behavior (Atkinson, 2015), it can be defined as a part of consumption to lessen environmental degradation as much as possible or provide benefits to the environment (Steg & Vlek, 2009). For example, in the private-sphere behavior, green consumption includes such behaviors choosing recyclable products with high durability, preferring second-hand clothes over fast-fashion products (do Paço, Shiel, & Alves, 2019). The following chapters will provide a more in-depth definition of green consumption behavior while linking it with the theory and highlighting why it is an integral part of the current dissertation.

2.2. Green Consumer Behavior

The importance of green consumption has increased for both environmental and business reasons. From an environmental perspective, the extent of degradation is increasing day by day, and the negative impacts of consumption are the number 1 reason behind degradation (OECD, 2002; UNEP, 2007). From the consumer side, green behavior indicates that the behavior which is performed to reduce the negative environmental impact which is gaining people's attention day by day and becoming a hot topic; therefore, many businesses have started to invest in this point to increase their profits or at least not to lose their previous consumers. Regarding consumer behavior, green consumption falls under the broader category of sustainable consumption or pro-environmental behavior, as it mentioned those terms used as interchangeable. However, there is no well-defined green consumption concept that always gets criticisms for lack of clarity, precision, and consistency (Atkinson, 2015).

One definition of green consumption is the consumption of environmentally-friendly, prosocial goods and services to decrease the negative impacts of overconsumption, minimizing the use of natural sources and toxic, hazardous materials while leading people to consume more environmentally-friendly products such as recyclable, eco-labeled, organic products, renewable energy (Atkinson, 2015; Lin & Chen, 2016). Other definitions also include considering consumption at other levels, such as how individuals and societies can fulfill their best to minimize their adverse impacts (Carlson, Grove, & Kangun, 2013). They highlight how an individual can be concerned about his/her consumption consequences where the possession of a high level of social responsibility distinguishes itself which is a specific act regarding green consumption is that people would prefer to reduce purchasing frequency as much as possible while preferring green products (Lin & Chen, 2016; Roozen & Pelsmacker, 2000).

Building on the previous definition of green consumer behavior, the differentiation between green consumption and general purchase-related consumer behavior must be emphasized. General consumption behavior is mainly motivated by consumers' cost-benefit analysis leading them to pick up the most beneficial product for their budget regardless of its positive or negative impact on the environment. Nevertheless, environmentally conscious consumption behavior is more likely to focus on the behavior's

future consequences, which is the behavior's primary motivator (Kaufmann, Panni, & Orphanidou, 2012).

Despite there is growing research in green consumption behavior, answers to some questions are still unclear: “Why are perceived environmental concerns not applied to effective purchasing behavior?”, “What are the exact determinants of green purchase intentions?”. In a situation where over-consumption’s harmful environmental effects are increasing day by day and becoming a serious threat for the planet, answering these questions and decreasing the negative impacts of over-consumption become vital (do Paço, Shiel, & Alves, 2019).

Understanding the relationship between green consumption behavior and its motivators would provide a better perspective to improve society. While many theories are used to predict green consumption behavior, the theory of planned behavior is the most successful one to predict individual-level behavior intention (Yue, Sheng, She, & Xu, 2020; Joshi & Rahman, 2015). According to the theory of planned behavior (Ajzen, 1988), individual behavior is determined by attitudes, social norms, and perceived behavioral control.

The theory of planned behavior is found very successful at explaining the psychological and cognitive processes involved in decision-making to explain which consumers are willing to purchase green products and practices (do Paço, Shiel & Alves, 2019). Several studies have revealed the effectiveness of the theory of planned behavior regarding understanding green purchase intention from different angles: green skincare products (Hsu, Chang & Yansritakul, 2017); visiting eco-friendly hotels (Han, Hsu, & Sheu, 2010); organic food consumption (Scalco, Noventa, Satrori, & Ceschi, 2017).

Despite its popularity in predicting green purchase intention, the theory of planned behavior has some severe limitations. The theory of planned behavior does not include some external, situational and irrational factors such as the perception towards the environmental problems, consumption behavior’s irrational sides regarding acknowledging future events, the motivation behind the behavior (i.e., benefiting others, helping the environment) (do Paço, Shiel, & Alves, 2019; Joshi & Rahman, 2015; Zabkar & Hosta, 2012). Hence, even though it provides a sufficient explanation of the literature, the theory of planned behavior needs to be extended to increase its predictability. The following

chapter will explain the extended model of the theory of planned behavior while highlighting why the extra elements are necessary to predict green purchase intention.

2.3. Extended Theory of Planned Behavior

People who do not make behavioral changes to avoid further exacerbation of environmental problems and who bank on the Earth's recuperative power seem to be inattentive. As opposed to that belief, Earth does not have any recuperative power even though people act in the way it has. Since the Earth is not going to restore itself, people should shoulder the burden, and one way to do so is to engage with pro-environmental behavior or increase green consumption behavior on the same page with the current dissertation. The intentions behind the particular behavior are needed to be understood to help people engage in green consumption behavior.

The theory of planned behavior is one of the most well-developed models that explains how attitudes, social norms, and perceived behavioral control determine behavioral intentions. (Ajzen, 1991). The theory of planned behavior is the extension of the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980). Both theories focus on the motivational factors as determinants of the likelihood of particular behavior, while the theory of planned behavior includes an additional construct, which is the feelings of perceived control over the particular behavior (Madden, Ellen, & Ajzen, 1992). The theory of planned behavior stated that the more resources and opportunities the individual thinks she/he has, the greater their perceived behavioral control over the particular behavior would have (Ajzen, 1985). The theory refers that individuals' attitudes, subjective norms, and perceived behavioral control "all together" are the determinants of individuals' intentions and the likelihood of completing the particular action.

Attitude toward the behavior refers to the "degree to which a person has a favorable or unfavorable evaluation of the behavior in question" (Ajzen, 1991). Besides, attitude includes personal judgment on whether or not the particular behavior would turn into something good or bad or whether or not the individual wants to participate in the behavior (Ajzen, 1991). Subjective norms are defined as the "perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991). Individuals are likely to be influenced by their close friends, families, colleagues, or the people around them in general (Ajzen & Fishbein, 2005). Subjective norms mainly include the individual's feelings towards the social pressure about the particular behavior. On the other hand, perceived behavioral control distinguishes the theory of planned behavior from the theory of reasoned action.

The term refers to “the perceived ease or difficulty of performing the behavior” (Ajzen, 1991), including the previous experiences and possible obstacles.

The theory of planned behavior has been applied to many areas including environmental behavior and policy (Heath & Gifford, 2002; Nigbur, Lyons & Uzzell, 2010) such as transportation use, workplace behaviors, recycling with the explanation of the behavior by using the theory of planned behavior (De Groot & Steg, 2007; Nigbur et al., 2010). Among the studies conducted on green consumption, green intentions are the best proximal behavior for predicting green behavior (Niaura, 2013). Armitage and Conner’s (2001) meta-analysis illustrates that the theory of planned behavior explains 39% of the variation in one’s behavioral intention, 21% of the variation in self-reported behavior, and 30% of the variation in observed behavior. Moreover, one of the best estimations regarding the theory of planned behavior was calculated for 76% of the variation in one’s intention regarding conservation and 95% in pro-sustainable behavior (Kaiser, Hübner, & Bogner, 2005).

However, the theory of planned behavior is widely used in explaining many aspects of behavior over the years; it also has been receiving several criticisms regarding having limited predictive validity and only uses three factors to predict behavioral intention, which may not be enough all the time (Sniehotta, Pesseau, & Araújo-Soares, 2014). Besides, attitude without cognitive beliefs cannot predict behavioral intentions entirely by itself (Sreen, Purbet, & Sadarangani, 2018). Many researchers highlighted that inclusion of particular environmental beliefs that can promote green attitudes, intentions, and behaviors might better describe consumers' green decisions (Macha & Yoder, 2015). Previous studies only have used the theory of planned behavior in order to analyze the purchase intention for green products without including the perceived environmental seriousness and perceived environmental seriousness while those two concepts are essential factors that impact the purchase intention of green products (Paul, Modi, & Patel, 2016; Yadav & Pathak, 2016). However, green purchase intention is a relatively new area of research, and the findings prove the necessity of including external elements in the theory of planned behavior in order to increase its predictability (Maichum et al., 2016; Paul, Modi, & Patel, 2016; Gilg, Barr, & Ford, 2005). Therefore, including relevant cognitive perceptions to explain green attitude is essential as an extension of the theory of planned behavior. The following subsection will provide more in-depth information regarding the extended theory

of planned behavior while explaining why they are essential in predicting green purchase intentions.

2.3.1. Perceived Seriousness of Environmental Problem

The ongoing talks, panels, and media exposure on environmental problems such as air pollution, water pollution, climate change, have gotten people's awareness about how serious environmental problems are. However, not everyone is at the same level in order to understand the degree of seriousness and take action regarding that.

Perceived seriousness of environmental problems is a personal belief that people hold onto the seriousness of environmental problems that have been happening over decades. In other words, personal perception regarding the degree of environmental hazard can be global or local (Lee, 2008). People have a tendency to get more affected by their perceived seriousness of environmental problems rather than the real-life magnitude of these problems (Ghimire & Mohai, 2005). In that case, if the customers have a higher level of perceived seriousness of environmental problems, they would have a deeper understanding of the crisis (Wang, Wei, & Zhang, 2019). Therefore with a deeper level of understanding of the magnitude of the crisis, they would have more insights into the survival problems which humanity would face in the future and have a tendency to believe that the rest of the society would also be aware of the problems and act in that way (Schwepker & Cornwell, 1991).

Even though there are only a few studies which take into consideration the effectiveness of perceived seriousness of environmental problems on people's green purchase intentions, the findings point out the same direction, which is there is a positive relationship between the level of perceived seriousness of environmental problems and green purchasing decisions of customers (Moon et al., 2019; Lee, 2008; Ghimire & Mohai, 2005). Therefore, despite not many studies conducted in that area, understanding this promising element of the extended theory of planned behavior could provide a different angle to understand green purchase intention.

2.3.2. Perceived Environmental Responsibility

It has already been known that people are the main reason for the current environmental problems, and as mentioned, their consumption style creates more

significant problems day by day. At this point, natural disasters are calling consumers to be environmentally responsible in their consumption behavior.

Environmental responsibility, by definition, claims that “a state in which a person expresses an intention to take action directed towards remediation of environmental problems—acting not as an individual consumer with his or her economic interests, but through a citizen-consumer concept of societal-environmental well-being” (Stone, Barnes & Montgomery, 1995). Moreover, individuals’ understanding of environmental responsibility is positively correlated to their environmental education level that might alter based on one’s culture and nationality (Slavoljub, Zivkovic, Sladjana, Dragica, & Zorica, 2015; Hanson-Rasmussen & Lauver, 2018). However, the relationship between consumers’ perceived environmental responsibility and their positive buying intentions towards green products has already been established in many countries, regardless of cultural variation. Regarding that the literature supports the existing relationship between the perceived responsibility and behavior in several countries such as the pro-environmental behavior and perceived responsibility towards the environment among Swiss citizens; perceived environmental responsibility and the likelihood of having higher purchasing intentions towards green products in the USA (Kaiser & Scheuthle, 2003; Attaran & Celik, 2015).

There are several applications of perceived environmental responsibility in pro-environmental behavior studies. Such as, perceived environmental responsibility was a strong determinant influence on consumers’ perception of environmentally friendly automobiles (Yusof, Singh, & Razak, 2013). Previous studies on environmental behavior intention can be predicted more accurately by including perceived environmental responsibility in the theory of planned behavior (Rezaei, Safa, Damalas, & Ganjkanloo, 2019; Yue, Shend, She, & Xu, 2020). For instance, Shukla's research (2019) perceived environmental seriousness as an additional component of the extended theory of planned behavior was found to be the strongest predictor of participant’s green intentions. Although the perceived environmental responsibility has been applied to many parts of pro-environmental behavior and prediction of green purchase intention; still the number of studies that perceived environmental responsibility is analyzed under the theory of planned behavior is limited. Therefore, analyzing the perceived environmental responsibility under the theory of planned behavior could help us to build better literature in that field.

2.3.3. Perceived Effectiveness of Environmental Behavior

As mentioned before, several actions can be done in the private-sphere to prevent the negative externalities of environmental problems, although some people believe that their actions would not be enough to make any change even though it is entirely wrong.

Perceived effectiveness of environmental behavior can be defined as consumers' level of concern whether or not their actions would lead to a difference regarding overcoming or decreasing the negative impacts of environmental problems (Kim & Choi, 2005). For instance, whether or not the consumer's engagement in using recycled products depends on the individual's belief that it will make a difference. Perceived effectiveness is one of the fundamental personal characteristics that have proven effective in explaining the psychological aspect of consumer behavior (Hanss & Doran, 2019).

The belief of people's environmentally friendly actions will make a difference also would highly depend on the belief that other people would behave similarly; the perception that would lead people into that behavior is that today's many environmental problems result from many people's actions. Therefore it could only be solved if only everyone's perception would be the same to prevent from causing environmental hazards (Steg & Nordlund, 2018). Much research has already proven that certain pro-environmental behaviors such as preferring green products and engaging in recycling are more likely to be influenced by social pressure than other actions (Thomas & Sharp 2013; Melnyk, van Herpen, Fischer, van Trijp, 2013). For instance, in the urban areas, environmentally friendly behavior such as recycling or purchasing green products would be preferred more if the customer believes that the behavior is visible to others; following that, in order to one's engage in environmentally friendly behaviors, specific behavior should be influenced by the society and social norms (Miafodzyeva & Brant, 2013). For that purpose, social norms, especially the ones regarding green social norms and theories of conformity, also contain an undeniable part in people's belief of perceived effectiveness regarding taking environmentally-friendly action.

2.3.4. Green Attitude

Green attitude refers to a consumer's particular level of agreement or disagreement, positive or negative thoughts, feelings, state of mind, and interests regarding the likelihood

of performing green purchasing (Fishbein & Ajzen, 2005; Mancha & Yoder, 2015). The literature on green attitudes comes up with some interchangeable terms, for instance, attitudes, ecological attitudes, environmentally-friendly attitudes, environmental attitudes, and environmentally sustainable attitudes; moreover, the common point of all these terms is all of them analyze the consumers' judgments and actions consequently regarding the environment (Priya & Aniruddha, 2016). For the sake of this research, to avoid any confusion, all interchangeable terms will be referred to as green attitudes. Green attitude is considered as a strong determinant of pro-environmental behavior alongside the theory of planned behavior (Fishbein & Ajzen, 2005; Nagar, 2015) in such ways that the attitude is taken into consideration as the strongest predictor of explaining the green purchase intention of consumers (Moon et al., 2017; Moon et al., 2019). Especially in explaining the determinants of green consumer behavior, consumers' attitudes were among the most significant and relevant concepts across different cultures by far (Hsu et al., 2017).

The extended theory of planned behavior explains green attitude as it is the final thoughts affected by that person's level of perceived seriousness of environmental problems, perceived environmental responsibility, and perceived effectiveness of environmental behavior regarding green purchase intention (Moon et al., 2019). Consumers with a higher level of favorable and positive feelings towards the environment are more likely to engage in green purchase behavior than the others (Mostafa, 2007).

2.3.5. Green Subjective Norms

Green subjective norms can be defined as the perceived social pressure from people on a customer to purchase green products (Fishbein & Ajzen, 2005). It also means that the approval or the support of a personally important person or group of people would be the determinant factor for whether or not the consumer would engage in the particular green behavior (Ham, Jeger, & Ivkovic, 2015). Green subjective norms influence consumers' decision-making process and how they act in specific situations. (Oliver & Beaden, 1985).

The effectiveness of subjective norms on customers' purchasing behaviors has already been proven in many studies. For instance, Bearden and his colleagues (1989) claims that the social influence could be a strong indicator of the behavior as other empirical studies support it in a way that subjective norms of an individual can shape her / his intentions towards participating in a particular action (Smith & Paladino, 2010). Green

subjective norms were also found significant in predicting organic food consumption (Vermeir & Verbeke, 2006; Chen, 2007).

2.3.6. Green Purchase Intentions

Green purchase intention is the customer's intention, willingness, or plan to purchase a product that is better for the environment in comparison with other standard goods in terms of being environmentally friendly, recyclable, et cetera (Fishbein & Ajzen, 2005). Through time, consumers worldwide have started to become more and more environmentally friendly, not only in the sense of helping or being a part of the improvement of the environmental conditions, but also in the sense of instant anticipated positive outcomes of such product (Sreen, Purbet, & Sadarangani, 2018). Green purchase intentions have been becoming a significant milestone in understanding green consumption among several cultures and various economies due to the proximity of intentions to the actual behavioral outcome (Mancha, & Yoder, 2015).

It is highly salient that green intention is the best-fit behavioral predictor of green behavior in the context of green consumption (Miller, 2017). To illustrate this claim, one could suggest comparing the change explained in conservation and conservation behavior intention (Kaiser et al., 2005) and ecological intent and ecological behavior, which is almost the same (Arli, Tan, Tjiptono, & Yang, 2018). Besides, Armitage and Conner's (2005) meta-analysis on the theory of planned behavior supports the previous statement of how green purchase intention is found to be a significant predictor of actual green purchase behavior as expected. According to the theory of planned behavior, a person's green attitudes, perceived control, and green social norms would affect intention towards purchasing a green product; alongside that perceived environmental seriousness, perceived environmental responsibility, and perceived effectiveness of environmental behavior would affect one's green attitudes hence the green purchase intention (Moon et al., 2019).

As mentioned, regardless of the extended theory of planned behavior is a proven way to predict green purchase intention, the model was built on individuals' rational thinking (Bertoldo & Castro, 2016); however, it has been proven by several behavioral economics theory that people have the tendency to act irrationally when they make a decision (Thaler & Sunstein, 2008). For instance, temporal discounting means that some people find the present more important while others focus on the future. This difference in perception would determine their many behaviors in life (Frederick, 2003), including engaging in

pro-environmental behavior or green consumption behavior. In that context, even though the extended theory of planned behavior provides a useful literature background to understand green purchase intention, it cannot explain why people fail to act when they have a comprehensive understanding of how serious environmental problems are (Carson & Tran, 2009). At this point, including an extra element from behavioral economics could help us to understand green purchase intention from a broader perspective.

Another element which is not a part of the extended theory of planned behavior, but it would be beneficial to be used in order to understand green purchase intention is prosocial behavior. The theory of planned behavior is a self-interest theory (Bertoldo & Castro, 2016) and is not able to represent prosocial values of the environmental friendly behavior; however, the pro-environmental behavior, by its nature, has highly drawn on theories of prosocial behavior (Nolan & Schultz, 2015). Joshi and Rahman (2015) stressed that green consumption behavior is a form of prosocial behavior that evolved from an ethical decision-making process, and prosocial motives were found to be a strong determinant factor for green purchase intention in green hotels and green restaurants (Han, 2020). Therefore, alongside the extended theory of planned behavior, including prosocial motives to predict green purchase intention could provide a better point of view in that matter. The following two chapters will provide literature support for temporal discounting and as well as prosocial behavior.

2.4. Temporal Discounting

People tend to focus on today rather than the future, and this mindset also affects their perception regarding understanding or internalizing future events, even the ones that are detrimental to society. For instance, if someone is asked to choose between \$10,000 today or \$12,000 a year later, many would choose an immediate reward instead of postponing, even though there is a chance of earning 20% of return on their investment. Similar to that situation, they also fail their long-term investments for the future, such as switching energy-efficient products in their home rather than keeping the one they are using now or purchasing organic foods that can minimize the effects of climate change long term. Although many research projects that people have a high discounting rate for future events, and they are mostly focusing on short-term solutions (Loewenstein & Thaler, 1989).

It has been globally known that people are not the best decision-makers; however, they have quite biased decision-making processes that can lead to many problematic situations from time to time; especially when they use shortcuts or System 1 in other words (Kahneman, 2011). Based on the theory of Kahneman and Frederick (2002), there are two systems in charge of people's decision-making processes; while System 1 is defined as automatic, impulsive, unconscious decisions, whereas System 2 is used for describing well-thought, detailed decision-making processes. Therefore, the short-cuts that people have been using in many contexts can be categorized under System 1, such as temporal discounting for perceiving future risks play a significant role in people's future decision-making processes.

Temporal discounting can generally be defined as people's tendency to prefer immediate desires instead of waiting for future outcomes, even though the immediate reward is smaller than the delayed gains, yet immediate reward would still outweigh the delayed gains (Frederick, Loewenstein, & O'Donoghue, 2002). For instance, when people talk about the future risks of climate change, many people would be unable to conceptualize the magnitude of the risk; hence would be unable to take any action regarding that.

To link this to the current study, the research supports the findings that people use similar temporal discounting regarding perceiving environmental risks and perceiving the financial outcomes when thinking about future gains and losses. Even though the domain

(in the financial outcomes it is money and from the environmental perspective it is the long-term effects of the climate change) changes, the perception regarding discounting the future outcomes would differ at a similar level (Hardisty & Weber, 2009). Therefore, it could be fair to assume that people would have a similar discount level with their monetary choices and the negative outcomes of climate change, and this perception would affect their green attitudes as well as purchase intentions regarding green products.

2.5. Prosocial Behavior

Harmful consequences for the environment due to human behavior are becoming more apparent, and to solve this problem requires understanding and changing human behavior. In the context of minimizing environmental problems, environmental behavior can be built as a part of prosocial behavior.

Prosocial behavior can be defined as any kind of behavior to benefit at least one other person (Weinstein & Ryan, 2010), for instance, protecting and promoting others' conditions (Grant & Berg, 2012). By definition, prosocial behaviors can involve several acts for others, such as acts for benefitting an individual, cooperation, or collective actions, acts with the main focus of altruistic motivations (Batson & Powell, 2003; Keltner, Kogan, Piff, & Saturn, 2014). In the environmental context, pro-environmental behavior, as well as green consumption behavior, are accepted as a part of prosocial behavior due to the fact that the most common reason for engaging in environmentally friendly behavior is “helping the environment and the many others that live in it” (Nolan & Schultz, 2015; Nolan, Schultz, Cialdini, Goldstein, Griskevicius, 2008)

According to Joshi and Rahman (2015), green consumption behavior is a convoluted part of prosocial behavior resulting from an ethical decision-making process. Much research focuses on the effectiveness of prosocial values on consumers' green behavior. For instance, people purchase “TOMS” shoes (as company policy, for every pair sold, the other one is donated to someone in need), products which bearing logos or slogans with supporting purposes (e.g., HIV awareness, breast cancer awareness, et cetera) (Johnson, Tariq, & Baker, 2018). Over the years, several studies including existing theories of prosocial behavior (e.g., norm-activation theory, value-belief-norm-theory to understand green consumption behavior (De Groot & Sted, 2009; Shin, Jung, & Severt, 2018); yet the debates are continuing on the effectiveness and the comprehensiveness of the theories (Han, 2020). Moreover, those theories' prediction power of green behavior is mostly found as insufficient by many researchers (Han, 2020); therefore, it brings the need to do further research on prosocial behavior to have a better understanding of its effectiveness on green consumption behavior.

As it is already known that both the theory of planned behavior and the extended theory of planned behavior are found successful in their measurement of green purchase intention by bringing a broader framework for conceptualizing attitude-behavior

consistency within a series of behavior types (Ross & Ajzen, 2010), although as mentioned, both theories have a limitation: it is a self-interest theory. Thus it cannot represent the green purchase intention thoroughly as green behavior has many prosocial dimensions (Gao et al., 2017; Steg & de Groot, 2010; Turaga et al., 2010; Venhoeven, Bolderijk, & Steg, 2013). Therefore, including prosocial values in the extended theory of planned behavior would improve the limitations of both theories in understanding green consumption behavior.

2.6. Research Hypotheses

Green purchase intention can be explained successfully by using various theories, although each has its limitation. The Theory of Planned Behavior is a self-interest theory, does not include prosocial motives; fundamental theories of prosocial behavior are found lack effectiveness in terms of their prediction power, yet prosocial values in the prediction of green purchase intention including other theories are found quite successful; temporal discounting, on the other hand, brings into the importance of the temporal perception in decision-making processes (Clement et al., 2014; Bamberg & Moser, 2007; Han, 2020). Moreover, Bamberg and Moser (2007) claim that “pro-environmental behavior is probably best viewed as a mixture of self-interest and concern for other people, the next generation, other species, or whole ecosystems.”. Following this theoretical rationale, I can suggest that the previous elements will bring a better understanding of green purchase intention. Based on this theoretical approach, the following hypotheses were specified to study the relationship between the extended theory of planned behavior, prosocial behavior, and temporal discounting on predicting green purchase intention:

Hypothesis 1: The Extended Theory of Planned Behavior in Purchase Intention for Green Products

H1a: Attitude toward green products predicts positively purchase Intention for Green Products.

H1b: Subjective norms regarding green product consumption predict positively purchase Intention for Green Products.

H1c: Perceived Seriousness of Environmental Problems predicts positively purchase Intention for Green Products.

H1d: Perceived Environmental Responsibility predicts positively purchase Intention for Green Products.

H1e: Perceived Effectiveness of Environmental Behavior predicts positively purchase Intention for Green Products.

Hypothesis 2: Environmental Perception in Attitude

H2a: Perceived Seriousness of Environmental Problems predicts positively Attitude toward green products.

H2b: Perceived Environmental Responsibility predicts positively Attitude toward green products.

H2c: Perceived Effectiveness of Environmental Behavior predicts positively Attitude toward green products.

Hypothesis 3: Prosocial Behavior in Green Purchase Intention

*H3a: Prosocial behavior predicts positively purchase Intention for Green Products.
predicts positively purchase Intention for Green Products.*

Hypothesis 4: Temporal Discounting in Purchase Intention for Green Products

H4a: Temporal Discounting is positively and significantly associated with purchase intention for green products.

Chapter 3: Methodology

This chapter will describe the methodology applied for this dissertation. The current chapter will include research objectives and approaches, participants and the research design, procedure, materials, data preparation process, and ethical considerations.

3.1. Research Objectives and Approaches

This dissertation's main purpose is to explore the effectiveness of The Extended Theory of Planned Behavior, Prosocial Behavior, and Temporal Discounting on predicting customers' Green Purchase Intention. Additionally, I will analyze how individual perception regarding the environment affects people's attitudes regarding consuming green products.

Based on the Theory of Planned Behavior (Ajzen, 1991), individuals' behavioral intention is shaped by their attitudes, social norms, and perceived control over the behavior; although how they perceive the environmental problems and how they perceive future events are still not explained entirely (Moon et al., 2019; Clement et al., 2014). Moreover, it is necessary to include prosocial values since the Theory of Planned Behavior is a self-interest theory and cannot completely represent behavioral intention (Bamburg & Moser, 2007). Therefore, it is necessary to include those components to have a better prediction of purchase intention regarding green products.

3.2. Participants and Design

As mentioned above, the research aims to understand consumer behavior while exploring its relationship to prosocial values and environmental and future perception. Since the main aim is understanding the behavioral intention in general, no eligible criterion was decided regarding cultural or national background. The focus group was adults older than 18 years old due to the fact that they are legally able to make decisions.

G*Power was used to determine the required sample size for the study. G*Power is a highly used power analysis program for several statistical tests used in the social and behavioral sciences (Faul, Erdfelder, Buncher, & Lang, 2009). Since ANOVA and multiple linear regression would be used for data analysis to detect the fixed effects and interactions between variables, the suggested sample size was found at least 132.

The quantitative method was preferred to analyze the data since it provides the possibility to conduct and explanatory research to analyze the attitude-behavior gap and commonly is appropriate for this type of study (Field, 2013). The convenience sampling method was used to reach more participants as I did not have any resources to perform a random sampling method.

3.3. Procedure

The questionnaire was distributed through online channels as social media platforms and messaging services. Before starting the survey, to obtain their consent, participants were informed regarding the purpose of the study, and they were able to drop out any time; it was highlighted that by continuing the survey, they agreed with the consent form. Participants were reached a questionnaire concerning demographics, and then the temporal discounting level was measured; the rest of the measurements were provided in random order on Google Qualtrics. Participants had to answer every question in order to process the other questionnaires and complete the survey. At the end of the survey, participants were reached a thank you note with contact information in order to reach out and ask questions regarding the study.

3.4. Measurements

The materials used in this dissertation to study the effectiveness of the Extended Theory of Planned Behavior, Prosocial Behavior and Temporal Discounting on green purchase intention are the following (See Appendix - A for the complete version of the questionnaires):

For measuring *perceived environmental responsibility*, 5 items of perceived environmental responsibility ($\alpha = 0.70$) were adopted from Lee (2008). *Perceived seriousness of environmental behavior* instrument ($\alpha = 0.79$) was taken from Moon and his colleagues' (2019) research. For measuring *perceived effectiveness of environmental behavior*, 2 items of perceived effectiveness of environmental behavior ($\alpha = .70$) were adapted from Lee (2008). *Green attitude* ($\alpha = .61$) and *green subjective norms* ($\alpha = .83$) were measured by adopting 2 items from (Moon et al., 2019) 4 items from (Milfont & Duckitt, 2006). For measuring *green purchase intention*, 3 items of green purchase

intention were adopted from (Moon et al., 2019), and 8 items of green purchase intention were adopted from (Straughan Roberts, 1999) ($\alpha = .93$).

13 items were adopted from (Penner, Fritzsche, Craiger, & Freifeld, 1995) to measure general *prosocial attitudes* ($\alpha = .80$). Due to the fact that all items were adopted from existing literature, no construct validity check was conducted.

For measuring the *temporal discounting* of people's perception regarding future events, Monetary Choice Questionnaires ($\alpha = .93$) (MCQ; Kirby & Marakovic, 1996; Kirby, Petry, & Bickel, 1999) were used. The Monetary Choice Questionnaire is a self-report measure that has 27-items. Each item had a smaller instant reward and large magnitudes for nine different k values. (e.g. small: \$34 now vs. \$35 in 186 days, medium: \$54 now vs. \$55 in 117 days, large: \$78 now vs. \$80 in 162 days; all three items correspond to $k = 0.000158128$). The Monetary Choice Questionnaire is a valid and reliable measure of temporal discounting - having high construct validity (Kirby & Finch, 2010; Kirby & Petry, 2004; Kirby et al., 1999; Duckworth & Seligman, 2005) alongside with the strong test-retest reliability (Amlung & MacKillop, 2011; Kirby, 2009).

3.5. Data Preparation

The data were collected using Google Qualtrics, which did not collect any personal data, and all participants received a random response ID. Data collection started on the 24th of March and finished on the 12th of May. 462 participants attended the survey. Statistical Package for Social Sciences (SPSS) software was used for data analysis. Before conducting any statistical test, the data set was screened for any irregularities in detecting outliers, missing values, and checking assumptions before conducting any normality test. Although it is impossible to detect all the problematic responses in the data set, the main goal is to minimize their impact on the data set. At that point, detecting the outliers has crucial importance before conducting any statistical analysis (Cousineau & Chartier, 2010).

Most of the time, statistical inferences are made based on tests of means that use the standard deviation to measure normality. Therefore, outliers can highly affect the mean response, and it can cause misinterpretation of the results. Nevertheless, one difficulty in treating the outliers is that there is not a well-accepted theoretical method for treating outliers (Cousineau & Chartier), which makes the process even harder for the researchers. Therefore, detecting outliers is crucial to reach a well-interpreted data set; following that

premise, most-accepted data screening methods were searched and implied in the current study.

Before conducting any tests, first, the missing data were detected and removed (N=436), then to detect outliers, Mahalanobis distance was used since it is a well-accepted method to detect outliers in a large set of measurements (Maesschalck, Jouan-Rimbaud, & Massart, 2000), and 98 variables were found with $p < .001$ and deleted from data set (N=338). After Mahalanobis distance, the normal P-P Plot of regression standardized residual scatter was checked, and 1 more outlier was detected and removed from the data set (337). Collinearity analysis was also conducted to see if the variables are associated with each other, and no violation of VIF and tolerance was found between the variables, and all variables were kept (See Appendix – B for detailed data preparation process).

With the exception of the temporal discounting items, arithmetic means of the items within each predictor measure were computed to create composite scores.

For temporal discounting, the geometric mean of MCQ-27 discount values was calculated by using Kaplan et al. (2016) automated scoring system. Then the k discount value for each participant was calculated. Since the geometric mean of k values was positively skewed because of its nature, a log transformation of skewed k values was conducted to reach a normal (Gaussian) distribution.

3.6. Ethics

This research does not include major ethical issues; no sensitive, ID revealing personal information was asked during the research. Although there could be only a slight risk that participants would provide socially desired answers due to the questionnaires being including socially critical topics, in order to avoid these possible problems, the questions were proposed randomly, and different ways regarding that topic without implying any answer could be wrong. Moreover, to respect the participants' information and confidentiality, all data was gathered anonymously without recording any personal information and removing contact associations. The participants had full transparency about the aim of the research, and they were informed that they were able to withdraw at any time if they desired to act so.

Chapter 4: Results

This chapter sets out the results of the questionnaire and provides a discussion session of the respective results. It includes descriptive statistics of participants, initial hypotheses testing, and exploratory analysis to provide a better angle to the dissertation.

4.1. Participants

Participants were 337 (205 female, 130 male, 2 prefer not to say) contacted via online channels such as social media platforms and messaging services. Anyone who is legally adult (being older than 18-years old) was able to participate in the study. Since the purpose of this study has no correlation to cultural background, nationality was not used as eligibility criteria, and people from different countries participated in the survey. Participants' median age was 26, where the minimum age was 18, and the maximum age was 65 (See Appendix – C). The majority was Turkish (42,1%); it was followed by Portuguese (15,7%). The rest of the participants were from several countries, although they did not form a significant proportion (See Appendix – C for more detailed information regarding demographics). The majority of the participants hold a 4-year-college degree (38,3%), which was followed by a master's degree (24,6%) and a high school degree (24,9%) (See Appendix – C). Participation in this study was voluntary. At the beginning of the study, it was explained that participants could drop out any time they would prefer, and their informed consent form was gathered. Those who did not complete the study (n=26) were excluded in further analyses.

4.2. Initial Hypotheses Testing

4.2.1. Multiple regression between the Extended Theory of Planned Behavior, Prosocial Behavior, Temporal Discounting, and Green Purchase Intention

A multiple regression analysis was conducted to investigate whether perceived seriousness of the environmental problem, perceived environmental responsibility, perceived effectiveness of environmental behavior, green attitude, green subjective norms, prosocial behavior, and temporal discounting could predict participants' green purchase intentions. In the regression analysis, green purchase intention was categorized as a dependent variable, whereas the rest of the predictors were taken place under independent variables.

The results of the regression indicated that the model was significant to predict green purchase intention: $F(7,329) = 43.309$, $p < .001$ (Table 1). The R^2 for the overall model was 48% with an adjusted R^2 of 46%; a medium-size effect was reported by the model of variations in green purchase intention is accounted by the linear combination of the predictor variables (perceived seriousness of the environmental problem, perceived environmental responsibility, perceived effectiveness of environmental behavior, green attitude, green subjective norms, prosocial behavior, and temporal discounting).

In the final model, apart from perceived seriousness of environmental problems and temporal discounting, all the independent variables were statistically significant with perceived environmental responsibility ($t = 2.004$, $p < .046$, $\beta = .117$), perceived effectiveness of environmental behavior ($t = 2.690$, $p < .008$, $\beta = .143$), green attitudes ($t = 5.405$, $p < .001$, $\beta = .285$), green subjective norms ($t = 5.709$, $p < .001$, $\beta = .270$), prosocial values ($t = 2.818$, $p < .005$, $\beta = .135$) in green purchase intention. The predictability of the five predictors on green purchase intentions was in the following descending order: green attitudes, green subjective norms, prosocial values, perceived environmental responsibility, perceived effectiveness of environmental behavior. For calculating the predictive model of green purchase intention, the following equation was used:

$$y = b_1x_1 + b_2x_2 + \dots + b_nx_n + c.$$

Following that equation, the final predictive equation calculated:

Green purchase intention = $-1.136 + .151$ (perceived environmental responsibility) + $.135$ (perceived effectiveness of environmental behavior) + $.383$ (green attitudes) + $.287$ (green subjective norms) + $.203$ (prosocial values) + $.019$ (temporal discounting) + $(-.008)$ (perceived seriousness of environmental problem).

Table 1

Effect of ETPB, Prosocial values, Temporal Discounting on Green Purchase Intention

	B	SE	β	t	p	Zero-order	Partial	Part
PS	-.008	.071	-.005	-.106	.916	.339	-.006	-.004
PER	.151	.075	.117	2.004	.046	.515	.110	.080
PEEB	.135	.050	.143	2.690	.008	.508	.147	.107
GA	.383	.071	.285	5.405	.000	.518	.286	.215
GSN	.287	.050	.270	5.709	.000	.517	.300	.227

PV	.203	.072	.135	2.818	.005	.449	.154	.112
TD	.019	.057	.014	.342	.733	-.002	.019	.014
Constant	-1.136	.437						
Notes. $R^2 = .48$ ($p < .001$) F - ratio = 43.309 SEE=.84602 n=337								

4.2.1.1. Perceived environmental responsibility. The positive slope for perceived environmental responsibility (.151) as a predictor of green purchase intention indicated there was about a .151 increase in green purchase intention for each 1-point increase in perceived environmental responsibility. In other words, green purchase intention tends to increase as perceived environmental responsibility increases. The squared semi-partial coefficient (sr^2) that estimated how much variance in green purchase intention was uniquely predictable from perceived environmental responsibility was .08, indicating that 08% of the variance in green purchase intention is uniquely accounted for by perceived environmental responsibility when the rest of the predictors are controlled.

4.2.1.2. Perceived effectiveness of environmental behavior. The positive slope for perceived effectiveness of environmental behavior (.135) as a predictor of green purchase intention indicated there was about a .135 increase in green purchase intention for each 1-point increase in perceived effectiveness of environmental behavior. In other words, green purchase intention tends to increase as perceived environmental responsibility increases. The squared semi-partial coefficient (sr^2) that estimated how much variance in green purchase intention was uniquely predictable from perceived effectiveness of environmental behavior was .107, indicating that 11% of the variance in green purchase intention is uniquely accounted for by perceived effectiveness of environmental behavior when the rest of the predictors are controlled.

4.2.1.3. Green attitudes. The positive slope for green attitudes (.383) as a predictor of green purchase intention indicated there was about a .383 increase in green purchase intention for each 1-point increase in green attitudes. In other words, green purchase intention tends to increase as green attitudes increase. The squared semi-partial coefficient

(sr^2) that estimated how much variance in green purchase intention was uniquely predictable from green attitudes was .215, indicating that 22% of the variance in green purchase intention is uniquely accounted for by green attitudes when the rest of the predictors are controlled.

4.2.1.4. Green subjective norms. The positive slope for green subjective norms (.287) as a predictor of green purchase intention indicated there was about a .287 increase in green purchase intention for each 1-point increase in green subjective norms. In other words, green purchase intention tends to increase as green subjective norms increase. The squared semi-partial coefficient (sr^2) estimated how much variance in green purchase intention was uniquely predictable from green subjective norms was .227, indicating that 23% of the variance in green purchase intention is uniquely accounted for by green subjective norms when the rest of the predictors are controlled.

4.2.5. Prosocial values. The positive slope for prosocial values (.203) as a predictor of green purchase intention indicated there was about a .203 increase in green purchase intention for each 1-point increase in prosocial values. In other words, green purchase intention tends to increase as prosocial values increase. The squared semi-partial coefficient (sr^2) estimated how much variance in green purchase intention was uniquely predictable from prosocial values was .112, indicating that 11% of the variance in green purchase intention is uniquely accounted for by prosocial values when the rest of the predictors are controlled.

4.3. Exploratory Analyses

4.3.1. Multiple regression between the Perceived Seriousness of Environmental Problem, Perceived Environmental Responsibility, Perceived Effectiveness of Environmental Behavior and Green Attitude

After the model supported the main hypotheses, further analysis was performed to have a deeper understanding of how people's perceptions influence their attitudes toward the environment. A multiple regression analysis was performed on whether Perceived Seriousness of the Environmental Problem, Perceived Environmental Responsibility, and Perceived Effectiveness of Environmental Behavior could predict participants' Green Attitudes.

The results of the regression demonstrated the model as a whole was significant to predict green attitudes $F(3,333) = 79.006, p < .001$ (Table 2). The R^2 for the overall model was 42% with an adjusted R^2 of 42%, a medium-size effect is reported by the model of variations in green attitude is accounted by the linear combination of the predictor variables (perceived seriousness of the environmental problem, perceived environmental responsibility, perceived effectiveness of environmental behavior).

In the final model, except perceived effectiveness of environmental behavior, all independent variables were found statistically significant with green attitude: perceived seriousness of environmental problem ($t = 7.993, p < .001, \beta = .393$), perceived environmental responsibility ($t = 5.196, p < .001, \beta = .297$). For calculating the predictive model of green purchase intention, the following equation was used:

$$y = b_1x_1 + b_2x_2 + \dots + b_nx_n + c.$$

Following that equation, the final predictive equation calculated:

$$\text{Green Attitude} = .815 + .405(\text{perceived seriousness of environmental problem}) + .286(\text{perceived environmental responsibility}) + .056(\text{perceived effectiveness of environmental problems}).$$

Table 2

Multiple linear regression between Environmental Perception and Green Attitudes

	B	SE	β	t	p	Zero-order	Partial	Part
PS	.405	.051	.393	7.993	.000	.571	.401	.335
PER	.286	.055	.297	5.196	.000	.548	.274	.218
PEEB	.056	.036	.079	1.158	.120	.359	.085	.065
Constant	.815	.293						
Notes. $R^2 = .42$ ($p < .001$)								
F - ratio = 79.006								
SEE = .65972								
N = 337								

4.3.2. Simple linear regression between Temporal Discounting and Green Attitudes

After temporal discounting was found insignificant in predicting green purchase Intention, a simple linear regression was calculated to see whether temporal discounting was significant in predicting green attitudes. The results of the regression analysis indicated that the temporal discounting was significant to predict green attitudes: $F(1, 335) = 6.652, p < .05$ (Table 3). The R^2 for the overall model was 2% with an adjusted R^2 of 2%; the model reported a small-size effect. The regression coefficient ($\beta = -.145$) indicated that an increase in green attitudes, on average, to a decrease in temporal discounting in $-.145$.

Table 3

Simple linear regression between Temporal Discounting and Green Attitudes

	B	SE	β	t	p	Zero-order	Partial	Part
(Constant)	4.996	.119		42.131	.000			
TD	-.145	.056	-.140	-2.579	.010	-.140	-.140	-.140
Notes. $R^2=.019$ ($p<.05$) F - ratio = 6.652 SEE =.85214 N = 337								

4.3.3. Exploratory Demographic Factors on Green Purchase Intention

Several analyses were conducted to have more detailed information regarding how green purchase intention differs based on participants' demographic backgrounds.

4.3.3.1. Gender difference in green purchase intention. For measuring gender differences in green purchase intention, Welch's t-test was used. Since the assumption of homogeneity of variance was not met for this data set (See Appendix – D), the obtained Welch's adjusted F ratio (12.42) which was significant at the .05 alpha level ($p < .05$) reported as Welch's $F(2, 2.71) = 12.42$ ($p < .05$) (See Table 3). These findings support that gender differs significantly in green purchase intention. The estimated omega squared ($\omega^2=.06$) indicated that approximately 1% of the total variation in green purchase intention is attributable to gender differences.

Post hoc comparisons, using the Games-Howell post hoc procedure, were conducted to observe the gender difference significantly. The results proved that (See Appendix – C) female participants ($M = 5,06$ $SD = 1.02$) had a significantly higher level of intention than male participants ($M = 4.55$, $SD = 1.24$).

Table 4

Robust Tests of Equality of Means of Gender

GPI				
	Statistic ^a	df1	df2	<i>p</i>
Welch	12.442	2	2.710	.043
Brown-Forsythe	15.380	2	8.639	.001

a. Asymptotically F distributed.

4.3.3.2. The level of education in green purchase intention. To see how individuals' green purchase intention might differ based on their education level, Welch's *t*-test was used. The data set was met with the assumption of homogeneity of variance (See Appendix – D). Although the independent categories do not have equal sample sizes, as the literature suggests (Delacre, Leys, Mora, & Lakens, 2019) Welch's *t*-test was used. The obtained Welch's adjusted *F* ratio (3.26) which was significant at the .05 alpha level ($p < .05$) reported as Welch's $F(5, 25.82) = 3.26$ ($p < .05$) (See Table 4). These findings support that the individuals' level of education differs significantly on green purchase intention. The estimated omega squared ($\omega^2 = .03$) indicated that approximately 1% of the total variation in green purchase intention is attributable to the green purchase intention.

Post hoc comparisons were conducted by using the Games-Howell post hoc procedure to measure the education difference significantly. The results proved that (See Appendix – D) those with doctorate level of education were found as having the lowest level of intention ($M = 4.85$, $SD = 1.15$) towards consuming green products whereas, those with less than high school education ($M = 6.14$, $SD = .68$) were found as having the highest level of intention towards consuming green products.

Table 5

Robust Tests of Equality of Means of Education Level

GPI				
	Statistic ^a	df1	df2	<i>p</i>

Welch	3.258	5	25.815	.021
Brown-Forsythe	2.058	5	67.685	.081

a. Asymptotically F distributed.

4.3.3.3. Nationality in Green Purchase Intention To see whether or not there is a difference in people's purchase intentions regarding green products based on their nationalities, Welch's *t*-test was used. Only the participants from three nationalities (Turkish 42.1%, Portuguese 15.7%, Brazilian 4.2%) were included due to the fact that the rest of the participants did not form a significant amount. However, the obtained Welch's adjusted *F* ratio (.11), which was not significant at the .05 alpha level ($p > .05$) reported as Welch's $F(2, 32.99) = .11$ ($p > .05$) (See Table 5).

Table 6

Robust Tests of Equality of Means of Nationality

GPI

	Statistic ^a	df1	df2	<i>p</i>
Welch	.112	2	32.993	.894
Brown-Forsythe	.136	2	37.071	.874

a. Asymptotically F distributed.

Chapter 5: Discussion

The present work aimed to investigate the effectiveness of the Extended Theory of Planned Behavior, Prosocial Behavior, and Temporal Discounting on predicting green purchase intention. Overall, findings support that the Extended Theory of Planned Behavior alongside prosocial values was found to be a successful determinant of green purchase intentions. Although, statistically, the prediction power of green purchase intentions' components was determined as relatively weak. On the other hand, temporal discounting was not found as a significant predictor of people's intention towards purchasing green products.

Based on the insights provided by the theory of planned behavior (Ajzen, 1991), I tested green attitudes' effectiveness on green purchase intentions. According to the theory, attitude is the strongest determinant for predicting one's intentions towards particular behavior, including pro-environmental behavior (Hs et al., 2017; Moon et al., 2018; McCarthy, Boer, O'Reilly, & Cotter, 2003). In line with the previous findings, the green attitudes were found as the strongest predictor of green purchase intention among other components within the model (H1a: Attitude toward green products predicts positively purchase Intention for Green Products.).

Similar to previous findings in green consumer behavior research (Mancha & Yoder, 2015; Armitage & Conner, 2001), green subjective norms were found to be a significant determinant of purchase intention. This finding can be interpreted as individuals' perception can also be shaped by the people around themselves, such as family, friends, neighborhoods, et cetera. In this study, findings state that the likelihood of people engaging in green consumption behavior increases when they have people around who find green consumption important (H1b: Subjective norms regarding green product consumption predict positively purchase Intention for Green Products.).

Perceived effectiveness of environmental behavior, which is also referred to as perceived behavioral control in many other studies, was found as a significant determinant of measuring one's purchase intentions regarding green products (H1e: Perceived Effectiveness of Environmental Behavior predicts positively purchase Intention for Green Products.). As it was also stated by Ajzen (1991), it was proven that one's beliefs regarding the particular action would lead to a difference affect the intention towards a behavior. Moreover, as proven by the theory of planned behavior, to see whether one's level of

perceived effectiveness of environmental behavior would be influential in shaping the positive attitudes regarding green consumption behavior, I conducted an extra analysis. Contrary to previous findings (Tan & Lau, 2011), results were not significant enough to support this hypothesis regarding the relationship between perceived effectiveness of environmental behavior and one's level of positive attitudes about green consumption behavior (H2c: Perceived Effectiveness of Environmental Behavior predicts positively Attitude toward green products.).

As one of the extra factors of the theory of planned behavior, I investigated the relationship between the perceived environmental responsibility and its impacts on one's green purchase intention. Findings supported that perceived environmental responsibility was able to determine one's intentions regarding green consumption behavior (H1d: Perceived Environmental Responsibility predicts positively purchase Intention for Green Products.). Additionally, compared to perceived effectiveness of environmental behavior, perceived environmental responsibility was a better predictor of one's green purchase intentions. Additionally, perceived environmental responsibility was also a better predictor than perceived effectiveness in determining green attitudes. Based on these findings, I could say that including additional variables such as perceived environmental responsibility helped us to have a better understanding of green consumer behavior since one fundamental component of the theory of planned behavior was not able to explain green attitudes and had a lower impact than perceived environmental responsibilities in terms of predicting consumers' intentions.

Even though based on previous studies, it was expected to find a relationship between perceived seriousness of environmental behavior and its effectiveness of predicting green purchase intentions (H1c: Perceived Seriousness of Environmental Problems predicts positively purchase Intention for Green Products.); it was the only variable among the other components of the extended theory of planned behavior that was found not significant enough to make any prediction regarding green purchase intentions. However, it was found as the strongest predictor of green attitudes (H2a: Perceived Seriousness of Environmental Problems predicts positively Attitude toward green products.).

As mentioned, since the theory of planned behavior is a self-interest theory, it cannot explain the green consumption behavior in terms of its social importance. Therefore, I

tested the prosocial values' effectiveness on green purchase intention to see how individuals' prosocial values can impact their intentions regarding green consumption behavior. Findings support that people who have higher prosocial values would be more likely to engage in green consumption behavior (H3a: Prosocial behavior predicts positively purchase Intention for Green Products.). Moreover, prosocial values' effectiveness was stronger than the perceived effectiveness of environmental behavior and perceived environmental responsibility. This result could be interpreted as people have more tendency to engage in pro-environmental behaviors when it benefits other people more rather than themselves.

Finally, temporal discounting was tested to measure if people's future perception would make any difference in their intentions. However, the findings were not significant enough to make any interpretation (H4a: Temporal Discounting is positively and significantly associated with purchase intention for green products.). Despite the fact that temporal discounting could not predict the green purchase intention was somewhat surprising, literature provides mixed results regarding temporal discounting in predicting several outcomes. For instance, Chapman (1996b) found that contrary to what expected, temporal discounting could not explain health behavior. His findings were a lack of correlation between health and money discount rates, which could be interpreted as temporal discounting could not predict one's possibility of engaging in healthy behavior. However, temporal discounting is only measuring people's perception regarding monetary choices; in that case, domain difference (environmental behavior vs. monetary choices) might be a factor that causes a lack of significance in the study. Instead of using domain dependence measurements, creating a context-dependence measurement that includes the context-related domain, the situation's features might lead to different results in predicting green purchase intention.

After temporal discounting was found insignificant in predicting green purchase another analysis was run to observe the relationship between temporal discounting and green attitudes. As it is supported by the literature (Hardisty & Weber, 2009), temporal discounting was found significant in predicting green attitudes. Because temporal discounting was calculated using a logarithmic scoring system, the highest value was -.6, which indicates orienting in immediate rewards, whereas the lowest was -3.8 means focusing on future rewards. The findings of the simple linear regression indicate that more

future-oriented people would have lower tendencies to have a higher level of green attitudes towards purchasing green products. The literature (Hardisty & Weber, 2009) can also support previous findings that future-oriented people would have lower tendencies to take action since they do not internalize the adverse impacts of environmental change as much as present-oriented people. However, since temporal discounting was not found significant in predicting green purchase intention, further research should focus on the link between temporal discounting, green attitudes, and green purchase intention to have better comprehension.

Three *t*-tests were conducted to see if the demographic backgrounds would define any difference between different groups. The common characteristics of all analyses were neither of the groups had an equal sample size; therefore, instead of using Student's *t*-test, Welch's *t*-test was preferred to overcome this barrier also because of the increasing support of using Welch's *t*-test in the literature (Delacre, Lakens, & Leys, 2017; Delacre, Leys, Mora, & Lakens, 2019).

The gender difference was found as a significant factor in people's green purchase intention. Female participants have more tendency than male participants in terms of preferring green products, which can also be supported by several literature findings (Lee, 2009; Sheikh, Mirza, Aftab, & Ashgar, 2014; Sreen, Purbey, & Sadarangani, 2018). Building on that, gender socialization theory claims that boys and girls experience different socialization processes starting from early childhoods and consequently develop different social expectations and values regarding the world (Gilligan, 1982). Therefore, similar to other studies, this study supports this difference regarding green product consumption preferences. However, the difference between the two genders is not dramatically different from each other, which could be interpreted as people, in general, are becoming more conscious about environmental problems that lead them to have a higher level of purchase intention regarding green products.

Even though it is expected that those with a higher level of education would have more tendency to engage in green consumption behavior, while some studies support this claim (Rahim et al., 2015), some claim the opposite (Afzaal, 2012). Besides, it was also found that those with higher educational levels are more skeptical regarding green advertisements' campaigns, while some prefer to consume green products (Morel, 2012). Therefore, I conducted Welch's *t*-test to see any difference in green purchase intention

based on educational level. The findings suggest that people with the lowest educational degree have the highest level of intention regarding green products, whereas people with the highest educational degree. However, it is impossible to state anything particular based on this finding because only 4 people with the lowest educational level participated in to study while this number is almost three times higher in people with the highest educational level. Nevertheless, people with doctorate degrees have the lowest level of intention regarding green products and could be explained by the previous study's findings. The higher the level of education people achieve, the more conscious they will become regarding the products' advertisements, which could affect the green purchase intention (Morel, 2012). However, further research is necessary to understand the impact of education on green purchase intention.

To see if nationality would lead to any difference in green purchase intention among participants from different countries, Welch's *t*-test was conducted among Portuguese, Turkish, and Brazilian participants. Only three nationalities were selected because even though this study includes several participants from different countries (See Appendix – C), they were not enough to form a significant number of people. However, the results were not significant, indicating no difference between Portuguese, Turkish and Brazilian consumers.

Like any other research, this dissertation is no exception to having some inherent limitations. One of the most significant limitations of this dissertation regarding predicting the green purchase intention is that it was a self-reporting research that might cause self-reporting biases in participants' responses. Even though researchers use questionnaires and interviews by relying on participants' real responses, the reality might not be like that all the time. Many participants tend to give socially desirable responses in order to create better images of themselves (Van de Mortel, 2008). Sometimes participants might provide "fake" information to conform to socially acceptable values to gain social approval and prevent themselves from criticism at the same time, which mostly happens during socially sensitive questions (King & Brunner, 2000). It is also frequently seen in environmental behavior studies, which also creates a big gap between people's willingness to engage in an activity and the actual ratio of performing particular behavior (Vesely & Klöckner, 2020).

Environmental behavior is considered a part of moral behavior. Thus, it is not unlikely that it creates biases in people's responses due to the fact that people would like to create better impressions of themselves (Vesely & Klöckner, 2020). Therefore, social desirability bias should not be ignored when interpreting this dissertation. Experimental studies are frequently preferred to measure pro-environmental behavior while minimizing the impacts of social desirability bias as much as possible. Therefore, changing the research design to an experimental design in which a real-life market setting with a set of prosocial activities following the temporal decision questionnaire would lead to more comprehensive results. Although this study was not financed, the survey was the best option to measure green purchase intention.

A second limitation that can be pointed out is that this dissertation uses cross-sectional data, which, by default, creates a problem in the generalization of results across other segments. For that matter conducting a longitudinal design in future studies would provide more concrete, better understanding. Moreover, even though purchase intentions are granted as the best predictor of actual behavior (Fishbein & Ajzen, 2005) and their effectiveness have been proven many times in several studies (Moon et al., 2019; Niaura, 2013; Heath & Gifford, 2002); measuring the actual behavior by conducting an experimental study would provide more concrete results regarding green consumption behavior.

Gender and educational background were significant in green purchase intention differences. However, when gender difference supports the findings in the literature, there is no full consensus on how educational background can facilitate green purchase intentions. Even though one reason might be related to their consciousness towards green marketing campaigns, the reason has not yet been completely known. Moreover, in the survey, no definition of green products and pro-environmental behavior was provided, which could be accepted as another limitation of the study. It would lead to some misunderstandings of the questionnaires and the possible problems in responses. To overcome these limitations, a brief definition of related terminology would be provided following by a small quiz in order to measure whether participants have enough knowledge about the concept of green consumption. In order to prevent those risks, future studies should consider those limitations.

Chapter 6: Conclusion

This study took an attempt to bring an explanation to green purchase intention by using several strategies. It provides essential and useful insights into how the extended theory of planned behavior and prosocial values can be practical in predicting customers' green purchase intention. Even though this study could not provide any insights regarding the role of temporal discounting in predicting green purchase intentions, it contributes to the literature on the importance of prosocial values for understanding green consumption behavior and the importance of temporal discounting for understanding green attitudes. The results of this dissertation confirm that the suggested model of the extended theory of planned behavior with prosocial values can be used to predict green purchase intention. Moreover, including extra components to the suggested model led to a broader understanding of green purchase intentions considering the model is now also focusing on prosocial aims of the pro-environmental behavior as well as environmental perception.

This study can be taken as a continuation of previous studies about using the theory of planned behavior, prosocial behavior, and temporal discounting to understand green consumption behavior. Including extra components helped us better understand green purchase intention, especially since the studies on green consumption behavior are relatively recent than the other areas of environmental behavior (Nguyen, Nguyen, Hoang, 2018). In light of this study's findings, we can say that including how people perceive environmental problems and how they give importance to benefit others has brought a different spotlight on green consumer behavior.

This study's results can lead us to design better policies, education programs that can include the components measured to attract individuals in terms of improving their green consumption intentions. This study could be considered as the first step of a new model that could be developed in the future, specifically for understanding green behavior.

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Appendix – A: Questionnaires

Demographics Questionnaire

1. What is your age?
2. What is your gender?
 - Male
 - Female
 - Prefer not to answer
3. What is your nationality?
4. What is the highest degree or level of school you have completed?
 - Less than high school
 - High school graduate
 - 2-year degree
 - 4-year degree
 - Master's degree
 - Doctorate
5. What is your area of employment?
6. What is your marital status?
 - Single
 - Living together, but not married
 - Married or customary marriage
 - Widowed
 - Separated or Divorced

Perceived seriousness of environmental seriousness

(Lee, 2008)

Please identify the best-fit option for you. Answer each item using a 7-point scale where 1 means “strongly disagree” and 7 means “strongly agree”.

1. I think environmental problems are very serious
2. Environmental problems need to be dealt urgently

3. I think environmental problems are worsening.
4. Environmental problems are threatening to our health.
5. Environmental problems are not as important as people talk. (R)
6. I think that environmental problems only seem important because it is a hot topic.
(R)

Perceived environmental responsibility

(Moon, Mohel, & Farooq, 2019)

Please identify the best-fit option for you. Answer each item using a 7-point scale where 1 means “strongly disagree” and 7 means “strongly agree”.

1. I should be responsible for protecting our environment.
2. Environmental protection starts with me.
3. I have a huge responsibility in protecting the environment.
4. It is not my duty to change environmental problems. (R)
5. I think we are not doing enough to save scarce natural resources from being used up.

Perceived effectiveness of environmental behavior

(Lee, 2008)

Please identify the best-fit option for you. Answer each item using a 7-point scale where 1 means “strongly disagree” and 7 means “strongly agree”.

1. I think if I carry out some pro-environmental behaviors in my everyday life, I would contribute a lot to our environment.
2. I think my participation in environmental protection would influence my family and friends to participate too.

Green attitude

(Moon, Mohel, & Farooq, 2019; Milfont & Duckitt, 2006)

Please identify the best-fit option for you. Answer each item using a 7-point scale where 1 means “strongly disagree” and 7 means “strongly agree”.

1. I like the idea of purchasing environmental friendly products.
2. I have a favorable attitude towards purchasing a green version of a product.
3. I am opposed to governments controlling and regulating the way raw materials are used in order to try and make them last longer. (R)
4. Whenever possible, I try to save natural resources
5. I do not believe that the environment has been severely abused by humans. (R)
6. I would NOT get involved in an environmentalist organization. ®

Green subjective norms

Please identify the best-fit option for you. Answer each item using a 7-point scale where 1 means “strongly disagree” and 7 means “strongly agree”.

(Mancha & Yoder, 2015; Moon, Mohel, & Farooq, 2019)

1. People who influence my decisions think that I should purchase green products.
2. People who are important to me think that I should purchase green products.
3. People who are important to me want me to be environmentally friendly.
4. People whose opinion I value think that it is important to reduce waste
5. I feel under social pressure to preserve the environment
6. People who I admire engage in the protection of the environment.

Green purchase intention

(Straughan & Roberts, 1999; Moon, Mohel, & Farooq, 2019)

Please identify the best-fit option for you. Answer each item using a 7-point scale where 1 means “strongly disagree” and 7 means “strongly agree”.

1. Over the next one month, I will consider buying products because they are less polluting.
2. Over the next one month, I will consider switching to other brands for ecological reasons.
3. Over the next one month, I plan to switch to a green version of a product.

Please identify the best-fit option for you. Answer each item using a 7-point scale where 1 means “never” and 7 means “always”.

1. How often do you intentionally buy organic or eco-labelled product?
2. I avoid buying products that have excessive packaging.
3. When there is a choice, I prefer the product that causes the least pollution.
4. I make effort to buy paper products made from recycled paper
5. Whenever possible, I buy products packaged in reusable containers.
6. I try to buy products that can be recycled.
7. I have convinced members of my family or friends not to buy some products which are harmful to the environment.
8. I have switched products / brands for ecological reasons.

General prosocial attitudes

(Penner, Fritzsche, Craiger, & Freifeld, 1995)

Please identify the best-fit option for you. Answer each item using a 7-point scale where 1 means “strongly disagree” and 7 means “strongly agree”.

1. I am available for volunteer activities to help those who are in need.
2. The well-being of others is important.
3. I easily put myself in the shoes of those who are in discomfort.
4. I easily lend money or other things.
5. I immediately sense my friends’ discomfort even when it is not directly communicated to me.

6. I am willing to make my knowledge and abilities available to others.
7. People pretend to care more about one another than they really do.
8. I would stop and help a person whose car is disabled.
9. I easily share with friends any good opportunity that comes to me.
10. I help immediately those who are in need.
11. I do what I can to help others avoid getting into trouble.
12. I take care of someone's child, animal, or home for free
13. I volunteer for a philanthropic organization.

Monetary-Choice Questionnaire (MCQ-27)

(Kirby, Petry & Bickel, 1999)

For each of the next 27 choices, please indicate which reward you would prefer: the smaller reward today or the larger reward in the specified number of days.

1. \$54 today or \$55 in 117 days?
2. \$55 today or \$75 in 61 days?
3. \$19 today or \$25 in 53 days?
4. \$31 today or \$85 in 7 days?
5. \$14 today or \$25 in 19 days?
6. \$47 today or \$50 in 160 days?
7. \$15 today or \$35 in 13 days?
8. \$25 today or \$60 in 14 days?
9. \$78 today or \$80 in 162 days?
10. \$40 today or \$55 in 62 days?
11. \$11 today or \$30 in 7 days?
12. \$67 today or \$75 in 119 days?
13. \$34 today or \$35 in 186 days?
14. \$27 today or \$50 in 21 days?
15. \$69 today or \$85 in 91 days?
16. \$49 today or \$60 in 89 days?

17. \$80 today or \$85 in 157 days?
18. \$24 today or \$35 in 29 days?
19. \$33 today or \$80 in 14 days?
20. \$28 today or \$30 in 179 days?
21. \$34 today or \$50 in 30 days?
22. \$25 today or \$30 in 80 days?
23. \$41 today or \$75 in 20 days?
24. \$54 today or \$60 in 111 days?
25. \$54 today or \$80 in 30 days?
26. \$22 today or \$25 in 136 days?
27. \$20 today or \$55 in 7 days?

Appendix – B: Data Preparation

Table – 7

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.9411	11.3085	6.8522	1.44290	436
Std. Predicted Value	-2.711	3.088	.000	1.000	436
Standard Error of Predicted Value	.791	2.391	1.327	.297	436
Adjusted Predicted Value	2.8619	12.2991	6.8800	1.56378	436
Residual	-6.41457	11.63979	.00000	3.22332	436
Std. Residual	-1.835	3.330	.000	.922	436
Stud. Residual	-2.089	3.482	-.004	.996	436
Deleted Residual	-8.47947	12.72349	-.02788	3.77466	436
Stud. Deleted Residual	-2.098	3.536	-.003	1.000	436
Mahal. Distance	21.280	202.563	64.851	31.065	436
Cook's Distance	.000	.049	.003	.004	436
Centered Leverage Value	.049	.466	.149	.071	436

a. Dependent Variable: random

Table – 8

Coefficients^a

Model	Collinearity Statistics	
	Tolerance	VIF
1 MC1	.451	2.219
MC2	.354	2.827
MC3	.409	2.444
MC4	.467	2.142
MC5	.441	2.267
MC6	.333	3.004
MC7	.371	2.694
MC8	.381	2.628
MC9	.134	7.485
MC10	.273	3.661

MC11	.439	2.278
MC12	.262	3.810
MC13	.164	6.084
MC14	.310	3.229
MC15	.274	3.653
MC16	.274	3.655
MC17	.243	4.109
MC18	.310	3.230
MC19	.383	2.608
MC20	.290	3.449
MC21	.236	4.243
MC22	.277	3.613
MC23	.329	3.043
MC24	.254	3.937
MC25	.270	3.704
MC26	.288	3.475
MC27	.496	2.016
PS1	.241	4.147
PS2	.208	4.806
PS3	.497	2.011
PS4	.493	2.030
PS5	.391	2.556
PS6	.412	2.429
PER1	.450	2.224
PER2	.430	2.326
PER3	.392	2.550
PER4	.564	1.773
PER5	.653	1.531
PEEB1	.490	2.040
PEEB2	.485	2.060
GA1	.280	3.572
GA2	.316	3.169
GA3	.703	1.423
GA4	.460	2.173
GA5	.554	1.805
GA6	.578	1.729
GSN1	.389	2.570
GSN2	.255	3.914
GSN3	.285	3.508

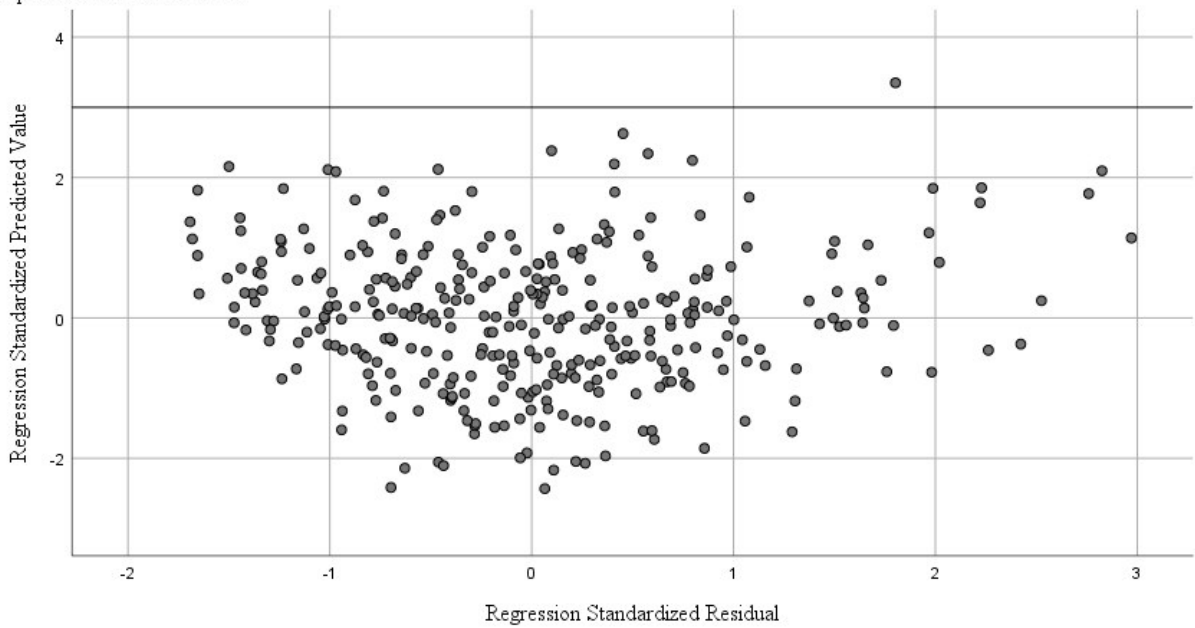
GSN4	.356	2.808
GSN5	.698	1.433
GSN6	.459	2.178
PV1	.479	2.086
PV2	.467	2.141
PV3	.593	1.687
PV4	.672	1.489
PV5	.649	1.540
PV6	.501	1.998
PV7	.758	1.320
PV8	.642	1.557
PV9	.553	1.808
PV10	.398	2.513
PV11	.535	1.870
PV12	.532	1.879
PV13	.504	1.985

a. Dependent Variable: random

Figure 1

Scatterplot

Dependent Variable: random



Appendix – C: Demographic Analyses of Participants

Table 9

What is your gender?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	130	38.6	38.6	38.6
	Female	205	60.8	60.8	99.4
	Prefer not to say	2	.6	.6	100.0
	Total	337	100.0	100.0	

Table 10

Descriptive Statistics

	N	Minimum	Maximum	Mean	SD
What is your age?	337	18	65	28.65	9.519
Valid N (listwise)	337				

Table 11

What is your age?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	2	.6	.6	.6
	19	8	2.4	2.4	3.0
	20	19	5.6	5.6	8.6
	21	24	7.1	7.1	15.7
	22	34	10.1	10.1	25.8
	23	31	9.2	9.2	35.0
	24	24	7.1	7.1	42.1
	25	41	12.2	12.2	54.3
	26	14	4.2	4.2	58.5
	27	15	4.5	4.5	62.9
	28	16	4.7	4.7	67.7
	29	15	4.5	4.5	72.1
	30	13	3.9	3.9	76.0
	31	3	.9	.9	76.9
	32	5	1.5	1.5	78.3
	33	5	1.5	1.5	79.8
	34	5	1.5	1.5	81.3

35	2	.6	.6	81.9
36	5	1.5	1.5	83.4
37	3	.9	.9	84.3
38	2	.6	.6	84.9
39	6	1.8	1.8	86.6
40	3	.9	.9	87.5
41	3	.9	.9	88.4
43	2	.6	.6	89.0
44	4	1.2	1.2	90.2
45	3	.9	.9	91.1
46	4	1.2	1.2	92.3
47	1	.3	.3	92.6
48	5	1.5	1.5	94.1
49	3	.9	.9	95.0
50	2	.6	.6	95.5
52	1	.3	.3	95.8
53	2	.6	.6	96.4
56	1	.3	.3	96.7
57	2	.6	.6	97.3
58	4	1.2	1.2	98.5
59	2	.6	.6	99.1
60	2	.6	.6	99.7
65	1	.3	.3	100.0
Total	337	100.0	100.0	

Table 12

What is your nationality?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Albanian	1	.3	.3	.3
	American & Portuguese	1	.3	.3	.6
	Angolan	1	.3	.3	.9
	Austrian	1	.3	.3	1.2
	Belgian	1	.3	.3	1.5
	Brazilian	14	4.2	4.2	5.6
	British	9	2.7	2.7	8.3
	Chilean	1	.3	.3	8.6
	Chinese	1	.3	.3	8.9

Colombian	3	.9	.9	9.8
Congolese	1	.3	.3	10.1
Croatian	1	.3	.3	10.4
Dutch	9	2.7	2.7	13.1
French	11	3.3	3.3	16.3
French/German	1	.3	.3	16.6
German	11	3.3	3.3	19.9
German/Algerian	1	.3	.3	20.2
Ghanaian	1	.3	.3	20.5
Greek	3	.9	.9	21.4
HK	1	.3	.3	21.7
Hungarian	3	.9	.9	22.6
Indian	1	.3	.3	22.8
Irish	1	.3	.3	23.1
Israeli	1	.3	.3	23.4
Italian	6	1.8	1.8	25.2
Japan	1	.3	.3	25.5
Kurdish	2	.6	.6	26.1
Macedonian	1	.3	.3	26.4
Nigeria	1	.3	.3	26.7
Norwegian	1	.3	.3	27.0
Pakistan	1	.3	.3	27.3
Panamanian	1	.3	.3	27.6
Polish	7	2.1	2.1	29.7
Portuguese	53	15.7	15.7	45.4
Portuguese and British	1	.3	.3	45.7
Romanian	8	2.4	2.4	48.1
Slovak	2	.6	.6	48.7
South African	2	.6	.6	49.3
Spanish	6	1.8	1.8	51.0
Swedish	3	.9	.9	51.9
Turkish	142	42.1	42.1	94.1
Turkish Armenian	1	.3	.3	94.4
Turkish. Romanian	1	.3	.3	94.7
Turkish/Canadian	1	.3	.3	95.0
Ugandan	7	2.1	2.1	97.0
USA	10	3.0	3.0	100.0
Total	337	100.0	100.0	

Table 13

What is the highest degree or level of school you have completed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than high school	4	1.2	1.2	1.2
	High school graduate	84	24.9	24.9	26.1
	2-year degree	25	7.4	7.4	33.5
	4-year degree	129	38.3	38.3	71.8
	Master's degree	83	24.6	24.6	96.4
	Doctorate	12	3.6	3.6	100.0
	Total	337	100.0	100.0	

Appendix – D: Exploratory Demographic Information in Green Purchase Intention

Table 14

Test of Homogeneity of Variances of Gender and GPI

		Levene	df1	df2	Sig.
		Statistic			
GPI	Based on Mean	4.106	2	334	.017
	Based on Median	3.353	2	334	.036
	Based on Median and with adjusted df	3.353	2	318.643	.036
	Based on trimmed mean	4.004	2	334	.019

Table 15

Descriptives of Gender Differences on GPI

	N	Mean	SD	SE	95% CI for Mean		Min	Max
					LL	UL		
Male	130	4.5490	1.24383	.10909	4.3331	4.7648	1.00	7.00
Female	205	5.0670	1.02615	.07167	4.9257	5.2083	2.18	7.00
Prefer not to say	2	2.5909	.83567	.59091	-4.9173	10.0991	2.00	3.18
Total	337	4.8524	1.15305	.06281	4.7289	4.9760	1.00	7.00

Table 16

Post Hoc Test: Multiple Comparisons

Dependent Variable: GPI

Games-Howell

(I) What is your gender?	(J) What is your gender?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Male	Female	-.51801*	.13053	.000	-.8259	-.2102
	Prefer not to say	1.95804	.60089	.266	-7.7972	11.7132
Female	Male	.51801*	.13053	.000	.2102	.8259
	Prefer not to say	2.47605	.59524	.217	-8.0909	13.0430
Prefer not to say	Male	-1.95804	.60089	.266	-11.7132	7.7972

Female -2.47605 .59524 .217 -13.0430 8.0909

*. The mean difference is significant at the 0.05 level.

Table 17

Test of Homogeneity of Variances of Educational Level and GPI

		Levene	df1	df2	Sig.
		Statistic			
GPI	Based on Mean	.685	5	331	.635
	Based on Median	.455	5	331	.809
	Based on Median and with adjusted df	.455	5	287.055	.809
	Based on trimmed mean	.659	5	331	.655

Table 18

Descriptives of Education Level on GPI

GPI		95% Confidence Interval for Mean						
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Less than high school	4	6.1364	.68635	.34317	5.0442	7.2285	5.18	6.64
High school graduate	84	4.7522	1.09258	.11921	4.5151	4.9893	1.64	6.91
2-year degree	25	4.6909	1.07917	.21583	4.2455	5.1364	3.09	7.00
4-year degree	129	4.8569	1.13805	.10020	4.6587	5.0552	2.00	7.00
Master's degree	83	5.0110	1.16985	.12841	4.7555	5.2664	1.00	7.00
Doctorate	12	4.3182	1.55708	.44949	3.3289	5.3075	1.00	6.82
Total	337	4.8524	1.15305	.06281	4.7289	4.9760	1.00	7.00

Table 19

Post hoc Test: Multiple Comparisons

Dependent Variable: GPI

Games-Howell

(I) What is the highest degree or	(J) What is the highest degree or	Std. Error	Sig.	95% Confidence Interval
-----------------------------------	-----------------------------------	------------	------	-------------------------

level of school you have completed?	level of school you have completed?	Mean Difference (I-J)			Lower Bound	Upper Bound
Less than high school	High school graduate	1.38420	.36329	.107	-.3970	3.1654
	2-year degree	1.44545	.40540	.082	-.1944	3.0853
	4-year degree	1.27942	.35750	.137	-.5409	3.0998
	Master's degree	1.12541	.36641	.187	-.6372	2.8880
	Doctorate	1.81818	.56552	.062	-.0743	3.7107
High school graduate	Less than high school	-1.38420	.36329	.107	-3.1654	.3970
	2-year degree	.06126	.24657	1.000	-.6767	.7992
	4-year degree	-.10478	.15573	.985	-.5533	.3438
	Master's degree	-.25879	.17521	.679	-.7641	.2465
	Doctorate	.43398	.46503	.930	-1.1158	1.9837
2-year degree	Less than high school	-1.44545	.40540	.082	-3.0853	.1944
	High school graduate	-.06126	.24657	1.000	-.7992	.6767
	4-year degree	-.16603	.23796	.981	-.8829	.5508
	Master's degree	-.32004	.25114	.797	-1.0694	.4293
	Doctorate	.37273	.49862	.973	-1.2307	1.9762
4-year degree	Less than high school	-1.27942	.35750	.137	-3.0998	.5409
	High school graduate	.10478	.15573	.985	-.3438	.5533
	2-year degree	.16603	.23796	.981	-.5508	.8829
	Master's degree	-.15401	.16288	.934	-.6235	.3154
	Doctorate	.53876	.46052	.843	-1.0056	2.0831
Master's degree	Less than high school	-1.12541	.36641	.187	-2.8880	.6372
	High school graduate	.25879	.17521	.679	-.2465	.7641
	2-year degree	.32004	.25114	.797	-.4293	1.0694
	4-year degree	.15401	.16288	.934	-.3154	.6235
	Doctorate	.69277	.46747	.681	-.8601	2.2456
Doctorate	Less than high school	-1.81818	.56552	.062	-3.7107	.0743
	High school graduate	-.43398	.46503	.930	-1.9837	1.1158

2-year degree	-.37273	.49862	.973	-1.9762	1.2307
4-year degree	-.53876	.46052	.843	-2.0831	1.0056
Master's degree	-.69277	.46747	.681	-2.2456	.8601
